The Balzan Prizewinners’ Research Projects:
An Overview
2014
## Contents

**The International Balzan Foundation** ............................................................... Pag. 7

**The Balzan Prizewinners’ Research Projects:**
*An Overview*
2014

**Introduction by the Chairman of the Balzan General Prize Committee**
Salvatore Veca ................................................................................................... » 11

**Editor’s Note** ................................................................................................ » 13

**Literature, Moral Sciences, and the Arts**
James Ackerman ............................................................................................... » 17
Bronislaw Baczko ............................................................................................ » 20
Manfred Brauneck .......................................................................................... » 24
Peter Robert Lamont Brown ........................................................................ » 30
Maurizio Calvesi ............................................................................................ » 36
Manuel Castells ............................................................................................... » 40
Terence Cave .................................................................................................... » 43
Ronald Dworkin .............................................................................................. » 50
Ludwig Finscher ............................................................................................... » 55
Marc Fumaroli .................................................................................................. » 58
Carlo Ginzburg ................................................................................................ » 62
Anthony Grafton ............................................................................................... » 65
Peter Hall ......................................................................................................... » 69
Rosalyn Higgins ................................................................. Pag.  72
Eric Hobsbawm ........................................................................................................................................ 76
Nikki Keddie .............................................................................................................................................. 81
Lothar Ledderose ........................................................................................................................................ 85
Serge Moscovici ........................................................................................................................................... 89
Thomas Nagel ................................................................................................................................................ 94
Colin Renfrew ............................................................................................................................................... 100
Paolo Rossi Monti ....................................................................................................................................... 105
Dominique Schnapper ............................................................................................................................... 112
Quentin Skinner ........................................................................................................................................... 116
Reinhard Strohm .......................................................................................................................................... 120
André Vauchez ............................................................................................................................................. 125
Michel Zink .................................................................................................................................................. 127

Physical, Mathematical and Natural Sciences, and Medicine
Alain Aspect .................................................................................................................................................. 133
David Baulcombe ........................................................................................................................................ 135
Bruce Beutler (with Jules Hoffmann) ........................................................................................................ 137
Wallace Broecker ........................................................................................................................................ 140
Jean-Pierre Changeux .................................................................................................................................. 144
Pascale Cossart ............................................................................................................................................ 147
Paolo de Bernardis (with Andrew Lange) ..................................................................................................... 148
Pierre Deligne ............................................................................................................................................... 157
Ian Frazer ...................................................................................................................................................... 164
Walter Gehring ............................................................................................................................................ 168
Reinhard Genzel .......................................................................................................................................... 171
Peter and Rosemary Grant ........................................................................................................................ 175
Michael Grätzel ........................................................................................................................................... 179
Russell Hemley (with Ho-Kwang Mao) ...................................................................................................... 183
Jules Hoffmann (with Bruce Beutler) ........................................................................................................ 137
Sumio Iijima .................................................................................................................................................. 191
Kurt Lambeck .............................................................................................................................................. 193
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russell Scott Lande</td>
<td>197</td>
</tr>
<tr>
<td>Andrew Lange (<em>with Paolo de Bernardis</em>)</td>
<td>148</td>
</tr>
<tr>
<td>Xavier Le Pichon</td>
<td>200</td>
</tr>
<tr>
<td>Wen-Hsiung Li</td>
<td>203</td>
</tr>
<tr>
<td>Claude Lorius</td>
<td>207</td>
</tr>
<tr>
<td>Ho-Kwang Mao (<em>with Russell Hemley</em>)</td>
<td>183</td>
</tr>
<tr>
<td>Michael Marmot</td>
<td>214</td>
</tr>
<tr>
<td>Elliot Meyerowitz (<em>with Christopher Somerville</em>)</td>
<td>218</td>
</tr>
<tr>
<td>Brenda Milner</td>
<td>222</td>
</tr>
<tr>
<td>Jacob Palis</td>
<td>226</td>
</tr>
<tr>
<td>Joseph Ivor Silk</td>
<td>231</td>
</tr>
<tr>
<td>Christopher Somerville (<em>with Elliot Meyerowitz</em>)</td>
<td>218</td>
</tr>
<tr>
<td>Shinya Yamanaka</td>
<td>238</td>
</tr>
</tbody>
</table>

**Index**

<table>
<thead>
<tr>
<th>Category</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions</td>
<td>245</td>
</tr>
<tr>
<td>People</td>
<td>255</td>
</tr>
</tbody>
</table>

**Organization of the International Balzan Foundation**

The Balzan Foundation “Prize”
- Board                                   | 269  |
- General Prize Committee                 | 269  |

The Balzan Foundation “Fund”
- Board                                  | 270  |

**Balzan Prizes (1961-2013)**

- Literature, Moral Sciences, and the Arts; Physical, Mathematical and Natural Sciences, and Medicine | 273  |
- Peace, Humanity and Fraternity among Peoples                              | 279  |
The International Balzan Foundation

The International Balzan Foundation was established in Lugano in 1956 thanks to the generosity of Lina Balzan. She decided to dedicate the estate left by her father, to benefit society and thus to honour his memory.

Eugenio Francesco Balzan was born in Badia Polesine, near Rovigo (Northern Italy), on 20 April 1874 into a family of landed gentry. He spent almost his entire working life at Milan’s leading daily newspaper, Corriere della Sera. After joining the paper in 1897, he quickly worked his way up from editorial assistant to news editor and special correspondent. In 1903 editor Luigi Albertini appointed him managing director of the paper’s publishing house; he then became a partner and shareholder in the company. He was not only a resourceful manager but also a leading personality in Milanese society. In 1933 he left Italy due to opposition from certain quarters hostile to an independent Corriere, moving to Switzerland, where he lived in Zurich and Lugano. He engaged in charitable activities supporting many worthy causes. He officially returned to Italy in 1950. Eugenio Balzan died in Lugano, Switzerland, on 15 July 1953.

The International E. Balzan Prize Foundation “Prize” aims to promote, throughout the world, culture, science, and the most meritorious initiatives in the cause of humanity, peace and fraternity among peoples, regardless of nationality, race or creed. This aim is attained through the annual award of prizes in two general fields: literature, the moral sciences and the arts; medicine and the physical, mathematical and natural sciences.

Nominations for the prizes in the scientific and humanistic fields are received at the Foundation’s request from the world’s leading academic institutions. Candidates are selected by the General Prize Committee, composed of eminent European scholars.

and scientists. Prizewinners must allocate half of the Prize to research work, preferably involving young researchers.

At intervals of not less than three years, the Balzan Foundation also awards a prize of varying amounts for humanity, peace and fraternity among peoples.

The International E. Balzan Prize Foundation “Prize” attains its financial means from the International E. Balzan Prize Foundation “Fund”, which administers Eugenio Balzan’s estate.
The Balzan Prizewinners’ Research Projects:

An Overview
Introduction by the Chairman of the Balzan General Prize Committee

Salvatore Veca

The Balzan Research Projects are an integral part of the Balzan Prize and are the one element that marks the Balzan Prize out from other international awards. The projects go a long way in fulfilling the central aims of the Balzan Foundation as elaborated by Lina Balzan: to promote culture, the sciences and the most meritorious initiatives in the cause of humanity and peace among peoples throughout the world. Since 2001, half of each annual Balzan Prize has been set aside to support a research project developed by the Prizewinner and approved by the Balzan General Prize Committee. The structure of each research project is determined by the prizewinner, and its management is the responsibility of an academic institution proposed by the Prizewinner. The Balzan General Prize Committee delegates one or more of its members to advise and assist Prizewinners in the definition and implementation of their projects. The projects are intended to give an opportunity to young researchers to make an impact at the beginning of their careers.

The sheer variety of projects undertaken to date is notable, ranging across all academic disciplines. Significant cutting edge research has emanated from these endeavours, with Balzan Prizes supporting the purchase of laboratory equipment and financing expeditions and the publication of major academic works. The variety and quality of this output one can readily observe in the lengthy bibliographies attached to the individual projects presented here. This output has also resulted in the establishment of a unique library at the headquarters of the Balzan Prize Foundation in Milan, which can be accessed by interested academics and researchers.

The total amount to date allocated to over fifty Balzan Research Projects is 26 million Swiss francs. A significant number of academic institutions and individual researchers worldwide have been involved in these research projects. This includes institutions from countries including Australia, Austria, Canada, France, Germany, Greece, Italy, Japan, Russia, Switzerland, The Netherlands, the UK and the USA. Over five hundred researchers and administrators have been involved, representing
an input from many other countries including China, Finland, India, Iran, Romania, Ukraine, Ireland and Poland.

I would like to convey my heartfelt thanks to all the staff at the Balzan Foundation “Prize” including Seamus Taggart and Clarice Zdanski for their efforts in editing this new edition.

July 2014
Editor’s Note

The overview is divided into two sections, following the essential division between the sciences and humanities that delineates the actual subjects of the Balzan Prizes. The entries for each Prizewinner are organized as follows: name, position; year, subject and citation; institution administering funds; adviser from the Balzan General Prize Committee; project description; names of researchers; publications; links (where relevant).
Literature, Moral Sciences, and the Arts
James Ackerman

Professor Emeritus, Harvard University, Cambridge, MA

2001 Balzan Prize for the History of Architecture (including town planning and landscape design)
For his outstanding work on the history of Renaissance architecture which contributed to the modern approach to architectural history based on a systematic critical examination of written and visual sources.

Institutions Administering Research Funds:
Centro Internazionale di Studi di Architettura “Andrea Palladio” (CISA)
American Academy in Rome

Adviser for the Balzan General Prize Committee: Dmitry O. Shvidkovsky

1. James Ackerman Award – Centro Internazionale di Studi di Architettura “Andrea Palladio”
Part of the second half of the Balzan Prize received by James Sloss Ackerman in 2001 went to the creation of the James Ackerman Award in the History of Architecture, made possible by Ackerman’s donation to the Centro Internazionale di Studi di Architettura “Andrea Palladio”. The James Ackerman Award was first conferred in 2005 for the publication of an important, original work in any period in the history of architecture by one or two scholars of any nationality who had not yet published any books. The texts selected by the Jury presided over by Ackerman himself were published in a series created for this purpose. The first James Ackerman Award was awarded to Leo Schubert for his book La villa Jeanneret-Perret di Le Corbusier, 1912. La prima opera autonoma, which was published in May 2006. The 2006 award went to Valeria Cafà for her book Palazzo Massimo alle Colonne di Baldassarre Peruzzi, which was published in May 2007. The winner of the 2007 award was Angela Dressen and her book Pavimenti decorati del Quattrocento in Italia, was published in May 2008. In 2008, the Prize was awarded to Federica Rossi for her book Palladio in Russia: Nikolaj L’vov, architetto e intellettuale russo al tramonto dei Lumi, published in 2010. The 2010 prize was won by Daniel McReynolds for his book Palladio’s Legacy. Architectural Polemics in Eighteenth-Century Venice, published in May 2011. In 2011 the Prize was awarded to David Rifkind for his
book *The Battle for Modernism: Quadrante and the Politicization of Architectural Discourse in Fascist Italy*, which was published in May 2012. The final prize, which was awarded in 2012, went to Matthew A. Cohen, whose volume *Beyond Beauty. Reexamining Architectural Proportion through the Basilicas of San Lorenzo and Santo Spirito in Florence* was published in 2013.

Members of the selection board included James S. Ackerman (President); Arnaldo Bruschi (1928-2009), past President of the CISA Scientific Council; Howard Burns, President of the CISA Scientific Council; Guido Beltramini, Director, CISA; Fernando Mariáns, Director of *Annali di architettura*, the CISA journal and two members of the CISA Scientific Council.

### 2. Summer School in Applied Palaeography - American Academy in Rome

The remainder of the second half of the Balzan Prize awarded to James Ackerman was destined to the creation of a Summer School in Applied Palaeography at the American Academy in Rome. The program focused on the analysis of texts from Roman antiquity to the Renaissance in Europe, and was consistent with Ackerman’s way of studying Renaissance architecture “based on a systematic critical examination of written and visual sources”, as the motivation for the Balzan Prize reads. The courses were offered free of charge to graduates and scholars; they did not necessarily have to be Americans, but were chosen according to their curricula. For six weeks they were the guests of the American Academy in Rome, one of the oldest American institutions abroad. Directed by Christopher S. Celenza, Professor of European history at the University of Michigan, the summer courses in Applied Palaeography took place in 2002, 2003 and 2005. Among the participants of the 2002 Summer School: Sandra Chang, Walter Cupperi (today at the Scuola Normale Superiore di Pisa), Federica Ciccolella, Frederick Lauritzen and Dana Munteanu. Other organizers and participants were (in 2003) Karl Appuhn, Antonio Ciaralli, Christine Huemer, Melissa Bullard, Armando Petrucci, John Petruccione, Charles M. Radding, Ingrid Rowland and Fabio Troncarelli; (in 2005) Lorenzo Calvelli, Eileen Jaxcsens, Jennifer Knust, Christine Kralik, Manu Radhakrishnan and Sonia Sabnis. Maria Pia Blasi (Biblioteca Nazionale di Roma) and Don Faustino Avagliano (Abbazia di Montecassino) facilitated the scholars’ work on the ancient manuscripts.
Acknowledgments:

Valeria Cafà, Matthew A. Cohen, Angela Dressen, Daniel McReynolds, David Rifkind, Federica Rossi, Leo Schubert

Publications:


Link:

www.premioackerman.it
Bronislaw Baczko

Honorary Professor at the Université de Genève

2011 Balzan Prize for Enlightenment Studies
For his contribution to philosophical reflection dedicated to Rousseau’s thought and to the study of the political and social consequences of the Enlightenment on the French Revolution.

Institution Administering Research Funds: Université de Genève

Adviser for the Balzan General Prize Committee: Dominique Schnapper

A Critical Dictionary of Utopia in the Century of the Enlightenment

There are a number of dictionaries devoted to the main utopian works and their authors, including meanings and literary topoi, in different eras. Specifically, there exist many works that identify, describe and analyze the corpus of works which constitute the European tradition of utopia. Texts, authors, patterns, themes and concepts have been presented in research of varying scope and focus. There will be no repetition of work already carried out, and no attempt to compete with relatively recent works, such as the Encyclopedia of Utopia and Science Fiction by Pierre Versins, The Dictionary of Literary Utopias, edited by Vita Fortunati and Raymond Trousson, or The Dictionary of Imaginary Places by Alberto Manguel and Gianni Guadalupi.

What researchers and teachers lack, however, is a tool that will critically evaluate the main concepts connected to the idea of utopia and the whole literary production it has engendered, something that offers accurate definitions and detailed analyses. The purpose of Bronislaw Baczko’s research project is to fill this gap with the publication of a collective reference work containing contributions from the most respected international scholars in the field. In carrying out this project, Bronislaw Baczko will work in tandem with his close associates Michel Porret, Professor of Modern History at the Université de Genève, and François Rosset, Dean of the Faculty of Arts at the Université de Lausanne.
Several features fundamentally distinguish this endeavour. First, the tradition of utopia is not treated in its full temporal and historical scope. Research is firmly concentrated on the Enlightenment (taking a broad interpretation of its timeline – from the second half of the seventeenth to the early nineteenth century). This *Dictionnaire critique* is based on a particular approach to utopia, regarded as a model of thought and speech which underlay the profoundly reformist tendencies of the eighteenth century. From this perspective, utopia functions as both a symbol and base underpinning that immense and complex movement that has been termed the Enlightenment. It offers images, motifs, narrative sequences, a rich array of common spaces which could give a recognizable and transferable consistency to products of the imagination in all areas that have exercised the spirit of reform. In regard to this mode of forward and visionary thinking, the concept of utopia has served as an inspiration and provided its own form of language, that is to say, providing a vocabulary, grammar, rhetoric and poetics.

From this perspective, the articles in the *Dictionnaire critique* do not deal with works or authors singularly. Rather, separate entries deal with the abstract concepts that define the horizon of utopia: happiness, freedom, equality, etc. Entries selected for this dictionary can be defined as follows: they concern objects that exerted significant influence on the reformist thinking of the Enlightenment, building on the literary tradition, philosophical and political aspects of utopia. Approximately fifty entries have been put together, which should permit the fullest possible expression of this milieu.

The directors of the project do not intend to give a fixed definition of utopia which might serve as a common matrix for the articles. Rather than a model or a determined object, the concept of utopia around which the authors are invited to think can be regarded as a set of discursive and narrative embodiments that provide a multifaceted body to this prospective and reformist thought process. Thus, the authors are free to define the approach they deem most appropriate.

The ambition is to publish a work edited with utmost care, enriched with an important iconography. The dictionary will consist of approximately sixty entries, written by forty-five different academics, and including the following: Amérique; Amour; Anciens et modernes; Anti-utopie; Architecture; Arts; Bible; Corps humain; Crime, Justice, Droit de punir; Droits de l’homme; Économie; Education; Esclavage; État; Famille – Enfant; Femme; Fêtes; Formes littéraires de l’utopie; Géographie; Guerre et Paix; Historiographie de l’utopie des Lumières; Illustration; Jardins; Langue;
The development of the project will involve graduate students from the École doctorale interdisciplinaire dix-huitiémiste of the Université de Genève, Université de Lausanne, Université de Neuchâtel, Université de Fribourg, Universität Bern. Workshops will be organized with the authors of the relevant articles and an international symposium on the subject of utopia, in collaboration with the Université de Genève and the Université de Lausanne, will be held to accompany publication at the end of the project.

The work of managing the project, drafting the articles, the overall elaboration of the index and bibliography, as well as the illustrations, will be entrusted to a coordinator appointed for a period of two years. Thus far, thirty-eight articles out of the fifty-nine in the editorial plan have been received, and publication of the work by Les éditions Georg of Geneva is planned for 2015.

**Researchers:**
Bronislaw Baczko, Michel Porret, François Rosset – Directors of the project
Mirjana Farkas – Coordinator

Academics engaged in the project:
Jean-Christophe Abramovicí (Université de Paris IV); Bronislaw Baczko (Université de Genève); Vincent Barras (Université de Lausanne); Pierre-Yves Beaurepaire (Université de Nice); Ugo Bellagamba (Université de Nice); Marc-André Bernier (Université du Québec); Marie-Françoise Bosquet (Université de La Réunion); Fabrice Brandli (Université de Genève); Joël Castonguay-Bélanger (University of British Columbia); Marco Cicchini (Université de Genève); Yves Citton (Université de Grenoble III); Deborah Cohen (Université d'Aix-Marseille); Julie Doyon (Université de Paris XIII); Jean Ehrard (Université de Clermont-Ferrand); Jérôme Ferrand (Université de Grenoble III); Vincenzo Ferrone (Università di Torino); Laurence Fontaine (CNRS); Vita Fortunati (Università di Bologna); Jean-Marie
Goulemot (Université de Tours); Antoine Hatzenberger (CNRS, Institut français d’Égypte); Audrey Higelin-Fusté (Université de Grenoble III); Girolamo Imbruglia (Università degli Studi di Napoli «l’Orientale»); Claire Jaquier (Université de Neuchâtel); Catherine Larrère (Université de Paris I); John Christian Laursen (University of Riverside); Antoine Lilti (ENS, Paris); Stéphane Lojkine (Université d’Aix-Marseille); Marco Marcacci (independant researcher, Bellinzona); Jean-Clément Martin (Université de Paris I); Didier Masseau (Université de Tours); Helder Mendes Baiao (Université de Lausanne); Anne-Marie Mercier-Faivre (Université de Lyon I); Christian Michel (Université de Lausanne); Vincent Milliot (Université de Caen); Adrien Paschoud (Université de Lausanne); Giovanni Paololettì (Università di Pisa); Thierry Paquot (Université de Paris XII); Paul Pelckmans (Universiteit Antwerpen); Krzysztof Pomian (CNRS, Uniwersytet Mikołaja Kopernika w Toruniu, Poland); Michel Porret (Université de Genève); Jean-Michel Racault (Université de la Réunion); Claude Reichler (Université de Lausanne); Jean-Marc Rohrbasser (INED, Institut National d’Etudes démographiques); François Rosset (Université de Lausanne); Stéphanie Roza (Université de Paris I); Martin Rueff (Université de Genève); Pierre Serna (Université de Paris I); Gabriella Silvestrini (Università degli Studi del Piemonte Orientale «Amedeo Avogadro»); Stéphane Van Damme (Institut Universitaire Européen, Florence); Nathalie Vuillemin (Université de Neuchâtel); Ghislain Waterlot (Université de Genève); Przemyslaw Witkowski (Université de Montpellier III).
Manfred Brauneck

Former Professor of Theatre Studies at the Universität Hamburg and Director of the Zentrum für Theaterforschung

2010 Balzan Prize for the History of Theatre in All Its Aspects
*For his wide-ranging account of two and a half millennia in the History of European theatre, as well as his research on currents and events of an international nature in the world of theatre.*

**Institute Administering Research Funds:** German Centre of the International Theatre Institute (ITI), Berlin

**Adviser for the General Balzan Committee:** Gottfried Scholz

**The Role of the Independent Theatre in Contemporary European Theatre: Structural and Aesthetic Changes**

Manfred Brauneck has designated half of his Balzan Prize to a research project which investigates the interaction between changes within social and legal conditions for performing artists, changing methods of production and distribution of theatre art and the shifting dialectics of content versus form in European contemporary theatre. The role of independent theatres in the holistic systems of theatre culture will be the centre of focus.

The different theatre systems in Europe are going through fundamental changes. Shifting prerequisites, new production methods and structures of organization have changed the content of the theatre as well as its reception. Studying this context will be an important aspect of the project. One of the most important factors driving these changes is the breakdown of the political systems in Eastern Europe after 1990, with emerging new paradigms in social and cultural life followed by the increasing pace of globalization, which has been changing the shape of Europe fundamentally since the 1990s.

These vectors have created more flexible and decentralized production structures, new cooperative relationships and brought new technologies to the planning and the
direct creation of theatrical forms of expression as well as changes in the distribution processes (e.g., increased orientation towards target audiences, PR/marketing, internationalization, event orientation, etc.). All of these elements change the nature of the work and the living conditions of theatre artists in a lasting way. Existing studies deal with the respective local/national contexts or are focused on single aspects (e.g., mobility or social status).

A concept was developed for the proposed research in close cooperation with Prof. Dr. Manfred Brauneck. It entailed producing five thematic studies as well as a series of overviews of the situation for the independent scene in different European countries as well as an empirical investigation of the socio-economic position of independent performing artists. Subsequently, it was agreed to do without the reports on individual countries and the empirical investigations because the value of the data expected from the countries in question was limited and at risk of rapidly becoming out of date. This was on account of the wide fluctuations within many of the groups and also because, from country to country, the levels of outside support differed widely. This will not, however, affect the project’s wished-for representativeness nor its inclusion of the European context. Instead, the overall discourse that was initially sought will be included within the thematic studies. The entire research project has – in line with the Balzan Foundation’s principles – been consistently oriented towards fostering a new generation of researchers.

With regard to the project up to this point, one thing can be stressed: the regular colloquia and authors’ meetings have become an important platform for continuing exchange within the research group and have furthered comprehensive analysis of this extraordinarily varied field of study.

The first colloquium took place on 20 October 2011 in the ITI offices in Berlin’s Kunstquartier Bethanien. Those present were: Prof. Dr. Manfred Brauneck (General and Academic Coordinator), Dr. Thomas Engel (Director, ITI Germany), Friederike Felbeck (author), Prof. Günther Heeg (mentor, Universität Leipzig), Andrea Hensel (author), Christine Koch (author), Dr. Barbara Müller-Wesemann (mentor, Hamburg), Dr. Petra Sabisch (author), Prof. Wolfgang Schneider (mentor, Stiftung Universität Hildesheim), Dr. Azadeh Sharifi (author), Prof. Gottfried Scholz (Balzan Foundation) and Andrea Zagorski (Project Leader, ITI). The aims of that colloquium were: to reach a fundamental understanding of the project, to discuss the first steps to taking the work in, to work out how to approach the thematic studies. Prof. Dr. Manfred
Brauneck’s elucidation of the research proposal was very helpful in this regard. The focus on the developments of the last twenty years reveals a shift towards globalization, evident since the 1990s in the increasing interconnection, digitalization and concomitant economic pressure in most European countries. Just as important, however, are the complex social transitions in Eastern European countries that have led to a rearrangement of theatre there. Another of the study’s aims is to investigate the phenomenon of “independent theatre” within the European context – even though it is conceptualized very differently in different countries – and to examine social changes with regard to the effect they have had on independent theatre while also examining how this independent scene has reacted to those changes. The authors presented a first sketch of their research projects for group discussion.

- Friederike Felbeck: *Intercultural Exchange in European Theatre.*
- Dr. Azadeh Sharifi: *Post-Migrant Theatre.*

The discussion of the individual topic areas was centered primarily on the significance of the independent scene within the theatre systems of various European countries.

The second colloquium took place in the Kulturfabrik Kampnagel in Hamburg on 27 and 28 January 2012. Those present were: Prof. Dr. Manfred Brauneck, Friederike Felbeck, Andrea Hensel, Christine Koch, Dr. Barbara Müller-Wesemann, Dr. Petra Sabisch, Prof. Dr. Wolfgang Schneider, Dr. Azadeh Sharifi and Andrea Zagorski. The host, Kulturfabrik director Amelie Deuflhard, provided an extensive report on her work in Kampnagel and as head of the production house Sophiensaele in Berlin. She focused particularly on structural changes and changes to modes of production in the independent scene, delineated financial and funding models, and described the professionalization of independent performing artists that has now been achieved. Equally useful in guiding the research was a discussion with the Viennese performance collective God’s Entertainment, who provided an insight into their working practices as an
independent artists’ collective within the Austrian cultural scene. The young researchers presented their work up to that point, and there was a discussion of the steps to be taken in the coming months. It was also decided to include the main aspects of the individual country reports within the framework of the thematic studies.

The third colloquium took place on the invitation of the Stiftung Universität Hildesheim from 11 to 13 May 2012 in Hildesheim. Those present were: Prof. Dr. Manfred Brauneck, Dr. Thomas Engel, Prof. Günther Heeg, Andrea Hensel, Christine Koch, Prof. Wolfgang Schneider, Dr. Azadeh Sharifi and Andrea Zagorski. The colloquium opened with a podium discussion of the role of independent theatre in Germany. Chaired by Prof. Dr. Wolfgang Schneider, the speakers were Prof. Dr. Jens Roselt (Stiftung Universität Hildesheim and Chairman of the Niedersachsen Theatre Committee), Prof. Dr. Annemarie Matzke (Stiftung Universität Hildesheim and performer in the group She She Pop) and Prof. Dr. Geesche Wartemann (Stiftung Universität Hildesheim). The main topic of discussion was how to place the independent scene’s developments, production forms and aesthetic concepts within the general context of the German theatre landscape. Prof. Dr. Wolfgang Schneider and the dramaturge Henning Fülle provided a complementary report on the position of independent theatre within the debate on cultural politics in Germany. Prof. Schneider gave an analysis of cultural politics in Germany with regard to the subsidised theatre system and the policy of supporting independent theatre. As part of the analysis, he outlined the criteria for this support, which he primarily saw as multidisciplinarity, interculturalism and internationalism. Henning Fülle reported from the studies forming his doctoral project at the Stiftung Universität Hildesheim; he concentrated on the emergence of independent theatre in Germany and its evolution since the 1960s. Fülle discussed the discourse of recognition of the independent scene in politics, the media and the theatre industry. For him, the essential factors in consolidating the independent theatre are professionalization, state support, which has now been established, and improvements to infrastructure, which have now been made.

A fourth colloquium with the title “Art and life. Transformations in (Eastern) Europe’s Independent Theatre Scene” was held on 8 November 2012 at the University of Leipzig in the framework of the euro-scene festival in Leipzig. The discussions and panels primarily addressed the international perspective. This entailed considering the structures and working practices of free and independent theatre in other European countries. Invited speakers: Prof. Dr. Günther Heeg (University of Leipzig, Germany), Dr. Vitomira Lončar (Artistic Director, Mala Scena Zagreb, Croatia),
A conference, Postmigrant Perspectives on European Theatre, was held 20-22 March 2013 at the Goethe Institute in London. Migration is one of the most influential contemporary phenomena. The social as well as the political consequences it causes are likewise recognized within the European theatre landscape. During the past number of years, postmigrant artists, theatre ensembles and institutions have gradually stepped into the limelight of the particular national theatre scenes. The conference Postmigrant Perspectives on European Theatre analyzed these developments together with representatives from the arts, academia and cultural policy. Based on the regional theatre scenes in Germany, the Netherlands, Sweden and the UK, the conference mainly focused on questions of representation, networking and the institutionalization of post-migrant theatre in Europe. Invited speakers: Nasim Aghili (director, Stockholm), Tanika Gupta (author, London), Mehmet Ergen (Artistic Director, Arcola Theatre, London), Rani Kasapi (Managing Director, Riksteatern, Stockholm), Lucien Kembel (Director, MC Theatre, Amsterdam), Chris Keulemans (Artistic Director, Tolhuistuin, Amsterdam), Onur Suzan Nogreba Kömürcü (Goldsmiths College, University of London), Shermin Langhoff (designated Director, Maxim Gorki Theater, Berlin), Hassan Mahamadallie (Senior Strategy Manager, Arts Council England), Prof. Sarat Maharaj (Malmö Art Academy, Lund University), Saban Ol (Artistic Director, Rast Theater, Amsterdam), Prof. Dr Wolfgang Schneider (Institute for Cultral Policy, University of Hildesheim) and Deniz Utlu (author, Berlin).

The conference was organized by PhD Azadeh Sharifi in cooperation with the Goethe Institute London as well as the German Centre of the International Theatre Institute (ITI), and was also supported by the ZEIT-Foundation Ebelin and Gerd Bucerius (Hamburg). ITI Germany has placed information about the research project on its homepage, in its annual report and in the members’ magazine Impuls. It also regularly sends updates in its newsletter. Moreover, the ITI centres, co-operating organizations and the Goethe Institute are kept informed on the Balzan Project.

The final international symposium will be held in Hildesheim in October 2015, and
will work closely with the Institute for Media, Theatre and Popular Culture and the Institute for Cultural Policy at the University of Hildesheim. A multi-day international meeting which will deal decisively with the research methods and results from the Balzan project is planned. Scientists, artists and students will be invited to examine the artistic developments, changes in production conditions and the increasing internationalization of independent theatres in various forums. The concept for this international symposium will be developed in collaboration with Professor Dr. Annemarie Matzke, Professor Dr. Geesche Wartemann and Professor Dr. Jens Roselt (all from the Institute for Media, Theatre and Popular Culture, University of Hildesheim) and Professor Dr. Wolfgang Schneider (Institute for Cultural Policy, University of Hildesheim).

**Researchers:**
Friederike Felbeck  
Andrea Hensel  
Christine Koch  
Petra Sabisch  
Azadeh Sharifi

**Publications:**
A publication with the five monographs by the researchers, a general overview, an introduction by Prof. Dr. Manfred Brauneck and articles by Prof. Dr. Wolfgang Schneider and Prof. Dr. Matthias Rebstock is planned for the spring of 2015. It will be published in German and English by transcript-Verlag.

**Link:**
http://www.iti-germany.de/index.php?id=223&L=5 (ITI Balzan page)
Peter R. L. Brown

Philip and Beulah Rollins Professor of History at Princeton University

2011 Balzan Prize for Ancient History (The Graeco-Roman World)
For his exceptional contributions to the historical interpretation of late antiquity through highly original studies of strong impact and extraordinary influence, with works on the cult of the saints, the body and sexuality, the emergence of Christianity, and poverty and power.

Institution Administering Research Funds: Princeton University

Adviser for the Balzan General Prize Committee: Paolo Matthiae

Figures in a Landscape: Topography and Hagiography in the World of Syriac Christianity

The International Balzan Prize Foundation Figures in a Landscape project is engaged in new research on texts written in Syriac, a dialect of Aramaic. Syriac was one of the predominant languages of early Christianity in the Middle East and Asia and flourished until the late Middle Ages. As many as 10,000 manuscripts and fragments in Syriac survive to the present. Moreover, new discoveries of Syriac texts continue to be made regularly, such as the new finds at Deir Al-Surian in Egypt or little known works brought to light through the fieldwork of the Hill Museum & Manuscript Library. In the past two decades, scholarly interest in Syriac has increased dramatically as scholars have realized that these sources offer different perspectives from better known historical sources in Greek, Latin or Arabic. In spite of this high level of interest, scholarly use of Syriac texts has been limited due to the lack of appropriate tools, such as an index of notable persons or a reference work for the geography of the Near East in Late Antiquity. Figures in a Landscape has begun to address this problem by collecting and identifying the locations of Syriac monasteries and Syriac centers of culture alongside the names of the figures associated with these places. The aim is to establish the topography of the activities of holy men of the varied Syriac traditions, across an area which once extended from modern eastern Turkey, through Syria and northern Iraq to the borders of Iran. Figures in a Landscape will also bring this vivid...
world to the attention of scholars and educated readers through a series of translations of these lives, texts in both Syriac and in Christian Arabic, which are awaiting discovery.

**Research Team**

Research and data collection for Figures in a Landscape is being undertaken by scholars and graduate students affiliated with the The Syriac Reference Portal (www.syriaca.org). Professors David Michelson (Vanderbilt University) and Jeanne-Nicole Saint-Laurent (Marquette University) have successfully assembled an international team who have been meeting weekly over the internet to consult and evaluate research.

As of January 2014, active research staff in addition to Profs. Michelson and Saint-Laurent include:

- 1 undergraduate research assistant (Adam Kane);
- 5 graduate research assistants (Justin Arwine, Anthony Davis, Daniel Greeson, Tucker Hannah and Erin Johnson);
- 1 postdoctoral research assistant (Dr. Thomas Carlson);
- 4 technical development staff (Dr. Thomas Elliott at the Institute for the Study of the Ancient World, New York University; Winona Selesky, an independent XML and Web developer who has developed similar online applications for Princeton University and The University of Vermont; Dr. George Kiraz of Beth Mardutho, The Syriac Institute; and James Bennett, independent software programmer and linguist).

These researchers are assisted by an international editorial board of scholars.

**Data Collection**

Since 2012, there has been collected, collated or revised information concerning:

- Over 2400 places (including over 5000 variant toponyms in Syriac, Arabic and English);
- Over 700 saints (including over 2000 variant names in Syriac, English and French);
- Over 1800 Syriac texts containing lives of saints;
- Over 100 Syriac manuscripts from the British Library.

Work on the project is occurring in five areas: Publication of Hagiographic Data, Publication of Geographic Data, Data Preservation, Technical Tools, and Publication of Editions and Translations.
Publication of Hagiographic Data

Team Members: Dr. Jeanne-Nicole Saint-Laurent (lead), Adam Kane, David Michelson, and advising from Dr. Daniel Schwartz (Texas A&M University)

Progress: Prof. Saint-Laurent has created or revised several data sets:
- *Bibliotheca Hagiographica Syriaca* (a large unpublished bibliography on saints’ lives created by Ugo Zanetti and Claude Detienne)

Next steps: During the spring 2014 semester as visiting fellow at the Institute for the Study of the Ancient World, New York University, Prof. Saint-Laurent and her team planned to accomplish the following: finalize the XML data format for publishing the data; build the website and database that will make this data publically accessible; begin to build links between the hagiographic and geographic data.

Publication of Geographic Data

Team Members: Thomas Carlson (lead), David Michelson, Winona Salesky, Thomas Elliott, Anthony Davis

Progress: Dr. Carlson has collated and revised several geographic data sets:
- *Gorgias Encyclopedic Dictionary of the Syriac Heritage*
- *Comprehensive Bibliography on Syriac Christianity*
- *Pleiades* online gazetteer of the ancient world

This part of the project has now been published as *The Syriac Gazetteer* (home page: http://syriaca.org/geo/).

Next Steps: to begin building links between *The Syriac Gazetteer* and the Hagiography Database; to make public presentations of the research to encourage academic use of *The Syriac Gazetteer*.

Technical Development: Data Architecture and Preservation

Team Members: David Michelson (lead), Thomas Elliott, Winona Salesky

Progress: Prof. Michelson has directed the development of electronic tools for preserving and disseminating the data through the Syriac Reference Portal. This part of
the project experienced a temporary setback in August, when lead developer Hugh Cayless was hired away by Duke University as the senior programmer for the Duke Collaboratory for Classics Computing. Fortunately, it was possible to hire a new programmer, Winona Salesky, who has completed similar projects for Princeton University and the University of Vermont. Salesky has built the eXist XML database for the *The Syriac Gazetteer*. This same database will be used to publish the Hagiography Database as well. Salesky has built the software with cross-compatibility in mind for that purpose.

**Progress:** A complete working publication of a database and website for the *The Syriac Gazetteer* can be found at http://syriaca.org/geo. Prior to publication all data is being made publically available online at https://github.com/srophe/. A draft white paper with technical guidelines for the project can be consulted at https://docs.google.com/document/d/1MfCym6M4KWyhwyv-m-zpF8T3lGc6m9g7vlBomwt-a_Y, with an XML schemata for marking up the data at https://docs.google.com/document/d/1_V_Ju1wuArSaKaR59bECTP-SKqA7Aw2dhvtHPLNfo8Y/edit?usp=sharing.

**Next Steps:** finalize the XML data format for publishing hagiographic data; build the Hagiography website and database; begin to build links between the hagiographic and geographic data.

**Technical Tools**

**Team Members:** George Kiraz (lead), James Bennett, David Michelson

**Progress:** David Michelson is collaborating with the Beth Mardutho Research Library to develop two digital tools of immediate use to the Figures in a Landscape project.

- **New Syriac Unicode Encodings, Glyphs, and Fonts:** There are several historical Syriac characters not currently represented in existing fonts or in the Syriac Unicode range. Beth Mardutho has completed an initial draft of a new font based on the existing Serto Jerusalem font.

- **The SEDRA Parser for Text Analysis:** The SEDRA parser is a text analysis tool that will be able to parse and translate any Syriac text displayed on a website or in an electronic document. The first draft of the parser is now functional and was demonstrated for a private group of scholars in November 2013 in conjunction with the Annual Meeting of the Society of Biblical Literature.

**Next Steps:** continue to collect glyphs for the Unicode revision; submit these glyphs to the Unicode consortium for revision; submit a revision of the Syriac language codes to the ISO governing body; continue work on the parser; collaborate with the http://alpheios.net/ project to implement the Syriac parser through their web framework.
Publication of Editions and Translations
Team Members: David Michelson (lead), Adam Becker (NYU), George Kiraz
Progress: In July of 2013, Prof. Michelson met with Adam Becker in New York to discuss the future of this component of the project. Due to a variety of scheduling and logistical reasons, there was not as much progress as was hoped for. The project team is in the process of determining whether to shift the funding for this portion of the project into creating additional digital instead of printed publications.
Next Steps: discuss the future of this part of the project with Peter Brown and the project team; revise budget and/or project timeline.

Further Funding
Vanderbilt University has secured additional funding from the National Endowment for the Humanities (project title: “The Syriac Reference Portal: New Access to Sources for the History of the Middle East”, undertaken from 5/16/12-5/16/14). This funding has allowed the hiring of additional research staff and software consultants.

Project Publicity
Team members have made 17 public presentations about the Balzan Foundation’s Figures in a Landscape project. These presentations included demonstrations of the dataset and the solicitation of editorial comment from scholars in the field.

In addition to public presentations, Dr. Thomas Carlson’s geographic work led to a research prize, the Second Prize in the Global Digital Humanities Essay competition sponsored by the University of Lethbridge, Global Outlook::Digital Humanities, and the journal Digital Studies/Le champ numérique. The prize was awarded for Dr. Carlson’s research proposal “Digital Maps are still not territory: Challenges raised by Syriaca.org’s Middle Eastern places over two millenia”. For further information on the prize, see http://www.globaloutlookdh.org/global-outlookdigital-humanities-essay-prize-winners-announced/.

In addition to the presentations below, Drs. Michelson, Saint-Laurent and Schwartz have organized an entire conference panel on their work at the 2014 annual meeting of the North American Patristics Society in Chicago (http://patristics.org/annual-meeting/).

Presentations by David Michelson, project director:
- Geographic Imagination and the Spatial Humanities Seminar, Vanderbilt University, 2013
- Digital Humanities Seminar, Vanderbilt University, 2013
- Cultures of the Late Antique Mediterranean Workshop, University of Tennessee, 2013
- Digital Latin Library Consultation, ISAW, NYU, 2013
- Virtual International Authority File Council (Representing National Libraries), 2013
- Informal Presentation to Students at Gordon College, MA, 2013
- Digital Humanities Seminar, Vanderbilt University, 2013
- Society of Biblical Literature Annual Meeting, Chicago, 2012
- Linked Ancient World Data Institute, ISAW, NYU, 2012
- Ancient Religion/Modern Technology Workshop, Brown University, 2012

Presentations by Jeanne-Nicole Saint-Laurent, assistant director:
- Department of Theology, Fordham University, 2013
- Informal Presentation, St. Michael’s College, VT, 2012
- XI Symposium Syriacum, University of Malta, 2012
- Consultation with Specialists, Société d’études Syriques, Paris, 2011

Presentations by Thomas Carlson, postdoctoral fellow:
- Religion and Digital Technologies Workshop, Princeton University, 2014
Maurizio Calvesi

Professor Emeritus at the Università di Roma “La Sapienza”; Fellow of the Accademia Nazionale dei Lincei, Rome; Fellow of the Accademia Clementina, Bologna

2008 Balzan Prize for the Visual Arts since 1700

For his outstanding work on the history of modern and contemporary visual art, which has contributed to a better understanding of the nature and development of modernism as well as to the study of the origin of new trends in contemporary art.

Institution Administering Research Funds:
Fondazione Palazzo Albizzini, Collezione Burri, Città di Castello, Perugia

Adviser for the Balzan General Prize Committee: Dmitry O. Shvidkovsky

Three Research Projects on the Visual Arts in Italy

Maurizio Calvesi has set aside the second half of the 2008 Balzan Prize for the Visual Arts since 1700 for three research projects, which are personally supervised by the prizewinner, and which involve five young scholars for two or three years.

Research Project A: Antiquarian Culture in Rome from Biondo Flavio to Piranesi.

This project deals with a subject already touched upon by scholars, but which still has significant scope to be developed. This area covers the works of fifteenth century “antiquarians”, including the problem of Polifilo, ranging from Cartari, Pignoria and Cassiano, through Pozzo to Kircher, Venuti and Piranesi, to mention only a few of the names that immediately come to mind. In this era, there developed a compact tradition that was full of internal cross-references that are obviously closely related to the history of the visual arts, from Pinturicchio’s cycle in the Vatican to Piranesi’s work. The research is being carried out by three scholars: Stefano Colonna (in charge of the research), Camilla Fiore and Jacopo Curzietti. It is being supervised by Professor Maurizio Calvesi, who has already produced various studies on these subjects. Professor Colonna’s close textual analysis of the single surviving example of Stefano Buzzoni’s Epigrammata has permitted the research to incorporate a triangularization
of cultural relations between Rome, Venice and Brescia. In addition, Professor Colonna has been able to identify the resting place of Tommaso Paleologo (previously described as unknown) in the Basilica of St. John Lateran in Rome. Drs. Curzietti and Fiore have carried out detailed research on the period covering the pontificates of the Barberini and Chigi Popes (1630-1666). In minutely examining the literature of the period and concentrating on the architectonic and figurative aspects of artistic expression, much light has been shed on the projection of the image of a Roma-Triumphans during this period. In addition, many new aspects regarding the restoration projects of classical Roman edifices and structures undertaken at the time have been uncovered. A number of articles describing the conclusions of the research are being published. A monograph Gli eruditi dell’Accademia alessandrina: la politica antiquaria sotto il pontificato di Alessandro VII (Chigi), which will draw together much of the material, is forthcoming.

**Research Project B:** Critical Edition of the Sources and Documents Related to Caravagggesque Painters and a Search for yet Undiscovered Sources. Professor Stefania Macioce, who will supervise this research together with Professor Maurizio Calvesi, Professor Alessandro Zuccari and Professor Caterina Volpi, has already published a fundamental collection of documents concerning Caravaggio (S. Macioce, Michelangelo Merisi da Caravaggio. Fonti e documenti 1532-1724, Roma, 2003). The Balzan Project aims to create an analogous corpus for the main Caravaggesque painters, putting together a relevant research effort concentrating on the great number of scattered, already known documents. In the course of the research, which is being carried out by Michele Nicolaci, it is possible that new documents on Caravaggio himself might also be discovered.

**Research Project C:** Complete Catalogue of the Works of Umberto Boccioni. There is already a catalogue of Boccioni’s works (1982), compiled by Ester Coen with the supervision of Maurizio Calvesi, who penned the introductory essay. In consideration of the documentary innovations that have emerged on the painter since then, as well as the great number of unpublished works discovered (not to mention the errors now apparent in the text), a new catalogue of the works is obviously necessary. The article Ester l’Expert, Leggerezze su Boccioni penned by Professor Calvesi in 2008, can be considered as a detailed justification for such an endeavor. This new catalogue is being edited by Alberto Dambruoso, with the assistance of Professor Maurizio Calvesi, and will appear in two volumes published by Allemandi.
Researchers:
Stefano Colonna Filippone de Montagu
Jacopo Curzietti
Alberto Dambruoso
Camilla Fiore
Michele Nicolaci

Publications:

Project A
Fiore, Camilla S. “Mattia de Rossi: documenti inediti per il cantiere del monastero di S. Giuseppe a Capo le Case”, Storia dell’arte 130 (n.s. 30): 83-93.

The final conclusions of the research will be published in the following publications:
Fiore, Camilla S. Un carteggio inedito: incisioni e documenti sulle antichità etrusche di Athanasius Kircher e Ovidio Montalbani (forthcoming).
Project B
Forthcoming Publications:

Project C
Manuel Castells

University Professor and Wallis Annenberg Chair of Communication Technology and Society at the University of Southern California, Los Angeles; Professor at the Open University of Catalonia, Barcelona; Director of Research in the Department of Sociology, University of Cambridge; Professor Emeritus of Sociology and of City and Regional Planning at the University of California at Berkeley

2013 Balzan Prize for Sociology
For his wide-ranging and imaginative thinking through of the implications of the great technological changes of our time: the digital revolution and the profound social and political challenges brought about by the emerging technologies of communication and information processing associated with computing, microelectronics and the internet. And for having proposed a general theory of the new global information society that has arisen out of these technologies.

Institutions Administering Research Funds:
University of Cambridge
University of Southern California
Open University of Catalonia, Barcelona

Adviser for the Balzan General Prize Committee: Dominique Schnapper

This Project will integrate the results of three sub-projects conducted by young researchers during three years in three different institutions under the supervision of Professor Castells and professors in these institutions.

Sub-Project 1: Financial Cultures in the US Financial Crisis of 2008-2014. From Wall Street to Silicon Valley
University of Southern California, Annenberg School of Communication Research Group on Financial Cultures

The Research Group on Financial Cultures, led by research fellow Lana Swartz under the supervision of Professors Manuel Castells and Sarah Banet-Weiser at the Univer-
sity of Southern California’s Annenberg School for Communication and Journalism, will study the interconnection of what is often thought of as ‘cultural’ or ‘financial’. In particular, the objective of the research group is to produce an empirical analysis of the ethical, political, social and technological forms that anticipated and partly induced the 2008 global financial crisis as well as those that emerged in its aftermath. The research will be divided into two sub-projects: Wall Street Financial Cultures and New Economic Cultures emerging in the technology world in entrepreneurial Silicon Valley, such as Bitcoin.

Sub-Project 2: The Cultural and Social Dimensions of the 2008-2014 Economic Crisis: Human and Social Costs of the Crisis. Proposal for a Comparative Study of Greece, Italy and the UK
Department of Sociology, University of Cambridge
This project, supervised by Professors Manuel Castells and John Thompson (Department of Sociology) will explore the ways in which individuals and groups in different parts of Europe live through and experience the economic crisis, how it affects them and how they respond to it, both at the level of feelings, emotions and forms of suffering, and in terms of practices and types of collective action. A bottom-up approach will be adopted in a close, ethnographic study of the daily lives of ordinary individuals in carefully selected regions of Europe, with the aim of developing the concepts we need to understand these feelings, emotions, forms of suffering and practices. It will examine the ways that these responses may feed into types of collective action, including protest movements and other kinds of political mobilization.

Research Group on Communication and Civil Society, Internet Interdisciplinary Institute, Open University of Catalonia, Barcelona
This project is concerned with the dynamics of the current global wave of mobilizations that are shaped by and are shaping social transformations. It aims to conduct an in-depth, double level analysis of two selected networked movements, 15M in Spain and Occupy Wall Street in the US, with an eye towards comparing the two different experiences in terms of their particular qualities as well as in the context of their
dynamics and evolution from an international perspective. The study, supervised by Professor Manuel Castells and Dr. Mireia Fernandez-Ardevol, will use innovative quantitative methodology by examining thousands of twits and messages in other social networks, and identifying emotional patterns as sources of social mobilization. The study will also qualitatively analyze the interaction between networked social movements and the political system, studying elections and the new political actors emerging from the movements.

The overall project will lead to several publications by young researchers, as well as to a volume integrating the findings of the three sub-projects, also co-authored by young researchers.

**Researchers:**
John Thompson, Deputy Supervisor
Dr. Eirini Avramopoulou
Dr. Silvia Pasquetti
Terence Cave

Emeritus Professor of French Literature at the University of Oxford; Emeritus Research Fellow of St. John’s College Oxford; Fellow of the British Academy

2009 Balzan Prize for Literature since 1500
For his outstanding contributions to a new understanding of Renaissance literature and of the influence of Aristotelian poetics in modern European literature.

Institution Administering Research Funds: St. John’s College, Oxford
Adviser for the Balzan General Prize Committee: Karlheinz Stierle

The Balzan Interdisciplinary Seminar: Literature as an Object of Knowledge

Terence Cave is using the second half of his Balzan Prize to explore the value of literature as an object of knowledge, and more specifically, the cognitive value of literature in relation to other kinds of discourse. The research project is based at the Research Centre of St. John’s College, Oxford. The word “seminar” is used in the title to indicate the heuristic nature of the project: the core of the work lies in discussions designed to foster a sharper awareness of the issues that are at stake and to explore new directions in the understanding of literature.

Aims and scope of the project
The title of the project is designed to provide a single overarching frame for an enquiry that addresses the following:

1. The public question
The project title may be rephrased as a public question in the following form: “What are the nature and value of literature as an object of knowledge in the interdisciplinary spectrum?” Literary study remains one of the core disciplines in the humanities, but its status as an academic subject needs constantly to be reassessed and justified in an era where universities are increasingly being pressed to demonstrate the public utility of their research and teaching. The question necessarily has an interdisciplinary character, both because literary study is institutionally defined as one of a peer group of studies in the humanities and because it overlaps at many points with adjacent studies
within that group (linguistics, philosophy, history, social studies). The phrase “object of knowledge” in the project title thus refers in the first place to the academic pursuit of knowledge, of which literature constitutes one object among others.

2. A timely conceptual issue: cognitive methodologies in literary study
The potential interest of literature as an object of knowledge begins to be apparent when one unpacks and extends the phrase “object of knowledge”. In such a perspective, it is natural to explore the sense in which a literary work may be (or be presented as) a vehicle of knowledge or, potentially, an instrument of knowledge. It is also evident that, while “knowledge” is the presumed outcome of such an enquiry, the enquiry itself is a process, a particular way of thinking, and that literary works (or groups of works) may themselves be considered as vehicles or instruments of thought. One may thus replace the word “knowledge” in all three instances with “thought” (literature as an object, vehicle and instrument of thought). All of these concerns become salient when literary study is viewed within the perspective of interdisciplinary research on cognition, and it is a primary aim of the project to foster cognitive approaches to literature that are perceived as valid by colleagues in other disciplines (and the public at large), while satisfying the requirements of a proper study of literature in all its modes and forms.

3. A double-stranded project: linking the cognitive with the historical
Since Terence Cave’s personal research career has focused primarily on the Renaissance or, more generally, the early modern period, the project also has a “historical strand”. Most of the core participants within the field of literary studies are specialists in early modern culture: their task is to relate the historical study of their materials with the cognitive approaches referred to above. A key aim of the project is thus to bind together the historical and the cognitive strands and demonstrate that literary study can and must combine a general explanatory framework with close contextual reading.

**Organization and activities**
The collective work of the project is carried out for the most part in workshops and discussion groups in which these interdisciplinary issues are explored and debated with the cooperation of colleagues from non-literary disciplines. The twin themes of knowledge and cognition provide a focus for the discussions. The integrity of individual research programmes is respected, but they are also used as test-cases or illustrations of the broader interdisciplinary issues raised by the project.
The programme is based on a core team of individuals under the general guidance of Terence Cave as project director. The project has a Senior Advisory Panel: Elleke Boehmer, Professor of World Literature in English, University of Oxford; Guillemette Bolens, Professor of English Literature and Pro-Vice-Chancellor, Université de Genève; Robyn Carston, Professor of Linguistics, University College London and Centre for the Study of Mind in Nature, Universitetet i Oslo; Gregory Currie, Professor of Philosophy, University of Nottingham; Paul Harris, Professor of Education, Graduate School of Education, Harvard; Marian Hobson, Professorial Research Fellow, Queen Mary, University of London; Michel Jeanneret, Emeritus Professor of French Literature, Université de Genève; Jim Reed, Emeritus Professor of German, University of Oxford; Karlheinz Stierle, Universität Konstanz. The function of the panel, which has an interdisciplinary character, is in the first place to provide advice on the development of the project, but several members are regular participants in its activities and guarantee its interdisciplinary character.

The task of the two Deputy Directors (Dr. Wes Williams and Dr. Raphael Lyne) is to ensure the effective continuation of the project should the Director be absent for a prolonged period for reasons beyond his control.

Two Balzan Postdoctoral Research Fellowships were established at the outset of the project, tenable for 3 years. The Research Fellows were expected to produce published work of the equivalent of a book-length study over the course of their Fellowship. They also assisted in the arrangement of discussion groups, workshops and other collective events. They were not permitted to take on duties external to the project (for example teaching duties) except with the agreement of the Director. The Research Fellowships were attached to the St. John’s College Research Centre in Oxford, where the Fellows had offices.

Five Balzan Research Lectureships were conferred on younger colleagues holding permanent academic positions at five different UK universities, each lasting up to one semester on a “buy-out” basis. The positions carried with them the obligation to produce at least one article-length publication during the period of leave, and (under the guidance of the Director) to arrange a two-day workshop at the end of the period of leave structured around the Lecturer’s work. The Research Lecturers were expected to participate as far as their other duties permitted in the other collective activities of the project. The workshops were held in the lecturer’s home institution; this arrangement helped to guarantee the wider diffusion of the project’s aims and intellectual outcomes.
The project also recruited a number of Associate Researchers. This group consisted of individual researchers from various academic contexts whose work was closely related to the aims of the project. They had no specific duties, but were expected to attend workshops and discussion groups in their areas of interest.

A discussion group, consisting of core project members and other invited participants from the University of Oxford (academic post-holders, postdoctoral researchers and a small number of doctoral students) was established in Oxford for the duration of the project. It met about once a month to discuss specific topics and problems arising from the project’s aim to develop a cognitive methodology for the study of literature. Visiting speakers with relevant interests were sometimes invited to give presentations to the group. The two Balzan Postdoctoral Fellows organized one-day workshops of their own in the final year of their tenure (2012-13). In addition, the project provided intellectual support and limited financial support for workshops on relevant topics organized by its Associate Researchers.

A programme of individual visits and exchange visits enabled core project participants to establish appropriate contacts in other universities, with the possibility of reciprocation. In addition, the Director gave (and continues to give) public lectures both in the UK and abroad and actively seeks to create an interdisciplinary network that will not only support and enhance the work of the project but also ensure that its intellectual energies are propagated beyond the lifetime of the project itself.

The first phase of the project ended on 30 September 2013. A Methodological Colloquium entitled “Thinking with Literature” was held from 9-12 September 2013 at the University of Oslo, Centre for the Study of Mind in Nature, and ILOS (organised by Kirsti Sellevold, Terence Cave, Karin Kukkonen and Olivia Smith). This event brought the various participants together in order to discuss methodological points of convergence between the different disciplines involved. In order to give the discussion coherence, particular methodological issues were highlighted, e.g., the value for literary study of methodologies from the experimental sciences, the relation of the historical strand of the project to the cognitive strand, and the ways in which the close reading of literary texts can be integrated within a general explanatory framework for literature.

At the end of 2013 there were still funds remaining. The money is being used to fund the start-up phase of continuation projects which will carry the work forward into the
future. Grants are being offered to a number of project participants (mainly younger colleagues and young researchers) to organise exploratory workshops with this aim in mind. Two of these ventures (one in Turku, Finland, one in Edinburgh, UK) have already led to further funding. Other activities currently in progress include a flagship publication, provisionally entitled *Relevance in Literature*, arising from the Oslo colloquium; a joint workshop with the Centre for the Study of Mind in Nature, University of Oslo, on “Metaphor, Imagery and Communication” (19-20 September 2014); and a workshop entitled “Renaissance Kinesis: Movement in Literature” to be held at Clare College, Cambridge (25-27 September 2014). While money from Balzan funds continues to be used, such activities will be known as “Balzan continuation projects/workshops”, and the Balzan name will be advertised wherever relevant.

**Details of Workshops:**


29-31 March 2012: Workshop 3 “Literary and Cognitive Ends”, Durham University (organised by Kathryn Banks)

11-12 January 2013: Workshop 4 “Embodied Cognition, Phenomenology and Literature”, Royal Holloway University of London (organised by Timothy Chesters)

25-26 March 2013: Workshop 5 “Historicity and Cognitive Reading”, University of Nottingham (organised by James Helgeson)

7 June 2013: Workshop 6 “Weak Implicatures, Strong Effects”, St. John’s College, Oxford (organised by Olivia Smith and Kirsti Sellevold)


3-4 April 2014: Workshop 8 “Dreams, Delusions and Early Modern Literature”, University of Birmingham (organised by Ita Mac Carthy)
Co-sponsored workshops:
12 April 2012: “Science and Literary Criticism”, St. John’s College (organised by Emily Troscianko and Michael Burke)

25-26 June 2012: “Immersion and the Storyworld”, St. John’s College (organised by Sabine Müller and Marcus Hartner)

Other meetings:
2 March 2012: Presentation of the Balzan Project to the Modern and Medieval Languages Faculty, University of Oxford

14-15 September 2012: Core discussion group “Embodiment, Language, Imagination”, St. John’s College, Oxford (organised by Terence Cave)

Regular meetings of a reading group, organised by Karin Kukkonen and Olivia Smith (assisted by Terence Cave and in 2012-13 by Kirsti Sellevold), with participants based in Oxford, were held in the academic years 2010-11, 2011-12 and 2012-13. The reading group activities included a number of sessions with invited speakers. Among the speakers were the following:

Professor David Herman, Ohio State University (April 2011)
Dr. Andrew Parker, St. John’s College, Oxford (November 2011)
Professor Marie-Luce Demonet, Centre d’Études Supérieures de la Renaissance, Tours (February 2012)
Dr. Alan Palmer, independent scholar (April 2012)
Professor Paul Harris, Harvard University (May 2012)
Professor Shaun Gallagher, University of Memphis (January 2013)
Professor Christopher Frith, University College London and University of Aarhus (April 2013)
Professor Gregory Currie and Anna Ichino, University of Nottingham (June 2013)

Researchers:
Balzan Research Fellows
Karin Kukkonen
Olivia Smith
Balzan Research Lecturers
Kathryn Banks
Timothy Chesters
James Helgeson
Raphael Lyne
Ita Mac Carthy

Associate Researchers
Miranda Anderson
Jennifer Gosetti-Ferencei
Patricia Kolaiti
Sabine Müller
Kirsti Sellevold
Emily Troscianko

Principal publications:
Reading Literature Cognitively, edited by Terence Cave, Karin Kukkonen and Olivia Smith as a commissioned special issue of Paragraph (37.1, March 2014) and comprising a set of essays by eight core members of the project.


Karin Kukkonen, A Prehistory of Cognitive Poetics: Neoclassicism and the Novel (complete and under consideration for publication).

Olivia Smith, Inside the Furnished Mind: A Literary Reading of Locke’s Essay (nearing completion).

Terence Cave, Thinking with Literature: Towards a Cognitively Inflected Criticism (complete and under consideration for publication).

A number of other publications are in progress.

Link:
http://www.sjc.ox.ac.uk/3122/The-Balzan-Project.html
Ronald Dworkin †

Professor of Philosophy in the Philosophy Department and Frank Henry Sommer Professor of Law at the School of Law, New York University; Emeritus Professor of Jurisprudence at Oxford University and University College London

2012 Balzan Prize for Jurisprudence

*For his fundamental contributions to Jurisprudence, characterized by outstanding originality and clarity of thought in a continuing and fruitful interaction with ethical and political theories and with legal practices.*

Institution Administering Research Funds: New York University

Adviser for the Balzan General Prize Committee: Antonio Padoa Schioppa

Due to the unfortunate and untimely death of Professor Dworkin, it was impossible to continue with his research project as originally envisaged since it was to be based on the elaboration of a body of work produced by Professor Dworkin himself. When it proved impossible for him to continue, he delegated responsibility for the project, and in conjunction with a colleague Professor Liam Murphy of NYU, he elaborated another option to retain the essence of the project. In respecting the wishes of Professor Dworkin, Professor Murphy has maintained the original themes, but has shifted the emphasis of the project to include more young researchers and has instituted a fellowship programme over three years.

Dworkin-Balzan Fellowship Programme

The New York University School of Law is honoured to host and implement the research project associated with the Balzan Prize of our late colleague, Ronald Dworkin. Our programme has two main elements. Three to five postdoctoral fellowships will be awarded, over a period of three years, in association with the NYU Colloquium in Legal, Political and Social Philosophy, which Professor Dworkin taught for many years together with another Balzan laureate, Thomas Nagel. Second, in the third year of the project a conference will be held at NYU to discuss themes from Ronald Dworkin’s work. The participants would include the postdoctoral fellows, other young philoso-
phers and legal scholars who had presented at the Colloquium during this period, and several more senior scholars with special expertise on Dworkin’s work.

1. Themes from Dworkin
Ronald Dworkin’s interests ranged so widely in legal, moral and political philosophy that it is difficult to think of an issue he did not write about. Our programme focuses on the following sets of interconnected themes that were of special interest for him in recent years:

- Legitimacy, democracy, the rule of law and the role of courts
- International law and justice
- The nature of rights
- The relation between the moral life and the good life
- Philosophical foundations of substantive areas of law
- Legal interpretation
- Justice, equality and the market economy
- Law and political obligation
- The objectivity of value.

2. The Colloquium in Legal, Political and Social Philosophy
This world-renowned colloquium was taught by Professors Dworkin and Nagel for twenty-five years. It introduced a distinctive format for discussion of unpublished work that has been widely imitated. The colloquium attracted, over the years, many of the world’s most distinguished philosophers and legal theorists as guests, including John Rawls, Jürgen Habermas, T. M. Scanlon, Judith Jarvis Thompson and Peter Singer. With Professor Dworkin’s death, Thomas Nagel has decided not to continue to convene the colloquium. In the autumn semester of 2014 the colloquium will reconvene, led by Samuel Scheffler and Liam Murphy. Confirmed guests include T.M. Scanlon, Christine Korsgaard and Kwame Anthony Appiah. In the years that follow, it will be taught every year by some combination of Scheffler, Murphy and Jeremy Waldron. This colloquium was at the centre of Ronald Dworkin’s academic life. Through it, he and Professor Nagel educated generations of philosophers and legal theorists. It is appropriate, then, that the colloquium should have a central role in the research project associated with Professor Dworkin’s Balzan Prize.

3. Postdoctoral Fellowships
A total of five fellows will be appointed over three years. Successful applicants will
have a doctorate in philosophy or law. They will be selected in part on the basis of their fit with the themes of the research project. Fellows will be required to attend the colloquium regularly and participate in discussion. They will be expected to participate in the conference.

Two fellows have been appointed for the first year of the programme.

**Jed Lewinsohn**
Jed Lewinsohn received his BA from Cornell University in 2005, and his JD from Yale Law School in 2012; he is to defend his PhD in philosophy from NYU in the summer of 2014. Lewinsohn works primarily in the areas of moral, legal and political philosophy, and maintains an active side interest in philosophical aspects of Jewish law.

As a Dworkin-Balzan fellow, Lewinsohn will continue work on moral and political theories that are *conventionalist* in their denial that the rights, obligations and powers associated with property or contract law have a natural or pre-institutional basis. In particular, he will consider the following questions: What is the proper scope of a conventionalist theory, and do conventionalist theses about promising and property stand or fall together? What role does the state assume in standard conventionalist accounts of property and promising, and what is gained or lost if other entities, either comparatively local or global, fill that role? Precisely to what extent does non-conventionalism about a given domain place constraints on lawmakers to respect the pre-institutional normative state of affairs? How are debates about conventionalism about promising and property to be situated within broader metaethical debates about moral realism?

In tackling these questions, Lewinsohn will give serious consideration to the large class of socially significant actions that are defined in terms of rights and powers – actions ranging from getting married to forgiving a debt – and which seemingly cannot be performed without the utilization of conventional signs or formalities. Additionally, he will relate the inquiry about conventionalism to the more general question of whether and how the law might make a constitutive contribution to our moral landscape either by curing indeterminacies in moral principles that are in some sense prior to the law, or by satisfying the enabling conditions of independently valid moral principles. These latter questions, which loom so large in the writings of Hobbes,
Locke, Kant and others, are ripe for revisitation in light of new work in philosophy about indeterminacies in morality and law, in the one case, and the preconditions and dynamics of cooperation in the other.

Lewinsohn’s research falls clearly into three of the listed themes from Dworkin: justice, equality, and the market economy; philosophical foundations of substantive areas of law; and the objectivity of value.

**Jacob Weinrib**

Weinrib began undergraduate study in 2001 in the great books program at the University of King’s College in Halifax, Canada. After placing first in the program, he transferred to the University of Toronto, where he was the top ranking student in the Department of Philosophy. After graduating in 2005, Weinrib completed his MA in philosophy at the University of Toronto in 2006. He then entered the Combined JD/PhD Program in Law and Philosophy at the University of Toronto. His JD was completed in 2009 and his PhD in 2013.

In law school, Weinrib received the Alan Borovoy Prize in Civil Liberties, the Norman Levy Prize in Jurisprudence, the International Holocaust Essay Award and the Australian Society of Legal Philosophy Essay Prize. As a doctoral student in philosophy, he held the Vanier Canada Graduate Scholarship awarded by the Social Sciences and Humanities Research Council of Canada. In 2011-12 Weinrib was a fellow at the University of Toronto Centre for Ethics, and in 2013-14 he has been a Global Research Fellow at the New York University School of Law and affiliated with the Center for Constitutional Transitions. His published work has appeared in the *University of Toronto Law Journal*, the *Canadian Journal of Law and Jurisprudence*, the *Kantian Review*, the *Australian Journal of Legal Philosophy* and *Law and Philosophy*.

Weinrib’s primary research interest concerns the relationship between legal theory and comparative constitutional law. As a Dworkin-Balzan Fellow, he will complete a book entitled *Dimensions of Dignity: The Theory and Practice of Modern Constitutional Law*. The purpose of the book is to formulate a theory of the state that culminates in a justification of the fundamental norms, institutional arrangements and leading doctrines of rights-based constitutional democracies. The book will be published by the Cambridge University Press in the Studies in Constitutional Law series.
Weinrib’s research falls into many of the Dworkinian themes: legitimacy, democracy, the rule of law and the role of courts; international law and justice; the nature of rights; legal interpretation; and law and political obligation.

5. Conference
During the third year of the project, a conference organized around the themes of the project will be held at NYU. In addition to the fellows, younger presenters at the colloquium during the term of the research project will be invited, along with several more senior scholars who have particular insight into the themes of the project. If appropriate, conference papers may be submitted to a publisher for publication.
Ludwig Finscher

Former Professor of Musicology at the Goethe-Universität, Frankfurt am Main and at the Ruprecht-Karls-Universität, Heidelberg

2006 Balzan Prize for the History of Western Music since 1600
For his wide-ranging research activity in the field of musicology; for his penetrating, memorable insights into great works of music; for his profound commentaries on musical phenomena as well as his editorial direction of the new edition of the Encyclopaedia Die Musik in Geschichte und Gegenwart, which makes the newest research accessible to a wide circle of musicians and music lovers.

Institution Administering Research Funds: Universität Zürich

Adviser for the Balzan General Prize Committee: Gottfried Scholz

History of the Trio Sonata - Catalogue Raisonné of the Tradition

Ludwig Finscher set aside half of the sum of the Balzan Prize for the publication of an extensively annotated catalogue on the tradition and transmission of the trio sonata from its first appearance around 1650 until around 1780. The catalogue will establish the hitherto unwritten bases for the history of the trio sonata, and it will not only make a great contribution to musicology, but will also give a considerable stimulus to musical practice. The institutional base was established at the Institute of Musicology at the Universität Zürich, with its excellent technical equipment and library facilities. The initiative was kindly welcomed and is generously supported by the University. With the term “trio sonata”, musicology identifies a genre of instrumental music that spread through Europe between 1650 and 1780, and that was considered the most ‘noble’ chamber music genre. As a result, the production of this genre was very prolific: at the beginning of the Balzan Project, at least 500 editions with six or twelve sonatas each were supposedly handed down. Composers were also very enthusiastic about it, and ambitiously used the trio sonata as a ‘calling card’ to make a successful entrance into the world of composition. The present state of research on this type of composition is diametrically opposed to its objective and methodological importance for the history of musical genres.
The project was established by Ludwig Finscher together with Laurenz Lütteken, acting as project manager responsible for administration. The project was set up with two 50% positions designated for young scholars. The first position was intended for a researcher who had completed his/her doctoral studies and was working towards the Habilitation; the second, for a doctoral candidate (PhD student). Dr. Cristina Urchueguía held the first position until February 2010. She completed her Habilitation in autumn 2009 and was appointed as assistant Professor of Musicology at the Universität Bern in February 2010. Her successor on the project is Dr. Nicola Schneider who completed his dissertation in March 2010. Dr. Schneider started working on the project on 1 April 2010. The position of the doctoral candidate was first held by Elisabeth Wanzenried. She later left the project for personal reasons and was replaced by Gabriela Freiburghaus. Ms. Freiburghaus completed her thesis on the Trio Sonata in Britain between Purcell and Händel in 2011. As of May 2011, about 1350 editions with three to twelve sonatas have emerged from more than 2000 sources – many more than were expected. A distinction has thus been drawn between printed editions and manuscripts, giving priority to the former. A specific data base has been developed for organizing the materials, and is being made available to specialized music libraries, students and professors. This data will form the basis of the printed catalogue to be published by Henle Verlag, which should appear in 2016. The first trio sonatas were composed during the early Baroque, while the last came out during the early classical period. The vast majority of works (sonate, suonate, balletti, sinfonie, trii, divertimenti and concerti) were written for two high-pitched instruments and a basso continuo. Until 1700 most of the publishers were Italian; they were then joined by Dutch, French, German and English publishers. As for authors, besides well-known names such as Corelli and Locatelli, works by composers who were known only to specialists up to the present day, such as Carlo Antonio Campioni, Giuseppe Fernando Brivio della Tromba, Johann Gottfried Schwanenberger, Valentin Roeser, André Joseph Exaudet, Melchiorre Chiesa, Wenzel Joseph Spourni and Nicolas Döthel il figlio, have now been made available to the general public. In another initiative connected to the project, the Baroque violinist Professor Monika Baer and harpsichordist Sergio Ciomei have, in conjunction with a specialized ensemble, helped to bring some of this lost music to life.
Researchers:
Prof. Dr. Laurenz Lütteken, Supervisor
Monika Baer
Sergio Ciomei
Gabriela Freiburghaus
Claire Genewein
Ivana Rentsch
Nicola Schneider
Cristina Urchueguía
Elisabeth Wanzenried

Publications:
In total over 50 articles have been published including the following of particular note:


These are to be followed by the publication of Die Trio Sonata – Catalogue Raisonné.
Marc Fumaroli

Professor at the Collège de France, holder of the chair in Rhétorique et société en Europe (XVIe-XVIIe siècles) since 1986; elected to the Académie Française in 1995 and to the Académie des Inscriptions et Belles Lettres in 1998

2001 Balzan Prize for Literary History and Criticism (post 1500)
*For his research on rhetoric from the sixteenth to the eighteenth century, which has thoroughly renewed our understanding of European culture in the fields of literature, painting and the art of living.*

Institution Administering Research Funds: Institut de France

Advisers for the Balzan General Prize Committee:
Walter Rüegg and Karlheinz Stierle

The Comte de Caylus (1692-1765) and His Milieu: The Respublica Literaria

With the second half of his Balzan Prize, Marc Fumaroli involved three young scholars in a long-term study of the life and works of Anne-Claude-Philippe de Pestels de Lévis de Thubières-Grimoar, comte de Caylus (1692-1765) and of his milieu. The funds were also used for an array of cultural initiatives which were instrumental to the realization of a more comprehensive plan, i.e., the foundation of an interdisciplinary research institute on the history of the Republic of Letters. The Institut européen d’histoire de la République des Lettres – Respublica Literaria was officially established in 2006, with support from the Ministère de l’Enseignement supérieur et de la Recherche as well as the Ministère de l’Éducation nationale, and is now based at the École normale supérieure de Paris. The administration of the Balzan funds was entrusted to the Institut de France.

Cordélia Hattori, Nicola Iodice and Xavier Dufestel worked on different aspects of comte de Caylus’ life and work. He was a polyhedric intellectual, almost forgotten today despite his fundamental contributions, along with Scipione Maffei, Winckelmann and others, in developing the cult of antiquity in eighteenth century France and Europe. His seven volume *Recueil d’antiquités égyptiennes, étrusques, grecques, et
romaines (Paris, 1752-1767) was a chief source for the beginnings of the science of archaeology and the arts in the Neoclassical period. Cordélia Hattori (Musée de Lille) worked mainly on the official documents, which shed light on the finances of comte de Caylus, his genealogy and his many relationships, his influence on the Académie Royale de Peinture et de Sculpture and on the Académie des Inscriptions et Belles-Lettres included. Nicola Iodice focused on his correspondence and, in collaboration with Xavier Dufestel, determined the precise chronology of his life, his studies and his intellectual and personal relationships.

Conferences/Symposia:
- I Barberini e la cultura europea del Seicento (Rome, Istituto Italiano per gli Studi Filosofici, Bibliotheca Hertziana, Max-Planck Institute, Polo Museale Romano, Queen’s University Kingston, 2004).
- Peiresc et l’Italie (Naples, Istituto Italiano per gli Studi Filosofici, 2006).

Academic Lectures:
- *De Le Brun à David: La Querelle des Anciens et des Modernes dans les Arts* (1, 2, 3). Lecture given at the Bibliothèque nationale de France, 6, 9 and 10 February 2004.

Researchers:
Xavier Dufestel
Cordélia Hattori
Nicola Iodice
Publications:

Works in Progress:
Le comte de Caylus, Mémoires et Carnets des voyages, edition intégrale, annotée et illustrée by Jacqueline Hellegouarch, Cordélia Hattori, Catherine Hémon-Fabre,
under the direction of Marc Fumaroli in the collection République des Lettres, République des Arts (Alain Baudry éditeur, Paris).

Documentary research is being initially carried out by Carole Martelli for a monograph to be overseen by Marc Fumaroli and which will appear in the collection Bibliothèque des Histoires (Gallimard).

Both works will explicitly acknowledge the support of the Balzan Foundation through the prize awarded to Marc Fumaroli in 2001.
Carlo Ginzburg

Former Professor at the Scuola Normale Superiore di Pisa; Franklin D. Murphy Professor of Italian Renaissance Studies at the University of California, Los Angeles

2010 Balzan Prize for European History (1400-1700)
For the exceptional combination of imagination, scholarly precision and literary skill with which he has recovered and illuminated the beliefs of ordinary people in Early modern Europe.

Institution Administering Research Funds: Scuola Normale Superiore, Pisa

Adviser for the Balzan General Prize Committee: Quentin Skinner and Salvatore Veca

A Comparative Approach to Religions. A Historical Perspective - from the Sixteenth to the Eighteenth Centuries

Carlo Ginzburg has dedicated the second half of his Balzan Prize to a three year research programme in which he intends to scrutinize the emergence of a comparative approach to religions. This will initially involve two young scholars.

The Research Project will go back to the 1500s, exploring the emergence of a comparative approach to religions, focusing on the connection between antiquarianism and early ethnology, in the framework of European colonial expansion. A series of analytical studies will emanate from this research.

The initial phase of the project is constituted by a number of works by Carlo Ginzburg which have just been or are shortly to be published: *Machiavelli e gli antiquari; Ancora sui riti cinesi: documenti vecchi e nuovi; Provincializing the World: Europeans, Indians, Jews (1704)*. Researchers will also take account of the questions raised in the following works: Guy Stroumsa, *A New Science. The Discovery of Religion in the Age of Reason*, Harvard University Press, 2010; Arnaldo Momigliano, “Ancient History and the Antiquarian”, *Journal of the Warburg and Courtauld Institute*, 1950; Arnaldo

Positions for two researchers were advertised by the Scuola Normale Superiore di Pisa. The winners were awarded a scholarship of one year duration. Two workshops and an international conference will also be organized. It is expected that the papers from the international conference will later be published. One more researcher will be appointed for 2014.


**Researchers:**
Angela Ballone
Lucio Biasiori
Giovanni Tarantino

**Publications:**

Anthony Grafton

Henry Putnam University Professor of History at Princeton University

2002 Balzan Prize for the History of the Humanities
For his outstanding work on the history of scholarship, especially of the classical tradition in European intellectual history since the Renaissance, including the history of the evolution of scholarly practices, techniques and attitudes, and the links between humanist learning and the development of modern science.

Institution Administering Research Funds: Princeton University

Adviser for the Balzan General Prize Committee: M.E.H. Nicolette Mout

Joseph Justus Scaliger (1540-1609) - Edition of the Correspondence

Half of the Balzan Prize awarded to Anthony Grafton in 2002 has been devoted to the creation of a complete critical edition of the correspondence of the great French humanist and historian Joseph Justus Scaliger (1540-1609). A complete edition of Scaliger’s correspondence has long been the wish of Anthony Grafton. In an era of great encyclopaedic minds, Joseph Scaliger was recognized by friends and enemies alike as the most learned man in Europe – as the only one who could rival Aristotle as the “greatest scholar of all times”. An erudite philologist, Scaliger could restore ancient texts like Virgil, Festus, Catullus, Tibullus, Apuleius, Caesar and Polybiusto to their original form. He also wrote treatises on “historical chronology”, the highly complicated but indispensable study of dates and calendars in ancient and recent history, and made fundamental contributions to various fields of knowledge. Anthony Grafton has dedicated a biography to Scaliger (Joseph Scaliger. A Study in the History of Classical Scholarship, Vol. I. Textual Criticism and Exegesis, Oxford 1983; Vol. II. Historical Chronology, Oxford 1993) that not only deals with the man, but also presents a network of his contemporaries, describing their many-faceted activities.

As a leading figure of intellectual life and a privileged witness of the political and religious events of his time, Scaliger, through his correspondence, played a central role
in the trans-national community of the sixteenth and seventeenth centuries. Scaliger’s letters, in French and Latin, are especially rich, but they have never been edited or analysed as a whole.

The Scaliger Project was established at the Warburg Institute in September 2003 by Professor Anthony Grafton to produce a critical edition of this important correspondence. Two editors, Dr. Paul Botley and Dr. Dirk van Miert, were appointed to undertake this task. By the end of the fourth year of the project, the text of the corpus had been established. The surviving correspondence of Joseph Scaliger amounts to some 1650 letters, written between 1561 and 1609. The entire correspondence has been transcribed and collated with its extant sources; this text has been edited and provided with a full textual apparatus; every letter has been provided with textual and contextual headnotes; and every letter has been supplied with an English synopsis.

Efforts during the fifth year focused on compiling elucidatory footnotes to accompany the letters, and on the preface and bibliography for the entire edition. Most of the textual work has been done from microfilms, photographs and photocopies. Final visits to Paris, Munich, Hamburg and Copenhagen were made in September 2009 to check the original manuscripts where these reproductions are unclear. Professor Henk Jan de Jonge of Universiteit Leiden, who served as supervisory editor of the correspondence, read and commented on the entire body of texts and notes, making many improvements and stimulating the editors to make many more.

At the end of 2009, Dr. van Miert left the Project to take up a position as a postdoctoral fellow at the Huygens Instituut voor Nederlandse Geschiedenis of the Koninklijke Nederlandse Akademie van Wetenschappen (KNAW) in the Hague. Dr. Botley remained to complete the eight volumes of the letters. He also worked on compiling the final volumes, containing an essential companion to the text, undated letters, a number of textual and exegetical appendices, an extensive biographical glossary and the indices.

In 2011, Dr. Botley completed all work on the remaining volumes, in occasional consultation with Dr. van Miert. The distinguished publisher Max Engammare of Librairie Droz in Geneva agreed to publish the correspondence in the series Travaux d’Humanisme et Renaissance. After Dr. Botley configured the final texts to the required specifications, the volumes appeared in July 2012.
Lecture by Paul Botley:

Lectures by Dirk van Miert:
- “Confessionalising in de Republiek der Letteren”, History Department, Universiteit van Amsterdam, 19 November 2008.
- “Scaliger Scatalogus. Retorische en filosofische achtergronden van scheldkannonades in de brieven van Joseph Scaliger”, Classics Department, Universiteit van Amsterdam, 3 December 2008.
- “De filoloog met de hamer. Radicale filologie in de briefwisseling van Joseph Scaliger”, History Department, Universiteit van Amsterdam, 26 May 2009.
- van Miert was also a panel member with Anthony Grafton and Marika Keblusek for a public discussion on “The Republic of Letters”, Historisch Café, Amsterdam, 25 February 2009.

Researchers:
Paul Botley
Dirk van Miert

Publications:
The complete edition of Scaliger’s correspondence is now complete and the eight volumes were published by Droz in July 2012.


Publications by Paul Botley:

Publications by Dirk van Miert:

Link:
http://warburg.sas.ac.uk/scaliger/projects/scaliger/
Peter Hall †

Professor of Planning and Regeneration at the Bartlett School of Planning, University College London; Senior Research Fellow at the Young Foundation

2005 Balzan Prize for The Social and Cultural History of Cities since the Beginning of the 16th Century

For his unique contribution to the history of ideas about urban planning, his acute analysis of the physical, social and economic problems of modern cities and his powerful historical investigations into the cultural creativity of city life.

Institution Administering Research Funds: The Bartlett School of Planning, University College of London

Adviser for the Balzan General Prize Committee: Keith Thomas

New Patterns of Urban Activity

The following projects financed by Sir Peter Hall with the second part of his Balzan Prize were carried out at the Bartlett Centre for Advanced Spatial Analysis at the University College of London. These projects stem from his studies and were carried out under his supervision.

1. Labour Markets and Housing Markets in England

As proposed by Sir Peter Hall, PhD student Basak Demires Ozkul worked on the changing economic structure of the North West of England, one of the cradles of the English Industrial Revolution, which has been impacted by deindustrialization over the last forty years. She also continued to work on her specialist subject of housing, on which she had previously worked with Professor Lawrence Vale at MIT. The outcome was an extremely ambitious attempt to marry two different research streams: labour market modeling and housing market modeling. She examined the simultaneous operation of these two markets within her chosen region – an ideal area for the purpose, comprising two major cities that are successfully making the transition into the knowledge-based service economy, neighbouring industrial towns that are struggling to do so, and an attractive countryside to which many of the workers in the “new economy” are commuting.
Basak Demires Ozkul has also worked as assistant to Sir Peter Hall on research in a related field, which will be published by the UK Government Office for Science as a jointly-authored publication: Government Office for Science, *Long Science Review on the Influence of Significant Drivers on Land Use since 1945*.

2. Geographical and Temporal Patterns of Information Flows in European Cities
A very able young American who had been Sir Peter’s Master’s student, Jonathan Reades, worked on innovative research strategies using mobile phone company data to analyse the geographical and temporal patterns of information flows in European cities. He developed a highly productive working relationship with MIT’s SENSEable City Laboratory, the world’s leading research group in the field of mapping mobile phone data as a means of analysing urban activity patterns. Here he has contributed to proposals that culminated in SENSEable’s installation at the MoMA in New York and in a disaster-planning research project with the Dutch telecommunications company Koninklijke KPN N.V.

3. European Identity and Recent Immigrants into European Cities
Dr. Francesca Recchia, who completed her PhD on “Histories, Cultures and Literatures of English speaking Countries” at the Oriental Institute in Naples in 2005, was engaged in postdoctoral studies on “European Identity” with Sir Peter Hall from October 2006 to October 2007. Her focus, stemming from her PhD, was an analysis of this through recent European literature, concentrating on writers with multiple ethnic and cultural identities. She first produced a paper on London as seen through the eyes of contemporary novelists who are either recent immigrants or children of immigrants, and then repeated the exercise for Paris in a published article (Recchia, 2008).

About a tenth of the research sum was allocated to the Young Foundation (formerly the Institute of Community Studies) to finalize and pay for two studies in book form. *London Voices, London Lives* was published in 2007 by Policy Press. It consists of edited transcripts of more than one hundred interviews with Londoners in eight different sample areas in and around the city. *The Polycentric Metropolis: Learning from Mega-City Regions in Europe* was published in 2006 by Earthscan Publications. Fifty copies of this book were donated to the young researchers who participated in the POLYNET project, analyzing and describing flows of information and their geographical patterns in eight regions of North West Europe.
Researchers:
Basak Demires Ozkul
Jonathan Reades
Francesca Recchia

Publications:
Reades, J. (in peer review) “People, Places and Privacy: using Finite State Machines to preserve privacy while mining the mobile phone network”. *Journal of Urban Technology*. [Note: the above paper has been cited in *Tourist Mobility and Advanced Tracking Technologies*, to be published by Routledge Geography.]
Rosalyn Higgins

Dame Rosalyn Higgins, DBE, QC; former President of the International Court of Justice in the Hague; Fellow of the British Academy; Fellow of the American Academy of Arts and Sciences

2007 Balzan Prize for International Law since 1945
For her outstanding contributions to the development of international law since the Second World War and her role as an academic, judge and Court President; for her clear, constructive as well as innovative and groundbreaking books, writings, articles and court decisions in defence of the rule of law and human rights; for her leading role in strengthening and enlarging modern international law.

Institution Administering Research Funds: The British Academy

Adviser for the Balzan General Prize Committee: Luzius Wildhaber

Oppenheim’s International Law. A New Volume on the United Nations

Rosalyn Higgins’ Balzan research project focuses on a comprehensive study of the main intergovernmental organizations, with the United Nations at the centre of the network. Directed by Dame Rosalyn, a group of young scholars (Dapo Akande, Sandesh Sivakumaran, James G. Sloan, Philippa Webb and Ralph Wilde) are carrying out the research work necessary to the realization of a new Oppenheim’s International Law volume: Oppenheim on International Organizations. Philippa Webb has taken on the responsibilities of Project Manager.

The Balzan Oppenheim Project team had its first meeting in February 2008 in The Hague, The Netherlands. At this meeting, the team made extensive revisions to the original Outline of Contents for Oppenheim on International Organizations. It was early realised that it was physically impossible, in this ever expanding world, to cover the generality of international institutions, and our efforts would be directed to producing a work of great quality on the law of the United Nations. A broad assignment of topic areas was made and methodological issues and the approach to drafting in the ‘Oppenheim style’ were discussed. A second team meeting took place in Novem-
ber 2008 in The Hague during which preliminary research results on peacekeeping and human rights bodies were discussed. The meeting also considered outlines for research on UN immunities and legal personality of the UN at the domestic and international levels.

A third team meeting was held in November 2009 in The Hague. First drafts on the principal UN organs, the subsidiary organs, human rights, international criminal tribunals, financing and the role of the UN Secretariat were reviewed. The team had a fourth meeting in London in March 2010. At this meeting the first drafts on UN immunities and legal personality were discussed in detail. A fifth meeting was held in December 2010 in The Hague to consider first drafts on a range of topics and to review second drafts on peacekeeping, human rights, tribunals, principal and subsidiary UN organs, financing, the UN Secretariat, immunities and legal personality. A sixth meeting was convened in London in May 2011 to discuss a first draft on powers and a revised draft on the principal organs. The seventh meeting took place in London in March 2012 to examine first drafts on voting, the UNHCR, and disaster review as well as to consider revised drafts on tribunals, subsidiary organs, financing, UN Secretariat, peaceful settlement of disputes, the International Criminal Court, powers, and personality.

The eighth meeting was held in November 2013 in London to examine first drafts on the International Court of Justice (in part); Responsibility; Membership (in part); and Geneva-Vienna-New York relations. Substantive revisions are to be made to existing drafts on the UN High Commissioner for Refugees; Disaster Relief; Voting; Immunities; Hybrid Tribunals; Peacekeeping; Principal Organs; Subsidiary Bodies; the Security Council; Legal Personality; Powers; International Criminal Court; and the Peaceful Settlement of Disputes.

The ninth meeting will be held in November 2014 in London. It was agreed that the priority for the coming year would be new drafting. The ninth meeting will consider new drafts on the International Court of Justice (various aspects), Membership, Promoting International Law, the International Tribunal for the Law of the Sea, Protecting the Environment, and Sanctions.

This was always anticipated to be a major and long-term project. In the meantime, the research for the project has generated some important, related publications for the young academics taking part, such as:


As for the project itself, over 700 pages of research now exist and Dame Rosalyn remains deeply grateful to the Balzan Foundation.

Researchers:
- Dapo Akande is Associate Professor of Public International Law in the Oxford Law Faculty, Yamani Fellow at St Peter’s College and Co-Director of the Oxford Institute for Ethics, Law and Armed Conflict and the Oxford Martin Programme on Human Rights for Future Generations.

- Sandesh Sivakumaran is Professor of Public International Law at the School of Law, and Fellow of the Human Rights Law Centre of the University of Nottingham.

- James G. Sloan is Senior Lecturer in Public International Law at the School of Law of the University of Glasgow.
- Philippa Webb is former Special Assistant and Legal Officer to President Rosalyn Higgins at the International Court of Justice and, since September 2012, Lecturer in Public International Law at King’s College London.

- Ralph Wilde is Reader at the Faculty of Laws, University College London. He participated in the research project 2008-2012.

Time has not stood still for our research team, and not only have they published widely but also received promotions in their universities and/or other forms of recognition.

**Publications:** *Oppenheim’s International Law. A New Volume on International Organizations* is planned to be ready for publication in 2015/2016.
Eric Hobsbawm †

President of Birkbeck College, University of London and Emeritus Professor in the Department of History

2003 Balzan Prize for European History since 1900
For his brilliant analysis of the troubled history of twentieth-century Europe and for his ability to combine in-depth historical research with great literary talent.

Institution Administering Research Funds:
The School of History at Birkbeck College, University of London

Adviser for the Balzan General Prize Committee: Keith Thomas

Reconstruction in the Immediate Aftermath of War: a Comparative Study of Europe, 1945-50

Eric Hobsbawm’s Balzan research project, entitled “Reconstruction in the Immediate Aftermath of War: A Comparative Study of Europe, 1945-50”, was established at Birkbeck College, University of London. It was directed by David Feldman (Birkbeck College) and Mark Mazower (Columbia University), and it comprised a programme of research projects undertaken by two postdoctoral fellows, Jessica Reinisch and Elizabeth White, as well as four workshops and a conference.

The project began in the academic year 2004-2005 and research activities ended in 2007. Both postdoctoral fellows on the project, Jessica Reinisch and Elizabeth White, have now permanent university positions, the former at Birkbeck College and the latter at the University of Ulster. Postdoctoral researcher Jessica Reinisch worked on “The Reconstruction of the Public Health System in Germany up to 1949”. Securing public health was a key component in reconstruction, and the issue of public health has generally received only superficial treatment in the literature on German reconstruction. Jessica Reinisch pursued a comparative analysis of reconstruction in the different German occupation zones, and her research contributed to our understanding of post-war reconstruction in a comparative perspective. Postdoctoral researcher Elizabeth White worked on “The Return of Soviet Citizens Evacuated to the
Urals, Central Asia or Siberia”. This work looks both at the experience of return and at
the attempts of the Soviet state to administer and control the re-evacuation and to use
it as a form of social engineering. Whereas evacuation was a major theme in Soviet
historiography, little work has been done on the return process. At the same time, the
particular history of return in the Soviet Union presents one instance of a theme that
the reconstruction project explores comparatively in a variety of national contexts.
Over the course of the programme four workshops and a conference were held at
Birkbeck College. These were attended by an international array of scholars from all
over Europe and from the United States.

The first workshop, *Comparing Europe’s Post-war Reconstructions*, was held on
28 October 2005. Participants: Nicholas Atkin (Reading), Zhanna Bogdanovich
(Birkbeck), Martin Conway (Oxford), Ralph Desmarais (Imperial College), David
Feldman (Birkbeck), Sheldon Garon (Princeton), Peter Gatrell (Manchester), Yoram
Gorlitzki (Manchester), Neil Gregor (Southampton), Jan Gross (Princeton), Eric
Hobsbawm (Birkbeck), Simon Kitson (Birmingham), Carl Levy (Goldsmiths),
Frances Lynch (Westminster), Mark Mazower (Columbia), Catherine Merridale
(Queen Mary), Alan Milward (H.M. [UK] Government Cabinet Office), Shaun
Morcom (Birkbeck), Philip Nord (Princeton), Jessica Reinisch (Birkbeck), Jan
Rueger (Birkbeck), Naoko Shimazu (Birkbeck), Ben Shephard (Oxford), Timothy
Snyder (Yale), Nigel Swain (Liverpool), Johannes-Dieter Steinert (Wolverham-
pton), Penny Summerfield (Manchester), Frank Trentmann (Birkbeck), Adam Tooze
(Cambridge), Jay Winter (Yale), Elizabeth White (Birkbeck), Waqar Zaidi (Imperial
College).

The other three workshops involved the following participants:

*Relief and Rehabilitation in the Immediate Aftermath of War*, June 2006. Rod Bailey
(Imperial War Museum), John Barber (Cambridge), Polly Basak (Wellcome Trust),
Virginia Berridge (London School of Hygiene & Tropical Medicine, LSHTM),
Sanjoy Bhattacharya (Wellcome Trust), Richard Bessel (University of York),
G. Daniel Cohen (Rice University), Ralph Desmarais (Imperial College), David
Feldman (Birkbeck), Matthew Frank (Sheffield Hallam), Katerina Gardikas (Athens),
Peter Gatrell (Manchester), Christian Goeschel (Cambridge), Eric Hobsbawm
(Birkbeck), Simon Kitson (Birmingham), Rowan MacAuslan (Birkbeck), Anthony
McElligott (Limerick), Emily Mayhew (Imperial College), Mark Mazower (Colum-
bia), Christopher Read (Warwick), Jessica Reinisch (Birkbeck), Jan Rueger (Birkbeck),
Silvia Salvatici (Teramo), Rainer Schulze (Essex), Ben Shephard (Oxford), Naoko Shimazu (Birkbeck), Iain Smith (Warwick), Frank Snowden (Yale), Johannes-Dieter Steinert (Wolverhampton), Penny Summerfield (Manchester), Pat Thane (School of Advanced Study/ICBH, King’s College London), Flora Tsilaga (King’s College London), Paul Weindling (Oxford Brookes), Elizabeth White (Birkbeck), Waqar Zaidi (Imperial College).

*Displacement and Replacement in the Aftermath of War, 1944-1948*, September 2006. Pamela Ballinger (Bowdoin College), Antony Beevor (Birkbeck), Richard Bessel (York), G. Daniel Cohen (Rice University), Gustavo Corni (Trento), Matthew Frank (Sheffield Hallam), Orlando Figes (Birkbeck), Peter Gatrell (Manchester), Loukianos I. Hassiotis (Thessaloniki), Panikos Panayi (De Montfort), Daniel Pick (Birkbeck), Jessica Reinisch (Birkbeck), Lucy Riall (Birkbeck), Eduard Mühle (Münster), Irena Salenice (Daugavpils), Silvia Salvatici (Teramo), Rainer Schulze (Essex), Nik Wachsmann (Birkbeck), Marie Sevela (CRJ-EHESS, Paris), Naoko Shimazu (Birkbeck), Johannes-Dieter Steinert (Wolverhampton), Elizabeth White (Birkbeck), Nick Stargardt (Oxford), Tara Zahra (Harvard).

*Planning, Production and Reconstruction in Post-war Europe*, June 2007. John Gillingham (Missouri, St. Louis), Jacek Kochanowicz (Universitas Varsoviensis - Warsaw), Katherine Lebow (Virginia), Mark Mazower (Columbia), Alan Milward (LSE), Kiran Patel (Humboldt, Berlin), Waqar Zaidi (Imperial College).

The final conference dedicated to *Post-War Reconstruction in Europe* was held in June 2008. Participants: Richard Bessell (York), Fred Cooper (New York University), Jan Gross (Princeton), Toby Haggith (Imperial War Museum), Mark Harrison (Warwick), Harold James (Princeton), Pieter Lagrou (Université Libre de Bruxelles), Suzanne Langlois (York University, Toronto), Mark Mazower (Columbia), Silvio Pons (Università di Roma, “Tor Vergata”), Peter Romijn (Amsterdam), Remco Raben (Nederlands Instituut voor Oorlogsdocumentatie), Jessica Reinisch (Birkbeck), Emma Rothschild (Harvard), Ben Shepard (Bristol/Oxford), Anders Stephanson (Columbia), Jakob Tanner (Zürich), Adam Tooze (Cambridge), Nick White (John Moores University, Liverpool).

**Researchers:**
Jessica Reinisch
Elizabeth White
Publications:
Reinisch, J., ed. Journal of Contemporary History Vol. 43. No. 3 (July 2008).
[Contents: Mark Mazower, Reconstruction: The Historiographical Issues; David Edgerton, War, Reconstruction, and the Nationalization of Britain, 1939-1951; Adam Tooze, Reassessing the Moral Economy of Post-war Reconstruction: The Terms of the West German Settlement in 1952; Holly Case, Reconstruction in East-Central Europe: Clearing the Rubble of Cold War Politics; Mark Harrison, The Soviet Union after 1945: Economic Recovery and Political Repression; Silvio Pons, Stalin and the European Communists after World War Two (1943–1948); Richard Bessel, Establishing Order in Post-war East-


Links:
www.balzan.bbk.ac.uk
http://past.oxfordjournals.org/content/210/suppl_6/9.full
Nikki Ragozin Keddie

Professor Emerita of History at the University of California, Los Angeles

2004 Balzan Prize for the Islamic World from the End of the 19th to the End of the 20th Century

For a remarkable contribution to our knowledge of the Islamic world in the 20th century, and particularly of the encounter between Muslim religion and thought and the spiritual and political values of the West.

Institution Administering Research Funds:
University of California, Los Angeles (UCLA)

Adviser for the Balzan General Prize Committee: Hélène Carrère d’Encausse

Women, Gender, and the Family in the Muslim World

Professor Keddie’s research project initially involved her bringing six post-doctoral fellows in women’s studies to UCLA and working with them in the course of four years. The six Keddie-Balzan Fellows were chosen from authors of important research on women, gender and the family in the Muslim World. They were encouraged by Nikki Keddie both to continue their ongoing research and to produce papers on the broader implications of their work for the study of the Islamic world and/or comparative history and society. The fellows for 2005-2006 were Holly Shissler, who taught two courses in history, and Nayereh Tohidi, who taught in women’s studies. The 2006-2007 fellows were Masserat Amir-Ebrahimi in geography and sociology and Jasamin Rostam-Kolayi in history. The 2007-2008 fellow was Houri Berberian in history, and the 2008-2009 fellow was Janet Afary in history. A final workshop on New Ideas for Middle Eastern Societies: Analyzing Women’s Writings was held at the University of California, Los Angeles, in 2007. The papers presented by Balzan fellows Holly Shissler, Masserat Amir-Ebrahimi and Jasamin Rostam-Kolayi were published by the Journal of Middle East Women’s Studies (JMEWS) in a special issue (Vol. 4, n. 3, Fall 2008). Nikki Keddie edited the issue and wrote its Introduction (“Innovative Women: Unsung Pioneers of Social Change”).
Professor Keddie was able to spend less than projected, and thus to continue the program beyond its original finish date. Two one-quarter fellowships were awarded, one to Pomona College Assistant Professor Arash Khazeni in history, autumn 2010, and a supplementary fellowship to Masserat Amir-Ebrahimi in gender-related studies in spring 2011.

Remaining funds were also used to organize a seminar: “Ethnic and Religious Minorities in Iran: Realities and Policy Issues, Past and Present”, planned and presented by Nikki Keddie, Nayereh Tohidi and Janet Afary, UCLA, on 22 May 2009. Several publications relate to this seminar. It is anticipated that further such activities will be supported with remaining funds.

**Talks initiated and largely funded by Keddie/Balzan funds:**
- Monica Ringer on her *Pious Citizens: Reforming Zoroastrianism in India and Iran* (Syracuse University Press, 2011).
- Roy Mottahedeh on trends in Islamic Theology.
- Lunch discussion by Elyse Semerdjian on her book *Off the Straight Path: Illicit Sex, Law and Community in Ottoman Aleppo* (Syracuse University Press, 2008).
- Co-sponsored talk by Olivier Roy on Islamism worldwide.

**Researchers:**
Janet Afary  
Masserat Amir-Ebrahimi  
Houri Berberian  
Arash Khazeni  
Jasamin Rostam-Kolayi  
Holly Shissler  
Nayereh Tohidi

**Publications:**


Rostam-Kolayi, J. “Origin of Iran’s Modern Girl’s Schools: From Private/National to Public/State”. *Journal of Middle East Women’s Studies (JMEWS)* Vol. 4, n. 3 (Fall 2008).

Shissler, H. “Womanhood Is Not For Sale: Sabiha Zekeriya Sertel Against Prostitution and For Women’s Employment”. *Journal of Middle East Women’s Studies (JMEWS)* Vol. 4, n. 3 (Fall 2008).


**Links:**

The Annual Keddie-Balzan Lecture 2008:
http://www.international.ucla.edu/podcasts/article.asp?parentid=93497

Seminar - Ethnic and Religious Minorities in Iran: Realities and Policy Issues, Past and Present:
http://www.international.ucla.edu/asia/centralasia/events/showevent.asp?eventid=7370
Lothar Ledderose

Senior Professor of the History of East Asian Art at Ruprecht-Karls-Universität, Heidelberg

2005 Balzan Prize for the History of the Art of Asia
For his outstanding work on the history of Chinese and Japanese art and innovative ideas, contributing to a new interpretation of the art of these countries, as well as to the creation of a modern vision of its role in global art.

Institution Administering Research Funds:
Ruprecht-Karls-Universität Heidelberg
Heidelberger Akademie der Wissenschaften

Adviser for the Balzan General Prize Committee: Dmitry O. Shvidkovsky

1. Heidelberg Colloquies in East Asian Art History, Ruprecht-Karls-Universität Heidelberg
One third of the funding was devoted to colloquies held at The Institute of East Asian Art History at Heidelberg University (Institut für Kunstgeschichte Ostasiens an der Universität Heidelberg). About thirty researchers who were writing their theses in the field of East Asian art gave papers. The purpose was to give them a forum where they could present their work in progress, to offer them an opportunity to learn about each other’s topics and methods, and to establish international standards in the field. Applications were solicited from Europe, America and East Asia. Based on written thesis proposals, the selection was made by a committee of three professors from more than one country. In addition, one senior specialist was invited to each colloquy to give a lecture. Selected theses have been published. One young researcher took charge of the preparatory work for the colloquies, which were entitled the Heidelberg Colloquies on East Asian Art History.

The First Heidelberg International Colloquy on East Asian Art History took place from 14-17 September 2006. Sixteen PhD students from ten countries were selected from fifty-three applicants. The young researchers were: Xin Chen (University of Oxford); Youn-mi Kim, (Harvard University); Anton Schweizer (Ruprecht-Karls-
The Second Heidelberg International Colloquy on East Asian Art History took place from 10-13 July 2008. Chairpersons: Professor Lothar Ledderose, Professor Dame Jessica Rawson (University of Oxford); Professor Craig Clunas (University of Oxford); Professor John Carpenter (SOAS, University of London). Speakers: Jie Shi (University of Chicago); Su-chin Wang (National Taiwan University); Sheri A. Lullo (University of Pittsburgh); Lei Xue (Columbia University); Minku Kim (University of California, Los Angeles); Li-Kuei Chien (SOAS, University of London); Nobushiro Takahashi (SOAS, University of London); Yu Ping Luk (University of Oxford); Annette Bügener (Ruprecht-Karls-Universität, Heidelberg); Lingting Chiu (National Taiwan University); Yi Gu (Brown University); Ken Yoshida (University of California, Irvine); Jie Dong (China Academy of Art, Hangzhou); Yu-jen Liu (University of Oxford); Mio Wakita (Ruprecht-Karls-Universität, Heidelberg) and Kim Gyewon (McGill University). Discussants: Shinya Maezaki (SOAS, University of London), Lidu Yi (University of Toronto), Akiko of Mikasa (University of Oxford), Ning Yao (Ruprecht-Karls-Universität, Heidelberg).

The Third Heidelberg International Colloquy on East Asian Art History took place from 14-17 July 2011. Speakers presented their research thesis in four panels “Objects”, “Painting and Calligraphy”, “Space” and “Religious Art”, which were chaired by Professor Dame Jessica Rawson (University of Oxford); Professor Melanie Trede (Ruprecht-Karls-Universität, Heidelberg); Professor Craig Clunas (University of Oxford) and Professor Lothar Ledderose. Speakers: Chen Kaijun (Columbia University); Tseng Chin-Yin (University of Oxford); Anna Katharina Grasskamp (Universiteit Leiden); Peng Ying-Chen (University of California, Los Angeles); Frank Feltens (Columbia University); Ng Sau Wah (University of Oxford); Naoi Nozomi (Harvard University); Seo Yoonjung (University of California, Los Angeles); Lin Fan (McGill University); Liu Lihong (New York University); Grassmück-Zhang Shaohua (Ruprecht-Karls-Universität, Heidelberg); Anne Hennings (Ruprecht-Karls-Universität, Heidelberg); Ya-Chen Ma (Stanford University); Pietro de Laurentis (Università di Napoli L’Orientale); Li-Wei Chen (Columbia University); Pik Ki Peggy Ho (National Taiwan University); Massimo Carrante (Ruprecht-Karls-Universität, Heidelberg); Fei Bi (China Academy of Art, Hangzhou); Jong Phil Park (University of Michigan, Ann Arbor); Hui Guo (Universiteit Leiden); Mari Takamatsu (New York University); Walter B. Davis (Ohio State University); Yu-chin Huang (SOAS, University of London); Christof Büttner (Ruprecht-Karls-Universität, Heidelberg).
2. Buddhist Stone Inscriptions in North China,
Heidelberger Akademie der Wissenschaften

The research project is carried out in collaboration with the Heidelberg Academy of Sciences and Humanities (Heidelberger Akademie der Wissenschaften). This institution supports long term research on Buddhist inscriptions engraved in stone in China. The research project’s principal aim is to fully document these inscriptions. The Ledderose-Balzan research project is exploring methods of presenting the inscriptions to the scholarly community, and how to make them known and intelligible to a wider audience. This involves developing new methods of digitizing the inscriptions and presenting them visually. One of the aims of the project is a scholarly catalogue for a public exhibition of these materials. A recent outcome of this research project is the exhibition *Herz der Erleuchtung. Buddhistische Kunst in China 550-600 / The Heart of Enlightenment. Buddhist Art in China 550-600*, organized for the centenary of the Museum für Ostasiatische Kunst, Köln (Germany). The catalogue contains a preface by Adele Schlombs and essays by Lothar Ledderose, Claudia Wenzel and Suey-ling Tsai (Heidelberger Akademie der Wissenschaften), Liqun He (Archaeological Institute of the Academy of Social Sciences in Beijing) and Petra Rösch (Museum für Ostasiatische Kunst, Köln). Since funds still remain, work will continue on this for a number of years, with the results presented digitally.

**Exhibition:**

**Researchers:**
Paul Copp
Suey-Ling Tsai

**Publications:**

Professor Paul Copp of the University of Chicago is in the process of producing a book on the Hongdingshan panegyrics.

Links:
The Heidelberg International Colloquies on East Asian Art History are archived at http://iko.uni-hd.de/archive/conferences_en.html

Exhibition:
Serge Moscovici

Director of the Laboratoire Européen de Psychologie Sociale (LEPS), Fondation Maison des sciences de l’homme

2003 Balzan Prize for Social Psychology

Serge Moscovici’s works are characterized by their great novelty: they have overthrown the canonical paradigms of the discipline, renewed its methods of research and its orientations, and created a European tradition in social psychology whose originality is recognized everywhere. In the sciences of man and society, Serge Moscovici is in the position of eminence, which, until the end of the 1960s, was held by Jean Piaget.

Institution Administering Research Funds:
Fondation Maison des Sciences de l’Homme

Adviser for the Balzan General Prize Committee: Giovanni Busino

Social Psychology

The research projects that Serge Moscovici has carried out with the second half of the 2003 Balzan Prize for social psychology will have beneficial effects on social psychology at the international level.

The general principle was to stimulate research in countries where it was otherwise difficult to achieve training and scientific communication. The first strategy was to help set up research centres in different parts of the world. In the first instance this involved helping groups of researchers to create centres at universities, such as the Universidade de Brasília, where the Centro Internacional de Pesquisa em Representações e Psicologia Social “Serge Moscovici” has been established. Secondly, centres of research were established in cooperation with other centres, such as Professor Ida Galli’s Centro Mediterraneo per lo studio delle Rappresentazioni Sociali at the Università di Napoli “Federico II”. Finally, centres were set up in cooperation with funding from another foundation, e.g., a centre in São Paulo, which obtained funds from the Fundação Carlos Chagas. The second strategy was to help researchers across the world, e.g., in Mexico or in Italy. The third strategy was to help some researchers who explored a specific topic.
In carrying out these projects, the Balzan Prizewinner brought together colleagues and young researchers from all the countries already associated with the Laboratoire Européen de Psychologie Sociale (LEPS) in Paris. This laboratory, created more than thirty years ago within the framework of the Maison des Sciences de l’Homme, is an international network conceived to support and coordinate the activities of various research groups in social psychology. To this end it dealt with ensuring regular contacts between researchers on topics related to the problems, concerns and the transformations of contemporary European societies, stimulating exchanges in the field of psychosocial analysis, developing joint research, analyzing results obtained in the field of the theory of social representations, and taking part in the organization of international meetings. Its activities also included the publication of articles and books dealing with various theoretical and social questions.

**The Social Representation of Marxism**  
Coordinators: Serge Moscovici and Denise Jodelet

Topic: One of these studies focused on the social representation of Marxism. Serge Moscovici began studying the diffusion of Marxism approximately twenty years ago. Thanks to the second half of the Balzan Prize, this research was to be taken up again by the Prizewinner, with the collaboration of Denise Jodelet, Professor at the École des Hautes Études en Sciences Sociales (EHESS).

**An Exemplary Ethnic Minority: The Case of the Gypsies**  
Coordinators: Juan Antonio Pérez and Nikos Kalampalikis

Topic: The problem of ethnic minorities which seek to express their identity by becoming protagonists in the playing out of their own destiny has preoccupied researchers from many countries and has attracted the attention of many international institutions. Serge Moscovici has concentrated his focus on this culturally rooted and wandering ethnic minority. Juan Pérez, ordinary Professor at the Universitat de València, and Nikos Kalampalikis, lecturer at the Université Lumière Lyon 2, have collected 1400 questionnaires in seven European countries.

- In comparison, but on a more modest scale, a similar study was undertaken with regard to the Indians by Professor Campos in Brazil.
- Ida Galli (Università di Napoli “Federico II”) coordinated research in social psychology in the countries of Southern and Mediterranean Europe at the Centro Mediterraneo per lo Studio delle Rappresentazioni Sociali (2005).
- Risa Permanadeli (Universitas Katolik Atmajaya Jakarta, Indonesia, Ganeca Foundation) was to animate scientific networks on social representations with the countries of Southeast Asia at the Center for the Study of Social Representations Studies of Southeast Asia (2005).

Furthermore, Serge Moscovici earmarked the following projects for financing with the second part of his Balzan Prize:

- studies on the representations of Alter-mondialism. The group of young researchers were directed by Professor Jean-Claude Abric, Université de Provence, Aix-Marseille I;
- a joint psychosocial research project on the rights of the child, led by Professors Francesca Emiliani and Luisa Molinari of the Università di Bologna;
- a psychological health study carried out by Professor Sylvia Valencia, Universidad de Guadalajara;
- a modest part of the archival organizational work of professor Lavinia Betea, lecturer in the Faculty of Political Science at the Universitatea din București, which concerned psycho-biographies of leaders of the Romanian Communist Party;
- a one year PhD fellowship awarded to Luciana Radut who prepared a social psychology doctoral thesis, “The Representations of European Construction. Between Central Europe and Eastern Europe”.

**Conferences:**

- VIII International Conference on Social Representations (Rome, 28 August-1 September 2006).
- Giornata di Lotta allo stigma del disagio mentale (Viterbo, 19 April 2007).
- V JIRS (Brasilia, 31 July-3 August 2007).

The financing of the Balzan Foundation was an occasion of professional and intellectual growth for the young researchers engaged in the various courses of research, and makes it possible at the same time to better understand certain psychosocial problems.
Researchers:
Jean-Claude Abric
Maurice Aymard
Lavinia Betea
P. H. F. Campos
Francesca Emiliani
Ida Galli
Denise Jodelet
Nikos Kalampalikis
Ivana Marková
Luisa Molinari
Brigitta Orfali
Juan Antonio Pérez
Risa Permanadeli
Sylvia Valencia
Luciana Radut (scholarship)

Publications:
Moscovici, S. “Os ciganos entre perseguição e emancipação (The gypsies between...


Links:
http://www.leps.msh-paris.fr/eng/balzan_groups.htm
http://www.centromoscovici.unb.br/
Thomas Nagel

Professor of Philosophy and Law at New York University

2008 Balzan Prize for Moral Philosophy
For his fundamental and innovative contributions to contemporary ethical theory, relating to both individual, personal choices and collective, social decisions. For the depth and coherence of his original philosophical perspective, which is centred on the essential tension between objective and subjective points of view. For the originality and fecundity of his philosophical approach to some of the most important questions in contemporary life.

Institution Administering Research Funds: New York University

Adviser for the Balzan General Prize Committee: Salvatore Veca

Philosophical Aspects of Global Order

The main aim of the research project is to explore the complexity of ethics and politics, but it also supports young researchers in the fields of philosophy of mind, philosophy of language, and philosophy of science.

Most of the funds are being used to provide fellowships to enable visiting graduate students from abroad to spend time at New York University, to participate in the Philosophy Department’s program and its Institute of Philosophy research activities as well as in the NYU Law School “Colloquium in Legal, Political and Social Philosophy”, conducted by Thomas Nagel and Ronald Dworkin. The Colloquium examines scholarly work in progress on the issues of global justice, international human rights, immigration and national boundaries, and the relation between democratic legitimacy and judicial versus legislative supremacy. Students, younger scholars, and senior faculty members all participate in this program of ongoing discussions. For the four year duration of the project, several Balzan Fellowships are to be allocated each year to students coming to the Philosophy Department to spend a year as visiting graduate students. Every effort is made to identify students with the appropriate interests.
and abilities, so that such a visit might provide them with an opportunity to greatly expand their intellectual horizons. Each of the Balzan Fellows will take two graduate seminars per semester for credit in the department, and also participate in the various colloquia and conferences sponsored by the Institute of Philosophy, the Philosophy Department and the School of Law.

A further portion of the funds supports activities of the Institute of Philosophy, fostering research groups on topics of public concern that have an important philosophical dimension, such as “Science and Religion” or “Epistemology and Ethics of Disagreement”. These working groups bring together junior and senior scholars and graduate students regularly over an extended period, with research papers subjected to criticism and discussion.

During the spring term of 2010 the funds supported a research seminar, “Evolution and Ethics”, conducted by two assistant professors in the NYU Philosophy Department, Sharon Street and Laura Franklin-Hall. The seminar examined recent philosophical work concerning the relevance of evolutionary biology to ethics. Questions to be addressed included: How should we understand the role of biological and cultural evolution in shaping our capacity for normative thought and motivation, and in shaping the content of human values? Are such traits properly understood as evolutionary adaptations? What implications, if any, might evolutionary explanations have for our understanding of the nature of normative truth (both practical and epistemic) and our ability to know what it is? Are the causal origins of normative judgments ever relevant to normative theorizing – whether “first-order” or “meta-ethical” – and if so, in what way? Do the details of the best causal explanation matter? Does normative theory have an “autonomy” of sorts, and if so, how should we understand this idea? Attention was focused on the work of the following authors, each of whom visited the seminar: Philip Kitcher, John Dewey Professor of Philosophy and James R. Barker Professor of Contemporary Civilization at Columbia University; Allan Gibbard, Richard B. Brandt Distinguished University Professor of Philosophy at the University of Michigan; Richard Joyce, Associated Professor of Philosophy at the University of Sydney and Chandra Sripada, Assistant Professor at the University of Michigan. The authors’ visits were funded with the second half of the 2008 Balzan Prize for Moral Philosophy.
Funds were used to support three NYU/Columbia Graduate Student Philosophy Conferences:

In April 2011, the following papers were presented at the conference: “Shifts of Attention and the Content of Perception”, Adrienne Prettyman (University of Toronto); “Against Epistemic Akrasia”, Sophie Horowitz (MIT); “A Two-pronged Strategy for Solving the Platonist’s Access Problem”, Sharon Elizabeth Berry (Harvard); “It’s All too Hard”, Aness Webster (University of Southern California).

In April 2012, the following papers were presented: “Of Grounding and Explanation”, Ryan Perkins (Oxford); “Self-Forgiveness and Quality of Will”, Per-Erik Milam (University of California, San Diego); “Epistemic Blame and the Challenge of Doxastic Involuntarism”, Charles Cote-Bouchard (Montreal); “Subjective Ought”, Jennifer Carr (MIT); “Quasi-Realism and the Problem of Unexplained Coincidence”, James Dreier (Brown).

In April 2013, the following papers were presented: “Quantum Mechanics and Human Supervenience”, Elizabeth Miller (Harvard); “Is the Experience of Temporal Passage a Reason to Reject the B-Theory of Time?”, Melissa MacAulay (Western Ontario); “A Smaller Self: Two Criticisms of Real Self Theories”, Ross Colebrook (CUNY); “Against Intellectualist Accounts of Belief”, Jack Marley-Payne (MIT); “Time-Slice Epistemology and Action under Indeterminacy”, Sarah Moss (Michigan).

In the spring of 2013, Balzan funds were used to support a series of conferences conducted by the New York Institute of Philosophy, on the Foundations of Epistemology. The conferences brought together junior and senior scholars for intensive discussion of specific materials, presented by their authors. There were three meetings in all, the first two in New York and the third at the NYU conference center La Pietra, near Florence:

February 16: The Value of Truth
Peter Railton (University of Michigan), “The Value of Truth and the Value of Belief”, with comments by Sinan Dogramaci (University of Texas); Paul Horwich (NYU), “Belief-Truth Norms”, with comments by Daniel Greco (NYU).

April 13: Reasoning
June 3-6: The A Priori

Researchers:
Assistant Professors (Seminar):
Laura Franklin-Hall, NYU Philosophy Department
Sharon Street, NYU Philosophy Department

Graduate Fellowships 2009-2010:
- Camil Golub, Universitatea din București. He worked on the relation between normativity and evolutionary theory, with respect to the norms of logic and belief as well as the norms of intention and action. He took classes in: Philosophy of the High Level Sciences; Meaning, Understanding and Truth; Constructing the World; Non-Classical Logics; Evolution and Ethics. Individual advisor: Laura Franklin-Hall.
- Ana Hultan, Universidad de Buenos Aires. She worked on the metaphysics of natural kinds and laws of nature, with special reference to modality and the distinction between essential and accidental properties. She also worked on the philosophy of mind and the philosophy of cognitive science. She took the following classes: Topics in Metaphysics: Metaphysics and Metaphilosophy and Constructing the World. (1 term). Individual advisor: Ted Sider.
- Stefan Ionescu, Central European University, Budapest. He worked in the philosophy of science, with special reference to the analysis of causation and explanation. He took classes on: The Philosophy of the Special Sciences, General Philosophy of Language and the class “Constructing the World”. Individual advisor: Michael Strevens.

Graduate Fellowships 2010-2011:
- Ramiro Caso, Universidad de Buenos Aires, took courses on Philosophical Logic and Philosophical Research. He produced six papers. Two papers were on relativism about truth; two were on sets and quantification; another was on admissible
solutions for the problem of self-undermining chances raised by Lewis’ Principal Principle; a final paper was produced on Aristotelian metaphysics (1 term). Individual advisor: Crispin Wright.

- Orsolya Reich, Central European University, Budapest, attended classes in Ethics, Decision Theory and Egalitarianism. She produced two papers: “The Fairness Theory and the Particularity Requirement” and “Global Equality of Resources”. Individual advisor: Thomas Nagel.

- Shun-Pin Hsu, National Yang Ming University in Taipei, focused on the level theory in biology. Individual advisor: Laura Franklin-Hall.

- Joy Chihiyi Hung, National Yang Ming University in Taipei, focused on philosophy of mind, and took courses in Metaphysics, Philosophy of Biology, Philosophy of Creativity, Philosophy of Mind. Individual advisor: Ned Block.

Graduate Fellowships 2011-2012:

- Yun-Chak Chong, Chinese University of Hong Kong, participated in the Colloquium in Law, Philosophy and Social Theory; seminars on metaethics and on equality; on the philosophy of physics and individual directed research on the moral philosophy of Hume and Kant. His research is especially concerned with the problem of how demanding moral requirements are in relation to the interests of the individual agent. Individual advisor: Thomas Nagel.

- Alfonso Losada, Universidad de Buenos Aires, is working on the semantics of natural language and the link between the meaning and the epistemic dimension of expressions. He is also concerned with the epistemology of modality, and whether conceivability is a good guide to possibility. Individual advisor: Stephen Schiffer.

- Attila Mraz, Central European University, Budapest, participated in the Colloquium in Law, Philosophy and Social Theory, and took other seminars in metaethics and equality. His research focuses on the relation between equality and justice and the scope of egalitarian justice – whether it applies nationally or internationally – as well as the question of how the structure of actual institutions affects this scope. Individual advisor: Samuel Scheffler.

- Adriana Sora, Universitatea din Bucureşti, participated in seminars in metaphysics and the philosophy of science. Her research focuses on philosophy of mind, with special reference to the epistemological aspects of the mind-body problem. She participated in the workshop conducted by David Chalmers on problems about consciousness. Individual advisor: Peter Unger.
Graduate Fellowships 2012-2013:

- David Bitter, Central European University, Budapest, pursued research on the cognitive status of hypnosis and hallucinations, and on the relation between the phenomenal and intentional content of perception, in discussion with Ned Block. In the fall he attended a seminar at Rutgers conducted by Jerry Fodor and Zenon Pylyshyn on the Role of Concepts in Perception. In the spring he took Jesse Prinz’s seminar on Recent Issues in Consciousness, and the Mind and Language seminar conducted by Stephen Schiffer and Stephen Neale. He also participated in David Chalmers’s workshop on consciousness in the fall term. Individual supervisor: Ned Block.

- Sapphires Sin Ting Wong, Chinese University of Hong Kong, came with a primary interest in philosophy of mind. She was individually supervised in the fall by Ned Block on the neurobiological basis of consciousness, by Thomas Nagel on the problem of personal identity in the fall term, and on ethical theory in the spring. In the spring she also had supervision by Helen Yetter Chappell in philosophy of mind. She participated in seminars and workshops conducted by Ned Block, Jesse Prinz and David Chalmers on neuroscience and the philosophy of mind. Individual supervisor: Thomas Nagel.

The research funds have been used almost exclusively to support graduate students in the middle of their studies, rather than post-doctoral researchers. But the opportunities the fellowships offer to students from all over the world to expand their horizons and enrich their intellectual experience have been invaluable, and will certainly bear fruit in the future.
Colin Renfrew

Lord Renfrew of Kaimsthorn; Senior Fellow at the McDonald Institute for Archaeological Research University of Cambridge; former Disney Professor of Archaeology and Director of the McDonald Institute for Archaeological Research

2004 Balzan Prize for Prehistoric Archaeology

Andrew Colin Renfrew, Lord Renfrew of Kaimsthorn, is one of the most eminent personalities in the world of archaeology today. He is among the promoters of outstanding innovations in processual archaeology, author of a series of brilliant works on central themes in European and world prehistory that are marked by great interpretative acumen and have had a revolutionary impact. He has had through his great intellectual depth and balanced critical vision, an almost unequalled influence in the world of Western archaeology, displaying an extraordinary capacity in organizing studies, promoting theoretical debate and raising awareness of the ethical aspects of the profession of archaeologist.

Institution Administering Research Funds:
The McDonald Institute for Archaeological Research, University of Cambridge

Adviser for the Balzan General Prize Committee: Paolo Matthiae

Two Lines of Research in Prehistoric Archaeology

The first line of research was devoted to the development of “Material Engagement Theory”, the study of past ways of thinking through the material culture that has survived, a research area which Colin Renfrew has been trying to develop since his 1982 Cambridge Inaugural Lecture, Towards an Archaeology of Mind. The second line of research involves the development and expansion of archaeological fieldwork in the Early Bronze Age cultures of the Cycladic Islands of Greece, the subject of Renfrew’s 1965 doctoral dissertation and subsequent work.

1. Development of “Material Engagement Theory”
From 2005 until 2008, Dr. Lambros Malafouris held the position of Balzan Post-Doctoral Research Fellow in Cognitive Archaeology at the McDonald Institute for
Archaeological Research in Cambridge. Professor Renfrew and Dr. Malafouris organized two major symposia:

- The first symposium, “The Cognitive Life of Things. Recasting the Boundaries of the Mind” was held at the McDonald Institute from 7-9 April 2006. The papers presented at this symposium, after peer review, were published as a McDonald Institute Monograph in 2010 (Malafouris and Renfrew 2010).

- The second symposium, “The Sapient Mind: Archaeology meets Neuroscience”, was held at the McDonald Institute from 14-17 September 2007. It was co-organized with Professor Colin Renfrew and Professor Chris Frith (Department of Cognitive Neuroscience, UCL). The papers presented in this symposium were published as a special theme issue by the Philosophical Transactions of the Royal Society in 2008, and in 2009 by Oxford University Press under the title The Sapient Mind: Archaeology Meets Neuroscience. (Renfrew, Frith and Malafouris 2008; 2009). The publication of The Sapient Mind has also received extensive coverage in New Scientist (14 May 2008).

In addition, the links between archaeology and neuroscience formed the basis for a seminar co-organized by Lambros Malafouris and Colin Renfrew, entitled “Steps to a Neuroarchaeology of Mind” (Exeter, 15-17 December 2006). Selected papers from this session were published in a special section of the Cambridge Archaeological Journal 18, 3 (October 2008).

2. Archaeological fieldwork in the Early Bronze Age Cultures of the Cycladic Islands of Greece

A junior colleague of Colin Renfrew, Giorgos Gavalas, was involved in completing the publication of an earlier phase of the work on the site of Dhaskalio, on the island of Keros, which was then published in monograph form by the McDonald Institute of Archaeological Research (Renfrew et al., 2007).

Thanks to the award of the second half of the Balzan Prize to Colin Renfrew, it was possible to conduct the excavation of the site of Dhaskalio and Dhaskalio Kavos during the excavation seasons of 2006, 2007 and 2008. Preliminary reports on the 2006-2007 and 2008 excavations were published in The Annual of the British School of Athens (Renfrew et al., 2007; 2009). No further excavation is planned. The excavations involved the participation of a number of young graduate archaeologists, several of whom are contributors to the final report.
Researchers:
Lambros Malafouris

The quality of Dr. Malafouris’ research and the scientific impact of his work as Balzan Fellow were reflected in his frequent invitations to speak at conferences and institutions in the UK and overseas. For instance, from 2005 to 2008 he was invited to present papers at Edinburgh, UK (Interactive Mind AHRC workshop 2005), San Juan, Puerto Rico (SAA 2006), Berlin, Germany (European Platform 2006), Exeter, UK (lecture at the University of Exeter 2007), Southampton, UK (Innovation and Evolution workshop 2007), Oxford, UK (Classical Archaeology Seminar 2007), and the Zentrum für interdisziplinäre Forschung (ZiF), Bielefeld, Germany (The Enculturated Body workshop 2008). Additionally, he has refereed articles for the Cambridge Archaeology Journal, the Philosophical Transactions of the Royal Society of London, Series B and Science. For his innovative cross-disciplinary work in the area of “neuroarchaeology” and the extended mind, Dr. Malafouris was featured in Seed Magazine’s Revolutionary Minds Series (August 2008 issue).

Participants in the Excavation Project of 2006-2008:
Michael Boyd
Giorgos Gavalas
Myrto Georgakopoulou
Thomas Loughlin
Evi Margaritis
Barry Molloy
Ioanna Moutafi
Dimitris Tambakopoulos

Publications:


Paolo Rossi Monti †

Emeritus Professor at the University of Florence; Fellow of the Accademia dei Lincei

2009 Balzan Prize for the History of Science
For his major contributions to the study of the intellectual foundations of science from the Renaissance to the Enlightenment.

Institution Administering Research Funds:
Istituto Nazionale di Studi sul Rinascimento, Florence

Adviser for the Balzan General Prize Committee: M.E.H. Nicolette Mout

Cosmology and Physics, Memory and Emotions: Research on the History of Science

Paolo Rossi Monti set aside half of the Balzan Prize for research that involved seven outstanding young scholars. Paolo Rossi Monti personally followed their research in detail.

Professor Paolo Rossi Monti was supported by Professor Michele Ciliberto, corresponding member of the Accademia Nazionale dei Lincei and regular Professor of Modern Philosophy at the Scuola Normale Superiore di Pisa, to follow the research on Cosmology and Physics, while Professor Bernardino Fantini, Director of the Institut d’Histoire de la Médecine et de la Santé at the Université de Genève, followed the research on the subject of Memory and Emotions. It is anticipated that a conference will be held at the Accademia Nazionale dei Lincei to present the findings and the conclusions of the projects.

The subject Cosmology and Physics in the Sixteenth and Seventeenth Centuries was investigated in detail with the following pre-established themes:

- Cosmology and Medicine in the High and Late Renaissance: Olivia Catanorchi studied the interrelations between Astronomy, Cosmology and Medicine, and dedi-
cated special attention to the work of Cornelio Gemma, who was known by Campanella and Kepler.

- Aspects of Aristotelian Physics in the Paduan Lessons of Pietro Pomponazzi: Francesca Dell’Omodarme studied Pomponazzi’s comments and observations on the argumentation on Physics and Cosmology in Aristotle’s works.

- On the Mathematical Foundation of Giordano Bruno’s Natural Atomism: Marco Matteoli translated the Articuli centum et sexaginta adversus mathematicos et philosophos for the first time into Italian (including an extensive introduction and analytical commentary), starting with his in-depth study on Bruno’s writings dedicated to Mathematics and Geometry.

- Science, Philosophy and Politics in the Venice of Paolo Sarpi: Chiara Petrolini studied the intense intellectual exchange between Venice and England at the beginning of the seventeenth century, and in particular, the physiognomy of the so-called Sarpi circle. This theme of research is related to the cultural background of De la Pirotechnia by Vannuccio Biringuccio.

- The Moon in Fabula, Istoria and Utopia: Natacha Fabbri identified the main sources (pre-Galileo) defining the Moon as another Earth (Proclus, Macrobius, Simplicius, Plutarch) and delineated the ways it was articulated by Bruno, Patrizi, Kepler and Wilkins.

Concerning the subject Memory and Emotions, the following research projects dealt with the following pre-established themes:

- Arts of Memory in the Age of the Neurosciences: Matteo Borri followed an investigation on the historical developments of experimental research and on the theoretical contributions to the theme of memory and neurobiology, as well as techniques for increasing mnemonic power and maintaining mnemonic functions in the presence of pathologies, thus highlighting the connections between these techniques and the artes reminiscendi that enjoyed widespread popularity in Europe between the fifteenth and eighteenth centuries.

- Psychiatry, Anthropology and Scientific Psychology from Descartes to the French Enlightenment: Textual Heritage and Theoretical Influx on Freud’s Theory of Emotions: Yamina Oudai Celso investigated the background to Freud’s Theory of Emotions.
Researchers:
Supervisors: Professor Michele Ciliberto
Professor Bernardino Fantini

Research fellowships: Matteo Borri
Olivia Catanorchi
Francesca Dell’Omodarme
Natacha Fabbri
Marco Matteoli
Yamina Oudai Celso
Chiara Petrolini

Academic Gatherings:
Matteo Borri
2013
Second Seminar International, Interdisciplinary Research Laboratory, USI-Università della Svizzera italiana, Lugano 18-19 October.
- “La storia dell’Alzheimer per interpretare la complessità della malattia”. Summer School, Alzheimer: medicina, filosofia, letteratura, Nettuno, 21 June.
- “Paolo Rossi. La scienza ieri e oggi”. Florence, Biblioteca delle Oblate, 19 March.

2012
- “Relevance, Facts and Memory”. Discussion with Carlo Ginzburg, first InterLa’B, Rome, Accademia dei Lincei, 12 November.
- “Storia della malattia di Alzheimer”, with Marco Trabucchi and Alessandro Pagnini, Genoa, Festival della Scienza, 1 November.
- “Leggere per non dimenticare”. Florence, Biblioteca delle Oblate, 4 May.
- “Le neuroscienze”. Caldogno Villa di Scienza e di Pensiero, Caldogno (Vc), 24 April.

2010

Natacha Fabbri
- Annual Meeting of the Renaissance Society of America (Venice, 8-10 April 2010). Session Techne organized by UCLA and by the Getty Institute. Title of lecture: “Harmonic instruments and machinae mundi”.
- Lecture at the University of Bergamo (17 June 2010). “Kepler: l’armonia della fisica celeste”.
- International conference celebrating Telesio (Centre d’Études Supérieures de la Renaissance, Tours, 25 November 2010). Title of lecture: “Moderatio des contraires et harmonie selon Telesio”.
- International conference Sing aloud harmonious spheres: Music, Philosophy and the Order of the Universe in the Renaissance (Warwick and Oxford University, 12-15 May 2011). Title of lecture: “Mersenne’s Harmonious Universe between Theology and Natural Philosophy”.
- First InterLa+b meeting in Rome (Accademia Nazionale dei Lincei, 12-13 November 2012). Session Experiments (Junior discussant).
- International conference La science et son fondement: les dix premières années de la philosophie cartésienne, 1619-1628 (Université Paris Sorbonne, 23-24 November 2012). Title of lecture: “Ordo et mensura dans le Compendium Musica. À l’origine des Regulae”.

108


Yamina Oudai Celso


- Conference paper “Elektra” l’hystérique: de la Grèce archaïque à la Vienne de Freud (cours-séminaire public *Les émotions normales et pathologiques dans l’histoire de la médecine et de la musique* coordinated by Brenno Boccadoro and Bernardino Fantin. Institut d’Histoire de la Médecine et de la Santé, Université de Genève, 6 December 2010).

- Conference talk “Freud e la biologia delle emozioni” at SISSA Conference *Cervello, emozioni, morale*. Trieste, 8 March 2011.


- Conference talk “Freud e la filosofia antica”. SFI (Società Filosofica Italiana) course of lectures, Francavilla al Mare, 28 April 2011.


Publications:
Borri, M. “Alzheimer. La storia del male che mangia i ricordi”. Corriere del Ticino (31-1-2012).
Borri, M. “Il sapere scientifico tra storia delle idee e storia della scienza”. Study material for the online training platform Piano di diffusione delle lim - scuola secondaria di secondo grado, Ministero della pubblica Istruzione, 2010.
Fabbri, N. Un altro mondo. La Luna tra fabula, istoria e utopia (in preparation).
Matteoli, M. has also written the following entries to the *Enciclopedia Giordano Bruno. Parole immagini concetti*: atomo, continuo, dimensione, Euclide, geometria, limite, linea, matematica, mathesis, minimo, misura, mole, Pitagora, punto and termine; as well as the mathematical terms: Ars deformationum, De mordentii circino, De somnii interpretatione, De triplici minimo et mensura, Idiota triumphans, Mordentius and Praelectiones geometricae.


Another article is in preparation for the *Rivista di storia del cristianesimo*. 
Dominique Schnapper

Director of Research at the École des Hautes Études en sciences sociales, Paris; Honorary Member of the French Conseil Constitutionnel

2002 Balzan Prize for Sociology
For her wide-ranging work analysing the different ways in which modern societies have developed, from the sociology of culture to the sociology of administration and in particular the problems of social integration and the relationship between citizens and the State.

Institution Administering Research Funds:
Fondation Maison des Science de l’Homme

Adviser for the Balzan General Prize Committee:
Walter Rüegg and Hélène Carrère d’Encausse

Social Integration in Modern Democratic Societies

Dominique Schnapper has used the second half of her 2002 Balzan Prize for Sociology for a research project on social integration of marginalized groups in modern society. To this end she has assembled a research group composed of colleagues and young researchers. The project was designed to allow members of the group to further develop work already initiated (but interrupted due to lack of funds), within a shared framework and aims: a major quantitative inquiry on the problems of citizenship in France.

1. An Investigation on Jews in France. An empirical inquiry study undertaken in Toulouse by Chantal Bordes-Benayoun (Université de Toulouse II - Le Mirail), in Strasbourg by Freddy Raphaël (Université Marc Bloch de Strasbourg), and in Paris by Dominique Schnapper (École des hautes études en sciences sociales - EHESS). Besides the results of the empirical inquiry, the interpretation of the Jewish predicament in France called for a wider historical and sociological reflection on the changing relationships between all ethnical identities and citizenship. The results were published in a volume, La condition juive en France : La tentation de l’entre-soi, Schnapper,

2. *Islam and Democracy*. Mahnaz Shirali (Maison des Sciences de l’Homme) addressed the issue of the compatibility between Islam and democracy with a thorough inquiry based on participant observation in three different suburban areas of Paris and 150 interviews to young Muslims who live there. Focusing on multiple constructions of religiosity within young members of families who migrated to France from the Maghreb, this work was concerned with the place of Islam within democracy. The inquiry gave rise to a book, *Entre islam et démocratie : Parcours des jeunes Français d’aujourd’hui*, by Mahnaz Shirali, with a Preface by Dominique Schnapper (Armand Colin, 2007).

3. *Mixed Couples and Immigrant Families: a Comparison between France and Germany*. During the last five years a number of comparative studies on mixed couples and immigrant families in France and Germany have been carried out under the responsibility of Beate Collet and Emmanuelle Santelli (Université de Lyon 2). Taken altogether, these studies have provided new insights on the interdependence of marital choice, family patterns and different ways to combine familial cultural references with participation in social life. The main results are summarized in the following publications: Collet, 2004; Collet, 2006; Santelli and Collet, 2006; Collet and Inowlocki, 2006; Santelli, Collet, Boukacem and Ousmaal, 2007; Collet and Santelli, 2008. In 2005 a DVD aimed at familiarizing the general public with these research activities was released on the occasion of the Fête de la Science (Paris). The expertise acquired by this research group, thanks to the support of the second half of the Balzan Prize awarded to Dominique Schnapper, allowed them to apply and obtain a grant from the Ministère de l’Immigration, de l’Intégration, de l’Identité nationale et du Développement solidaire. The report on research was submitted in November 2007. Finally, the enquiry helped bring about a new international effort of cooperation at the European level: a project named *Mixcoup* (Mixed couples and transcultural hybridization) aimed at the training of young researchers was submitted to the European Commission in December 2009, within the ITN (Marie Curie Initial Training Network) initiative. The project included, besides Emmanuelle Santelli and Beate Collet, the German researchers who took part in the Balzan Project together with other partners from Spain, Turkey and Greece. A comprehensive work on mixed couples and transcultural hybridization was concluded in 2010 and published by Presses Universitaires de France (in the series Le Lien Social) in May 2012.
4. Social bond and citizenship in prison. Is it possible to speak of citizenship in prison? Citizens are entitled by the law to a number of rights which are not granted to inmates. How can those temporarily excluded from the “community of citizens” exercise their citizen’s rights and duties? These were the questions addressed by researchers Corinne Rostaing and Caroline Touraut (Rostaing, 2007, 2008; Touraut, 2005). Corinne Rostaing has also completed a study on the prison as a non-democratic institution, based on her whole empirical research on this issue. How can an institution which is contrary to democratic principles, especially those concerning individual freedoms, respond to the needs of a democratic society? A synthesis of this empirical research will be published under the title L’institution dégradante. Essai sociologique sur la prison.

Main Presentations:
- Collet, B., Mixed Partnerships and Experienced Citizenship. Mate Selection and Family Dynamics of Migration Descent in France and Germany. Intervention lors du colloque annuel du centre international des études doctorales (IPC), Goethe-Universität Frankfurt, May 2006.

Researchers:
Chantal Bordes-Benayoun
Beate Collet
Eran Gündüz
Lena Inowlocki
Freddy Raphaël
Corinne Rostaing
Mahnaz Shirali
Emmanuelle Santelli
Caroline Touraut

Publications:
Quentin Skinner

Barber Beaumont Professor of the Humanities, Queen Mary, University of London

2006 Balzan Prize for Political Thought; History and Theory
For his formulation of a distinctive methodology for the study of the history of ideas, his major contribution to the history of political thought and his acute reflections on the nature of liberty.

Institutions Administering Research Funds:
European University Institute (EUI), Fiesole
Centre for Research in the Arts, Social Sciences and Humanities (CRASSH), University of Cambridge

Adviser for the Balzan General Prize Committee: Salvatore Veca

Balzan-Skinner Lectures and International Conferences

1. An annual lecture, for a period of six years, with accompanying one-day conferences, on themes in Modern Intellectual History.
This series of lectures is currently being delivered at the University of Cambridge under the joint auspices of the Faculty of History and the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH). The Managers of CRASSH, who have representation on the Appointments Committee for the Lectureship, have agreed that each lecturer should also be made a Fellow at CRASSH during the academic term in which the lecture and accompanying conference take place, thereby providing the lecturer with a period of residence at Cambridge and the opportunity to make use of the full range of its outstanding facilities for research.

The regulations for the series require that the lectureship be restricted to younger researchers (lecturers must be no further advanced in their careers than 10 years since the completion of their PhD); that each lecture should be delivered on a topic in Modern Intellectual History (1500 to the present day); and that a one-day Conference be associated with each lecture, to which other younger researchers in the relevant field are invited. The Appointments Committee has undertaken to ensure that the lecture-
ship is equally open and hospitable to researchers working in all idioms and traditions of intellectual history.

The first lecture, *Normativity of Nature*, was delivered by Dr. Hannah Dawson of the University of Edinburgh in September 2010; the second, *Radical Translation: Analytic Philosophy in America*, by Dr. Joel Isaac of Queen Mary, University of London in May 2011. The third lecture, *John Locke and the Fable of Liberalism*, was delivered in October 2012 by Dr. Timothy Stanton of the University of York. Dr. Gabriel Pacquette, Assistant Professor of History at Johns Hopkins University, delivered a lecture, *Romantic Liberalism in Southern Europe, c. 1820-1850*, in April 2013. The fifth scholarship was awarded to Dr. Karuna Mantena Associate Professor of Political Science at Yale University, whose lecture in May 2014 was entitled *Gandhi’s Realism: Means and Ends in Politics*. Full details of the lectures and conferences so far held can be found on the CRASSH website. The Prizewinner, Quentin Skinner, has been able to attend all the lectures and conferences so far held. After 2015 the series will continue in the form of a lecture only.

2. A series of four international conferences under the general title *Freedom and the Construction of Europe*.

These conferences have now taken place. They were held between July 2008 and September 2009 at the Conference Centre of the European University Institute (EUI) at San Domenico di Fiesole (Florence). Very grateful thanks are owed to the then President of the Institute, Professeur Yves Mény, who gave warm hospitality to the young researchers involved, as well as furnished superb facilities for the conferences and arranged help with the administration of the events. As the result of an international advertisement, over a hundred applications were received from young scholars wishing to join the core group. After dossiers and references had been read, twenty-two names were selected (12 men, 10 women).


**The senior visitors:** At each conference the core group was joined by a number of senior scholars, who were asked to deliver papers but also to give assistance and
advice to the members of the core group. At the first conferences the visitors who attended and delivered papers were:

Dr. Annabel Brett (Cambridge), Professor Thomas Kaufmann (Göttingen) and Professor John Coffey (Leicester). At the second conference the visitors were Professor Georg Schmidt (Jena), Professor Iain Hampsher-Monk (Exeter) and Professor Thomas Maissen (Heidelberg). At the third conference they were Professor Peter Stacey (California, Los Angeles) and Professor Philip Pettit (Princeton); at the fourth they were Professor Lars Magnusson (Uppsala), Professor Fonna Forman-Barzilai (California, San Diego), Professor Martina Reuter (Helsingin Yliopiston, Helsinki), Professor Michael Cook (Princeton), Dr. Noel Malcolm (Oxford) and Professor James Tully (Victoria, Canada).

Researchers:
The Balzan-Skinner Lecture in Modern Intellectual History since c. 1500

Balzan-Skinner Scholars

EUI Conferences: The core group of researchers

Publications:
EUI Conferences
Before the conferences were held, a steering committee was formed to work out the topics to be covered at each individual conference, and to make plans for the possible publication of the conference proceedings as a book. Members of the steering committee included the Prizewinner, Quentin Skinner, together with the Professor of Early Modern History at the European University Institute, Professor Martin van Gelderen, who acted as host to the conferences, and Mr. Richard Fisher, head of Humanities and Social Science publishing at the Cambridge University Press. Mr. Fisher kept closely in touch with the progress of the conferences, and attended the final one
in September 2009. He agreed at that stage that he would be willing to consider for the Press to publish a revised version of the proceedings of the conferences.

It was agreed at the final conference that all contributors should be given a year in which to revise, extend and annotate their papers in such a way as to turn them into chapters suitable for publication as a book. All contributors met the agreed deadline of October 2010, and the resulting chapters were then subedited and further revised by Quentin Skinner. These versions were then returned to the contributors, all of whom met the further deadline of April 2011 for producing final versions of their texts. The resulting book was at that point submitted to the Cambridge University Press to be refereed. The Press’s referees reported in July 2011, and their comments on individual chapters were circulated to all contributors at once. The referees called for the removal of some chapters, the extension of others, and further revisions of the entire text. The required changes were completed by November 2011, at which point the two volumes were re-submitted to the Press and formally accepted for publication. The book was finally published in late 2012. The volumes were presented at the Announcement of the 2013 Balzan Prizewinners in Milan in September that year.

**Balzan-Skinner Lectures and Colloquia**

The eventual outcome will be a series of published lectures. The editorial Board of *The Historical Journal*, one of the leading Anglophone journals with a special commitment to publishing research in modern intellectual history, has agreed that it will publish each lecture in a suitably extended and annotated form. It is further hoped that it may be possible, after the completion of the series, to publish the entire set of lectures as a book.

**Links:**

EUI Conferences - *Freedom and the Construction of Europe*
http://apps.eui.eu/Personal/Projects/FreedomProject/Abouttheproject.shtml

CRASSH, University of Cambridge - *Balzan-Skinner Lectures and Colloquia*
http://www.crassh.cam.ac.uk/page/1026/balzan-skinner-fellowship
Reinhard Strohm

Emeritus Professor of Music at the University of Oxford

2012 Balzan Prize for Musicology
For his extensive research on the history of European music within the cultural and socio-historical context from the late Middle Ages to the present, and for his detailed descriptions of vocal music, especially early sacred music in Flanders, and of the works of Vivaldi, Handel and Wagner.

Institution Administering Research Funds:
University of Oxford
Universität Zürich

Adviser for the Balzan General Prize Committee: Gottfried Scholz

Towards a Global History of Music

This research project aims to promote post-European historical thinking. As a starting point one might consider what would ‘western music’ look like in an account of music history that aspired to be truly global? The project is not meant to create a universal (or global) history by itself, but to explore, through assembled case studies, parameters and terminologies that are suitable to describe a history of many different voices.

The programme has a Steering Committee consisting mainly of the representatives of the six collaborating institutions, and an Advisory Board of international specialists of musicology and ethnomusicology.

The idea of a global history of music may be traced back to Enlightenment forerunners and was reiterated in the 1970s by the music historian Leo Treitler, among others.

The present situation in various branches of western musicology is characterised by specialisation – on European music history on the one hand; on ethnological or sociological fieldwork on the other. Research on specific musical cultures sometimes lacks comparative outreach or is insufficiently reflected in the wider discipline. The histori-
cal depth of other civilisations is often underrated by western scholarship, and a concern for the world’s musical past, shared with non-western speakers, is rarely visible. Postcolonial critique has challenged the West’s self-ascribed position at the heart of world history. In the light of this challenge, how might a historical understanding of western music in the world proceed? How should it position or justify itself? Who might be authorised to speak for or against it? What would ‘western music’ look like in an account of music history that aspired to be truly global?

Collaborating Institutions: Faculty of Music, Oxford University; Department of Music, King’s College, University of London; Institut für Musikwissenschaft, Universität Zürich; Musicology Department, Faculty of the Humanities, The Hebrew University, Jerusalem; Institut für Musikwissenschaft, Universität Wien; Institut für Musikwissenschaft and the Medienwissenschaft, Humboldt-Universität zu Berlin.

Research Visitorships
The programme will support, over the course of the three academic years 2013-2016, twelve researchers in musicology or ethnomusicology at an intermediate stage of their academic careers (post-doctorates but not yet full professors with tenure) for short-term research visitorships. These visitorships are not appointments by or at the respective universities.

The research visitors will engage with the history and historiography of music in cultures of other continents, and/or with its interactions with western music history, and/or with the question of an intercontinental/global history of music. They will use the visitorships to carry out further research on their special topics, or widen the purview of their studies. They will communicate about their work with colleagues, students and the public.

The researchers may come from anywhere in the world to visit one of the six participating departments named above; or, if they are appointed at one of them, they may choose an appropriate location elsewhere for their visit, including a different participating department. They may also be allowed, under certain circumstances, to remain in their home department or location for the visitorship. The research visitors are each expected to hold a one-day workshop (full grant researchers) or participate in a workshop (partial grant researchers) in the city of their stay. They are encouraged to give occasional seminars in the departments of their choice, where feasible; other initiatives to travel to conferences on their topics, give papers or lectures, are also encour-
aged and financially supported as far as justified. Jason Stoessel, for example, not only convened his Oxford one-day workshop but also gave invited seminars at Oxford and Utrecht universities on topics related to his Balzan-funded research. These workshops, seminars and conferences will provide opportunities for discussion and exposure of the research visitors’ work. Communication between Balzan research visitors staying in different places or in the same place at different times will be supported.

Applications for 2014-2015
A call for applications for visitorships in the year 2014-2015 was issued in March 2014.

Workshops 2013/2014
A one-day research workshop was held on 2 December 2013 at the Faculty of Music, Oxford, entitled “Mongols Howling, Latins Barking”: Voice and Song in Early Musical Encounters in Pre-colonial Eurasia. This was convened by Jason Stoessel, assisted by Marie-Alice Frappat (research co-ordinator, Oxford) and the staff of the Faculty of Music. Speakers were Charles Burnett (The Warburg Institute, University of London); Manuel Pedro Ferreira (Universidade Nova de Lisboa, Portugal); Felicitas Schmieder (Fernuniversität Hagen, Germany) and Jason Stoessel (University of New England, Australia). The main theme of the event was the cultural diversity of concepts of the voice in the Middle Ages (12th-14th centuries) and its relevance for global relationships. The series of paper presentations, each with its own brief discussion, concluded with a general panel discussion chaired by Jason Stoessel, in which Catherine Holmes (Faculty of History, Oxford University) also participated.

On 16 January 2014 a workshop was held in the Wissenschaftskolleg zu Berlin on the invitation of Prof. Dr. Laurenz Lütteken entitled Alternative Modernities: Post-colonial Transformations of “Traditional” Music in the Nineteenth and Twentieth Centuries. This was convened by Dr. Tobias Robert Klein (Berlin), one of the research visitors in 2013-2014. He was assisted by Prof. Dr. Laurenz Lütteken, Prof. Dr. Reinhart Meyer-Kalkus and the staff of the Wissenschaftskolleg zu Berlin (Rektor: Prof. Dr. Luca Giuliani). The workshop was opened by Reinhart Meyer-Kalkus and Reinhard Dworkin.

Papers were delivered by François Picard (Paris, Université de la Sorbonne); Yang Chien-Chang (National Taiwan University, Taipei); Tobias Robert Klein (Berlin); Nicholas Cook (University of Cambridge); Jonathan Goldman (Université de Montréal) and Henry Spiller (University of California, Davis). The papers with their dis-
cussions revealed much of the reciprocity of musical developments in the West and in East Asia and Africa in the so-called “modern” period, whether through the increase of actual “influences” and cultural borrowings, or by the effect of historical events and encounters (including industrial relations, missions, global economies and wars) on national and regional musical identities.

The workshop speakers of 16 January, Steering Committee members, Advisory Board members and some younger participants of these events gathered again on 17 January 2014 at the Humboldt University Musicology Institute to discuss the workshop and possible progress of the project. This well-attended and fruitful discussion focused on questions of publication, screening, forward-planning and further implications of the research contributions. Questions and recommendations to the Steering Committee were agreed upon, and will be communicated through the project chairman.

A workshop, *Alterity and Universalism in Eighteenth-Century Musical Thought*, convened by Dr David Irving and Prof Estelle Joubert, was held from 30 May to 1 June 2014 at the Faculty of Music at Oxford.

On 10 and 11 October 2014, the Balzan Programme in Musicology *Towards a Global History of Music* will convene an international workshop in the Institute for Musicology at the University of Vienna. The working title is *Issues of Intercontinental Music History*. The keynote address will be given by Professor Malena Kuss (Professor emerita at the University of North Texas, Denton).

**Researchers**

**Dept. Director:** Prof. Laurenz Lütteken

**Research Coordinators:**
Marie-Alice Frappat
Angharad Gabriel

**Visitors 2013/14:**

**Humboldt Universität Berlin:**
- Dr. Tobias Robert Klein (Berlin) *Panafrica and the “Idea Of Non Absolute Music”: An Exercise in the Global History and Aesthetics of Music.*

- Prof. Henry Spiller (UC Davis) *Javanese and Sundanese Music and Dance in European Historical Reflections.*

University of London King’s College:
- Dr. David R. M. Irving (School of Music, Australian National University, Canberra) *Analogues of Antiquity: World Cultures, Ancient Greek Music, and Comparative Anthropologies, 1500-1800.*

- Dr. Suddhaseel Sen (Stanford University) *Intimate Strangers: Cross-Cultural Exchanges between Indian and Western Musicians 1880-1940.*

Faculty of Music, University of Oxford:
- Dr. Jason Stoessel (University of New England, Armidale, Australia) *The Role of the Singing Voice and Concepts of Song in Encounters between Latin, Persian and Mongol Cultures during the Time of the Mongol Empire, 1206-1368.*

- Prof. Estelle Joubert (Department of Music, Dalhousie University, Halifax) ‘Analytical Encounters’: Global Music Criticism and Enlightenment Ethnomusicology.

Links

“Mongols Howling, Latins Barking”: Voice and Song in Early Musical Encounters in Pre-colonial Eurasia
https://weblearn.ox.ac.uk/access/content/group/modlang/general/weekly_roundup/MT2013/13-11-21/1.1_MongolsHowlingFlyer.pdf

Alternative Modernities: Postcolonial Transformations of “Traditional” Music in the Nineteenth and Twentieth Centuries
http://www.wiko-berlin.de/?id=1549
André Vauchez

Profesor Emeritus of History of the Middle Ages, Université Paris Ouest Nanterre

2013 Balzan Prize for Medieval History
For his groundbreaking studies on medieval spirituality in Western Christianity and its central role in everyday life in the Middle Ages, for his research on the medieval conception of holiness and on the sacralization of space and time, for his contributions to research on monastic and women’s piety, for his all-encompassing knowledge and masterly presentation of the life, work and influence of St. Francis of Assisi.

Institution Administering Research Funds: Académie des Inscriptions et Belles-lettres, Paris

Adviser for the Balzan General Prize Committee: Karlheinz Stierle

The Cult of Saints in the West in the Latter Centuries of the Middle Ages. Research on Shrines and Religious Life in France and Italy

Under the overall theme of The Cult of Saints in the West in the Latter Centuries of the Middle Ages, Professor Vauchez plans to conduct research on two saints in Italian libraries and archives. With the collaboration of a number of post-doctoral students, a number of works on the process of medieval canonization will be published for the first time, as will translations of medieval French texts concerning saints, visionaries and prophets or prophetesses of the time.

Three more projects are planned for Research on Shrines and Religious Life in France and Italy. The first will complete an inventory of French shrines and places of pilgrimage launched in 1997. A research group comprised of academics, curators and young researchers, historians, art historians, archaeologists and specialists from various historical periods will utilize various perspectives to reconstruct the history of each site. The research will be directed by André Vauchez and Catherine Vincent from the University of Paris Ouest Nanterre. The second, the “Prealp” programme (research on saint murals in the alpine regions), is currently directed by André Vauchez’s former student Dominique Rigaux of the University of Grenoble. International in character,
it will encompass all countries of the southern Alpine region (France, Switzerland, Italy and Slovenia), combining field research with the investigation of relevant archives. Three young academics, two pursuing Masters programmes (in history and art history) and a post-doctoral student in medieval history, will be employed. The third project involves in-depth investigation into the Sabine territory and the region of Rieti, with a research programme that will employ two young researchers, one in religious history and another in art history, to conduct a thorough analysis of the links between shrines and sacred places over the centuries. This work is based on initiatives undertaken by Vauchez when he was director of the École française de Rome (Lo spazio del santuario. Un osservatore per la storia di Roma e del Lazio, 2008, and Santuari d’Italia. Lazio, 2010, published in the series «Censimento dei santuari cristiani d’Italia»), which is the basis of the research programme Esperienze religiose, luoghi sacri e storia del territorio in Sabina e nel Reatino directed by Sofia Boesch Gajano (Università di Roma Tre) and Umberto Longo (Università di Roma La Sapienza).
Michel Zink

Professor of Literatures of Medieval France, Collège de France

2007 Balzan Prize for European Literature (1000-1500)
For his fundamental contributions to the understanding of French and Occitan literature in the Middle Ages, a decisive chapter in the development of modern European literature; for his new interpretation of the relation between medieval and modern literature; for his seminal initiatives that have brought the literature of the Middle Ages back into the cultural tradition of France and Europe.

Institution Administering Research Funds: Institut de France

Adviser for the Balzan General Prize Committee: Karlheinz Stierle

Three Objectives in the Studies of Medieval Literary Texts

1. Conferences on the circulation and translation of medieval literary texts. The first conference on the circulation and translation of medieval literary texts was entitled Lire un texte vieilli, du Moyen Âge à nos jours, and took place from 1-3 April 2009 at the Collège de France. Sixteen presentations were given by scholars from France, Germany, the United States, Italy and Switzerland, including, in addition to Michel Zink, Yves Bonnefoy, Antoine Compagnon, Harald Weinrich, Daniel Heller-Roazen, Karlheinz Stierle and a number of young researchers.

A preparatory session in regard to the second conference was organized with Anna Maria Babbi (Università di Verona) on the topic Ecrire dans la langue de l’autre. This was held at the Palazzo Guerrieri Gonzaga, Villa Lagarina (TN), Italy, on 13 May 2010, where a paper Raimbaut de Vaqueiras. La poésie comme langue de l’autre was presented. The conference itself, entitled D’autres langues que la mienne, was held in the Great Hall Marguerite de Navarre of the Collège de France on 10 and 11 May 2012. Speakers were (in order of their presentations): Michel Zink, Pascale Bourgain, Karlheinz Stierle, Jacques Le Rider, Odile Bombarde, Claudine Haroche, Marc Fumaroli, John E. Jackson, Michael Edwards, Jean-Noël Robert, Antoine Compagnon, Luciano Rossi, Jean-Paul Allouche, Yves Bonnefoy. In addition, the following were
officially invited to participate: Giovanna Angeli, Anna Maria Babbi, Ursula Bähler, Jacqueline Cerquiglini-Toulet, Alain Corbellari, Claudio Galderisi, Daniel Heller-Roazen, Lino Leonardi, Patrick Labarthe, Charles Ridoux.

2. Fellowships for young researchers (Prix de recherche en philologie romane). A fellowship program has made it possible for a young researcher to live and work in Paris for up to a year. Members of the jury awarding the fellowship are Giovanna Angeli (Università di Firenze), Karlheinz Stierle (Universität Konstanz) and Michel Zink. In 2009, the first fellowship was awarded to Chiara Concina. The second was awarded in 2011 to Mr. Hedzer Uulders who, under Professor Sylvie Lefevre (Columbia University), helped put together an edition of Saluts d’amour (love poems in the form of letters) to be published in the Lettres gothiques collection which is now almost complete. In 2013 a third fellowship was awarded to Daniele Ruini.

3. Support for publications. Funds to complete the archives and publish the correspondence of the great Romanists of the nineteenth and twentieth centuries, as well as to help publish some texts of medieval literature in the series Lettres gothiques.

- A research group is working with the Prizewinner on a project L’Europe des philologues, which is concerned with the publication of the correspondence of the great Romanists of the nineteenth and twentieth centuries. The volumes are to be published in Florence by Edizioni del Galluzzo (Fondazione Ezio Franceschini). The first part, Gaston Paris – Joseph Bédier, supported by the Fonds national suisse de la recherche scientifique, appeared in 2009. The Balzan research funds will contribute to the publication of the following volumes of correspondence: Gaston Paris – Karl Bartsch; Gaston Paris – Pio Rajna; Pio Rajna – Francesco D’Ovidio; Joseph Bédier and his correspondents besides Gaston Paris; Gaston Paris – Paul Meyer, Alfred Morel-Fatio, etc. Alain Corbellari, who was working on the volume Joseph Bédier and His Correspondents besides Gaston Paris, was on the point of consigning his manuscript to the publisher when he found unexpected hoards of correspondence, which has necessitated reformulating the whole publication schedule. The volumes Gaston Paris – Karl Bartsch and Gaston Paris – Pio Rajna are almost finished, but publication has been further delayed by both personal and professional circumstances affecting the editors Ursula Bähler and Patrizia Gasparini. The volume (or perhaps two volumes) of the enormous correspondence Gaston Paris – Paul Meyer is on track: the letters were transcribed and the annotations almost complete. However, Charles Ridoux, who is for the editing
of the volume, is still encountering some difficulties regarding the decryption and translation of letters written in various languages and the identification of certain individuals.

- The research funds from the Balzan Prize have also made it possible for the collection *Lettres gothiques* (Le Livre de Poche, Hachette) to include important works from the beginning of the fourteenth century. It would have been difficult to publish such specialized and essentially unprofitable works without the Balzan Foundation’s help. The Balzan funds function as backup in ensuring that the required financial backing is always present. The *Chronique* attributed to Jean de Venette, the *Roman de Fauvel* and *Baudouin de Flandre* have already been published.

**Researchers:**
Fellowships:
Chiara Concina
Daniele Ruini
Hedzer Uulders

Research Group:
Ursula Bähler
Alain Corbellari
Patrizia Gasparini
Charles Ridoux

**Publications:**
The volume *Livres anciens, lectures vivantes*, the proceedings of the first conference, was published by Odile Jacob in June 2010.


D’autres langues que la mienne, with the collaboration of Odile Bombarde. Paris: Odile Jacob, 2014.


Links:
Conference, D’autres langues que la mienne
http://calenda.revues.org/download.php?id=9728
Physical, Mathematical and Natural Sciences, and Medicine
Alain Aspect

Professor at the Institut d’Optique Graduate School and the École Polytechnique, Palaiseau; CNRS distinguished scientist emeritus at Laboratoire Charles Fabry, Institut d’Optique

2013 Balzan Prize for Quantum Information Processing and Communication
For his pioneering experiments which led to a striking confirmation of Quantum Mechanics as opposed to local hidden-variable theories. His work has opened the way to the experimental control of entangled quantum states, the essential element of Quantum Information Processing.

Institution Administering Research Funds:
Institut d’Optique Graduate School (IOGS)

Adviser for the Balzan General Prize Committee: Luciano Maiani

Quantum Information Processing and Communication: Quantum Information with Photons and Atoms

I. “Young Atom Informaticians” Conference
The first proposal is to promote a series of conferences, Young Quantum Informaticians, based on the model of the Young Atom Opticians conference launched by Professor Aspect and Professor Mlynek twenty years ago to enable PhD students and postdoctoral scholars working in cold atoms to gain experience organizing conferences and creating a European community. The structure of the proposed Balzan conference in the domain of quantum information will follow the same procedures: everything must be organized by junior scholars, and senior academics will be strictly forbidden from interfering with the management of the workshop. Funds will be made available after their project is approved by an ad-hoc committee composed of international experts (Philippe Grangier, Nicolas Gisin, Jürgen Mlynek, Peter Zoller).

II. Quantum Simulations of Correlated Matter with Ultra-cold Atoms
The second proposal is to fund two young researchers, David Clément and Marc
Cheneau, in a joint project involving quantum simulation of correlated matter with ultra-cold atoms. They intend to take sophisticated measurements giving access to quantum properties of entangled many-body systems of condensed matter. Marc Cheneau’s project concerns a cold atom quantum simulator of supersolids, and he intends to measure directly spatial correlations with resolution enabling him to see each individual atom. Balzan funding will be used for the acquisition of a high performance camera and the high grade optical components necessary for this goal. David Clément’s project concerns a quantum simulator of a strongly interacting quantum liquid, and he intends to measure how quantum depletion depends on the strength of the interactions. Balzan funds will allow him to buy a laser and to fund a postdoctoral researcher for one year.

Researchers
Research Coordinator: Chris Westbrook

David Clément
Marc Cheneau
David Charles Baulcombe

Regius Professor of Botany, Royal Society Research Professor; Head of the Department of Plant Sciences at the University of Cambridge

2012 Balzan Prize for Epigenetics

For his fundamental contribution to the understanding of epigenetics and its role in cell and tissue development under normal and stressful conditions.

Institution Administering Research Funds: University of Cambridge

Adviser for the Balzan General Prize Committee: Marc van Montagu

Further Investigation of Epigenetics in Hybrids and Evolution

The project is designed to address fundamental questions in biology using a genetic and molecular approach. The link with biology – in this instance evolutionary biology – is an essential component of this project. Molecular biologists are sometimes overly preoccupied with the naming of parts – scientific stamp collecting – rather than the biology of the systems. The project is also intended to introduce young scientists to the statistics and computational aspects of handling large datasets related to genome-wide profiling of epigenetic modification, gene expression and genome sequence. The advent of high throughput sequencing technology has been transformational in biology and their ability to use the resulting datasets is essential for their career progression as research scientists.

Part I is based on recent discoveries from my laboratory determining that epigenetic marks affecting gene expression are initiated in the genomes of hybrid organisms. It will have two stages. The first stage will involve dissection of an epigenetic change that we have observed already, to be initiated in hybrids between the tomato – *Solanum lycopersicum* – and a wild relative – *S. pennellii*. When completed, the conclusions will give us a baseline for the analysis of other loci that will be identified in the second stage. This second stage will involve genome-wide characterisation of genetic and epigenetic changes in the *lycopersicum x pennellii* hybrids. This research will indicate the extent to which induced epigenetic changes might affect the phenotype of the hybrid plants.
Part II exploits the unicellular green alga – *Chlamydomonas reinhardtii* – to investigate the role of epigenetic mechanisms in adaptation. The aim of the experiments is to test a hypothesis related to soft inheritance. It is to ask whether algae that are defective in soft inheritance are compromised in the ability to adapt to an altered environment. The first stage will be to characterise mutant and knock down lines of *C. reinhardtii* for epigenetics and RNA silencing. In parallel with this molecular biology preparation we will set up a series of long term culture experiments in which cultures are subject to mild stress herbicides and high CO2. The detailed experimental regime will be designed in collaboration with Sinead Collins in the Edinburgh Institute of Evolutionary Biology, with whom we are collaborating already, and will take account of previous studies in which *C. reinhardtii* cultures were adapted to these stresses.

Part I will be carried out by a postdoctoral scientist and Part II will be allocated to a four year PhD student.
Bruce Beutler and Jules Hoffmann

Bruce Beutler is Professor and Chairman of the Department of Genetics at the Scripps Research Institute, La Jolla.

Jules A. Hoffmann is Distinguished Class Research Director at the Centre National de la Recherche Scientifique (Emeritus), Institute of Molecular and Cellular Biology in Strasbourg.

2007 Balzan Prize for Innate Immunity

For their discovery of the genetic mechanisms responsible for innate immunity. They have worked in close cooperation to develop a new vision of the molecular defence strategy deployed by animals across a wide evolutionary spectrum against infectious agents. Their work has led to very promising medical applications.

Institutions Administering Funds:
Centre International de Recherche aux Frontières de la Chimie, Strasbourg
The Scripps Research Institute, La Jolla

Adviser for the Balzan General Prize Committee: Nicole Le Douarin

Endogenous Activators of Inflammation in Insects and Mammals

The second half of the Balzan Prize to Bruce Beutler and Jules Hoffmann is propelling joint efforts regarding the establishment of a model of inflammation in insects and mammals. The parallel study on inflammation in the absence of germs in the fruit fly (Drosophila) and in mice could lead to the future discovery of the causes by which, in humans, antibodies of endogenous origin are also activated in the absence of the pathogenic germs they are supposed to fight, thus producing autoimmune diseases. The two Prizewinners hired young researchers and supervised research work in their respective laboratories, which will lead to a comparative analysis of the IMD (fly) and TNF/TLR (mouse) proinflammatory, signalling pathways in infection and development.

In La Jolla, Dr. Michael Berger has screened peptidomimetic libraries for activators of TLR signalling. These studies, designed to identify molecules that could cause unconventional activation of TLR signalling, have been performed as a collaboration with
the laboratory of Professor Dale Boger at The Scripps Research Institute. Dr. Oren Milstein searched for immune activating functions of peptides that do not exist in the mouse proteome. Dr. Philippe Krebs has studied mutations that cause inflammatory disease and their attenuation by mutations that disrupt TLR signalling. Particularly significant has been his demonstration that signalling via TLRs drives the lethal inflammatory disorder observed in mice with deficiency of the inositol polyphosphate 5 phosphatase, SHIP-1. Drs. Sungyong Won and Lei Sun have worked jointly to develop a technique for cloning mice from fibroblasts, with the goal of screening these cells en masse for ex vivo phenotypes (including spontaneous inflammatory phenotypes) before regenerating mice from them and positionally cloning the causative mutations. Dr. Carrie Arnold initiated a screen for defects in the adaptive immune response, and has been very successful with it, identifying eleven mutations to date. Dr. Amanda Blasius identified a key molecule for the responses of plasmacytoid dendritic cells to nucleic acids.

In Strasbourg, Dr. Hidehiro Fukuyama has pursued a biochemical strategy to identify proteins that interact with components of the IMD pathway (IMD stands for immunity-deficiency; this pathway is equivalent to that downstream of mammalian TNF) in Drosophila to limit inflammation caused by endogenous stimuli. Dr. Anne Kaukinen has made a functional analysis of some of the proteins isolated by Dr. Fukuyama and has namely addressed their potential roles in activating antimicrobial peptide gene expression following stimulation by a bacterial pathogen. Exciting new data obtained now point to a significant role of the IMD signalling pathway in the defence of flies against several viral pathogens. The Balzan funds still available in Professor Hoffmann’s group have been concentrated on developing this new line of research. Professor Hoffmann gave a lecture Gene Expression and Signalling in the Immune System at the sixth Cold Spring Harbor meeting in April 2012.

Researchers:
In the Beutler laboratory
Carrie Arnold
Michael Berger
Amanda Blasius
Philippe Krebs
Oren Milstein
Lei Sun
Sungyong Won
In the Hoffmann laboratory
Hidehiro Fukuyama
Anne Kaukinen

Publications:
Wallace Broecker

Newberry Professor of Earth and Environmental Sciences at Columbia University

2008 Balzan Prize for the Science of Climate Change
For his extraordinary contributions to the understanding of climate change through his discoveries concerning the role of the oceans and their interactions with the atmosphere, as well as the role of glacial changes and the records contained in ice cores and ocean sediments. His contributions have been significant in understanding both gradual and abrupt climate change.

Institution Administering Research Funds:
Comer Science and Education Foundation (90% of total prize)

Adviser for the Balzan General Prize Committee: Enric Banda

Past Patterns of Precipitation and Earth Temperature

The general aim of Wallace Broecker’s Balzan Research Project was to determine whether the paleoclimate record can support the prediction according to which, as the planet is warmed by fossil fuel CO₂, precipitation will be more strongly focused on the Equator. Lacking an adequate warm analogue, a cold one – namely, the situation during the last glacial period – has been already used with encouraging results (i.e., less focusing of rainfall on the tropics during colder times). However, possible flaws in the cold analogue have yet to be evaluated. Research activities focused on data from different sources, including deep sea sediments and closed-lake basin size, cave deposits and ice core records. Wallace Broecker supported three postdoctoral fellows:

- Jimin Yu: As part of his PhD research at the University of Cambridge, he demonstrated that the boron to calcium ratio in the CaCO₃ shells of bottom dwelling open ocean foraminifera are tightly correlated with the extent of carbonate ion undersaturation. At Lamont-Doherty Earth Observatory at Columbia University, he used this method to reconstruct the evolution of deep ocean carbonate ion concentration from the glacial maximum (~25 kyrs ago) to the present. His goal was to evaluate the role of deep ocean chemistry in the rise of atmospheric CO₂ content at the close of the last glacial period.
- Xianfeng Wang: As part of his PhD research at the University of Minnesota, he created an 18O record for stalagmites in Brazil and showed that millennial duration fluctuations in monsoon rainfall were exactly antiphased with those in China. At Lamont-Doherty Earth Observatory, he continued this research, but also diversified his efforts by measuring the concentrations of 234U, 230Th, 231Pa and 10Be in sediments from the abyssal ocean. In so doing, he followed up on research done by Richard Ku in the 1970s with modern instrumentation.

- Irene Schimmelpfennig: She completed her PhD in France on the production rate of 36Cl in separated minerals. She worked with Joerg Schaefer’s group at Lamont-Doherty Earth Observatory to pursue the use of 36Cl and 10Be in what is termed “cosmic-ray exposure dating”.

Researchers:
Supervisor Professor R. Lawrence Edwards
Researchers Irene Schimmelpfennig
Xianfeng Wang
Jimin Yu

Publications:


Jean-Pierre Changeux

Professor Emeritus at the Institut Pasteur; Honorary Professor at the Collège de France

2001 Balzan Prize for Cognitive Neurosciences
Professor Changeux’s broad and profound contribution ranges from the fundamental molecular mechanisms of chemical communication in the nervous system to learning and consciousness. In addition to his outstanding experimental work, Professor Changeux has made a theoretical contribution on the epigenesis of neuronal networks by selective stabilization of developing synapses and on several aspects of cognition. Jean-Pierre Changeux has established a new direction for the study of cognitive functions by rooting them at the molecular level.

Institution Administering Research Funds: Institut Pasteur

Adviser for the Balzan General Prize Committee: Nicole Le Douarin

Neuronal Organization of the Brain and Cognitive Functions

In his research, 2001 Balzan Prizewinner in Cognitive Neurosciences Jean-Pierre Changeux was mainly concerned with the study of the correlation of cognitive functions and the molecular aspects of cerebral activity. His laboratory was the first to activate the genes of neuronal nicotinic receptors and to study the consequences they might have on human behaviour. Jean-Pierre Changeux used the second half of his Balzan Prize to continue and diversify this research at the Récepteurs et Cognition unit of the Institut Pasteur. General overviews of this research are contained in a book (Jean-Pierre Changeux and Stuart J. Edelstein, Nicotinic Acetylcholine Receptors: From Molecular Biology to Cognition, Paris-New York: Editions Odile Jacob, 2005) and in a recently published article (Jean-Pierre Changeux, Nicotine addiction and nicotinic receptors: lessons from genetically modified mice, Nature Reviews Neuroscience, 11 June 2010). In this article, Professor Changeux reviews studies in transgenic mice that have started to reveal which nicotine receptor subunits mediate the effects of nicotine on behavior, cognition and addiction, thus forming therapeutic targets for nicotine addiction.
Researchers:
Nicolas Champtiaux
Stanislas Dehaene
Philippe Faure
Thomas Gisiger
Sylvie Granon
Zhi-Yan Han
Corentin Le Magueresse
Nicolas Le Novère
Jérôme Sallette

Main Publications:

Other Publications (in chronological order):


Pascale Cossart

Director of the Unité des Interactions Bactéries-Cellules; Professeur de Classe Exceptionnelle at the Institut Pasteur, Paris

2013 Balzan Prize for Infectious Diseases: Basic and Clinical Aspects
For her seminal discoveries on the molecular biology of pathogenic bacteria and their interaction with host cells. Her research has provided very significant insights into the mechanisms underlying infectious diseases and how they might be combatted.

Institution Administering Research Funds: Institut Pasteur

Adviser for the Balzan General Prize Committee: Jules Hoffmann and Peter Suter

Epigenetics and Bacterial Infections: The Role of a Novel Histone Deacetylase SIRT2

This project will further investigate recent results obtained in epigenetics and bacterial infections, a new research area in infection biology. In order to establish a successful infection, bacteria manipulate the host chromatin structure, dynamics and function to their own profit. Bacterial pathogens can manipulate chromatin directly by addressing factors that interact with histones or other chromatin components to the nucleus, or indirectly by interacting with signaling pathways which then affect the chromatin structure or dynamics. Our research has recently shown that the bacterial pathogen Listeria monocytogenes infection induces the nuclear translocation of SIRT2, an event dependent on the interaction between the bacterial protein InlB and its receptor Met on the cell surface and critical for a successful infection in vivo as shown by the resistance to infection of SIRT2-/-mice.

A graduate student and a post-doctoral fellow will carry out the project, which has four aims: to elucidate the mechanism underlying SIRT2 nuclear translocation induced by L. monocytogenes infection; to investigate the genome-wide impact of SIRT2-induced H3K18 deacetylation during infection with L. monocytogenes; to determine whether H3K18 deacetylation by SIRT2 is a common strategy used by other pathogens for host subversion; to determine whether L. monocytogenes infection induces an epigenetic memory in the host.

Researchers
Research Coordinator: Melanie Hamon
Paolo de Bernardis and Andrew Lange †

Paolo de Bernardis is Professor of Astrophysics and Observational Cosmology at the Università di Roma “La Sapienza”.

Andrew Lange was the Marvin L. Goldberger Professor of Physics at the California Institute of Technology.

2006 Balzan Prize for Observational Astronomy and Astrophysics
For their contributions to cosmology, in particular the BOOMERanG Antarctic balloon experiment.

Institutions Administering Research Funds:
Università di Roma “La Sapienza”
California Institute of Technology (Caltech)

Adviser for the Balzan General Prize Committee: Per Olof Lindblad

Observation of the Cosmic Microwave Background (CMB)

Observations of the finest details of the Cosmic Microwave Background (CMB) have the potential to explain some of the unresolved problems of modern cosmology, such as the existence of an inflation process in the very early Universe, the existence and the nature of dark matter and dark energy, and the formation of structures in the Universe. Paolo de Bernardis and Andrew Lange have used the second half of their Balzan Prize to finance two experimental investigations: one on CMB polarization and the other on the formation of cosmic structures. Tragically, Andrew Lange died on 22 January 2010. His colleagues Tom Soifer and James Bock at the California Institute of Technology are now managing his Balzan research project.

An Experimental Investigation of the First Stages of the Formation of Cosmic Structures

This project has been carried out under the responsibility of Professor Paolo de Bernardis. It is aimed at measuring the effect of the first structures on the background CMB light: in fact, phenomena like the Sunyaev Zeldovich Effect (SZE) in the first
clusters of Galaxies and resonant emission/absorption lines in the first structures leave an imprint in the CMB, which can be used to trace them.

This project uses an original approach, performing spectroscopic measurements of CMB anisotropy. After the photometric measurements of CMB anisotropy and polarization, these spectroscopic measurements promise to open a new dimension in CMB research. The advantage of this approach, in particular for the measurements of the SZE, has been analyzed thoroughly in publication [1]. The possibility to study the nature of dark matter using SZE measurements in clusters of galaxies in strong dynamical interaction has been analyzed in paper [2]; the possibility to study the SZE in giant radio galaxies has been studied in paper [3].

From the experimental point of view, this strategy requires building a differential spectrometer, matched to a large aperture telescope, to achieve the necessary angular resolution. The system must be flown on a stratospheric balloon to cover the high-frequency side of the CMB spectrum, not accessible from the ground due to fluctuating atmospheric emission and absorption. This poses formidable experimental challenges, requiring cryogenic imaging detectors, cryogenic imaging spectrometers, a large telescope and a space mission.

A long preparation work was needed to qualify the method. Examples of technical publication analyzing possible systematic effects related to these measurements can be found in papers [4], [5], [6]; several more are in preparation. The first opportunity to test this idea experimentally will be with the forthcoming flight of the OLIIMPO balloon-borne telescope (described in papers [7] and [8]). This has been recently upgraded with an ambient-temperature differential spectrometer, which can be inserted as a plug-in in the optical path between the telescope and the multi-band photometer, transforming the 4-band photometer in a low-resolution spectrometer. Its performance and scientific potential has been analyzed in paper [1].

A full phase-A study of an innovative satellite mission, called SAGACE, carried out by the group at “La Sapienza” in the framework of the second project above has been completed. For a short description see [9]; the scientific potential of this configuration is also studied in paper [1]. The full study has been described in a long document (ref. KISAG-RP-010), which has been submitted to the Italian Space Agency for evaluation and possible implementation as a national small mission. We are also developing a differential spectrometer of this kind for the space mission Millimetron,
a space-borne sub-millimeter telescope, 10m in diameter and cooled below 10K. The groundbreaking scientific potential of a differential spectrometer on this mission is described in paper [1].

Balzan funds were used to acquire hardware to design and complete the instruments, to support the dedicated work of post-doctoral students already trained on the BOOMERanG project, to support the collaboration with the Cardiff (Ade, Mauskopf) and Pasadena (Lange) groups for the development of subsystems, and the diffusion of cosmology results through the preparation of a book on observational cosmology [10]. In detail:

- Three post-doc fellowships at “La Sapienza” focusing on the data analysis of the BOOMERanG and Planck experiments (M. Veneziani, P. de Bernardis, et al. [11]) and on the SAGACE study [9] have been assigned. One fellowship has been assigned to Dr. Gianluca Polenta. Polenta has been very active in the analysis of the Planck satellite data, in collaboration with de Bernardis and the other members of the team. This work resulted in a large number of papers, including several on the full-sky survey of SZE clusters (more than 1200 clusters detected by Planck, see papers [12-15]). He is now a scientist at the Agenzia Spaziale Italiana Data Center (ASDC). A second fellowship has been assigned to Dr. Luca Lamagna, who is now a Researcher (TD) with Professor de Bernardis’s group in “La Sapienza”. The third fellowship has been assigned to Dr. Alessandro Schillaci, and he is currently a post-doc in Professor de Bernardis’s group.

- Support for the hardware of the large throughput Martin-Puplett interferometer built in our group. This instrument is a prototype for the missions described above. This has been the subject of the PhD thesis of Dr. Alessandro Schillaci, “Millimetric spectropolarimetry of cosmological signals” discussed in Dec. 2009 at “La Sapienza”. This is a room-temperature system. The problem of the background resulting from the emissivity of wire-grids has been studied in detail in publication [5].

- Support the development of innovative mm-wave detectors, the microwave kinetic inductance detectors (paper [16]) and the cold electron bolometers (paper [17], 2011 Van Duzer Prize of the IEEE).

- Cooperation with the Caltech group on CMB polarization measurements has also been supported, with the development of a parallel study carried out in Europe for a space mission devoted to CMB polarization. Two proposals have been submitted to ESA with Paolo de Bernardis serving as the PI and the collaboration of the US
teams in addition to the European ones. The first one was for a low angular resolution polarimeter, called B-Pol [19]. The second one, called CORe, was for a much more ambitious system, a Planck-like multiband telescope, with a large cryogenic rotating HWP used as the first optical component to modulate the polarized signal [20]. We are also actively studying the impact of systematic effects on the scientific exploitation of these measurements (see e.g., [21]). An even more ambitious mission, called PRISM, has been studied and proposed to ESA in 2013 in the framework of the call for science with large missions [22].

Researchers:
Martino Calvo
Luca Lamagna
Silvia Masi
Gianluca Polenta
Maria Salatino
Alessandro Schillaci

Publications:
An Experimental Investigation of CMB Polarization
Funding for Professor Andrew Lange’s investigation was used to support an ambitious program of new ground-based and balloon-borne CMB experiments, and an emerging generation of young experimental cosmologists. The BOOMERanG CMB
experiment, the basis of the 2006 Balzan Prize, demonstrated that the geometry of the universe was flat to high experimental accuracy, a measurement based on the apparent angular size of the first acoustic peak in the CMB temperature spatial power spectrum. This observation of a flat universe required a missing form of matter-energy density, obtained in the form ‘dark-energy’ needed to explain the accelerating expansion of the universe from concurrent supernovae measurements. A flat universe is also consistent with the predictions of inflation, an exponential sub-luminal expansion in the early universe. While observations of the CMB are well-explained by inflation, the physics of inflation, which are thought to occur at high energy scales and possibly associated with grand unification, remain a deep mystery.

Funds from the Balzan Prize were thus applied to build upon the results of BOOMERanG, to probe the physical process of inflation via CMB polarization measurements. Depending on the physical process, inflation may produce a cosmological background of gravitational waves, detectable by a subtle signature in CMB polarization. Because gravitational waves possess a handedness, they can impart a handed ‘B-mode’ polarization pattern. Two experiments were initiated to search for this polarization pattern using new technology millimeter-wave focal plane detector arrays. The BICEP2 (Background Imaging of Cosmic Extragalactic Polarization) experiment is a degree-scale polarimeter currently carrying out science observations from the South Pole [1, 2]. The receiver is in many ways similar to its predecessor experiment BICEP [3], which currently has the best upper limits on the inflationary polarization signal [4], and excellent control of systematic errors [5]. BICEP2 differs in that the focal plane has been greatly enhanced, going from individual detectors, similar to those used in the Planck satellite, to entirely microfabricated arrays with superconducting sensors and readouts [6, 7]. BICEP2 was fielded at the South Pole in 2009, and has demonstrated 10 times faster observing speed compared with BICEP. The team has two seasons of high-quality CMB polarization data in hand, with excellent calibration measurements [8]. They are working on new science publications in the coming year. Balzan funds enabled them to initiate BICEP2, and a more powerful successor experiment named the Keck Polarimeter Array, with support from the National Science Foundation and the W.M. Keck Foundation.

In parallel, the research group has been developing a powerful balloon experiment named SPIDER [9] that uses 6 new-technology focal plane arrays [10]. These arrays are similar to the focal plane developed for BICEP2, except with even higher sensitivity due to the lower atmospheric emission available on a high-altitude balloon. SPIDER
will observe CMB polarization in multiple frequency bands, a key to discriminating cosmological polarization from polarized Galactic emission [11, 12]. The development of SPIDER is now reaching a critical stage. All major components of the experiment including the liquid helium cryostat [13] and experiment gondola are now in place. The first 150 GHz and 90 GHz receivers have been tested. This year the experiment will be integrated. The research group are working with the US balloon program to support an Antarctic long-duration balloon flight. Major funding for SPIDER has been provided by the National Aeronautics and Space Administration.

Balzan funds have fostered a new generation of experimental scientists. Dr. John Kovac was supported while at Caltech, where he played a leadership role in the BICEP and BICEP2 program. He accepted a faculty position at Harvard University in 2009 and continues his close collaboration on these projects. Randol Aikin is a graduate student on BICEP2, and has seen the experiment from its inception. Mr. Aikin helped develop the focal planes, tested and calibrated the receiver, and is now leading the science data analysis. He plans to graduate from Caltech to what will surely be a promising scientific career. Dr. Roger O’Brien is expert at developing the radio-frequency designs used in the new focal plane arrays, and has been instrumental in developing new detector concepts expanding on this promising and flexible technology to new scientific applications.

Balzan funds have been expended and the hardware developed. However, the scientific results of this program are only now coming to fruition. The SPIDER balloon experiment has now been fabricated and assembled with six high-sensitivity receivers, complete with optics and waveplates, in a large liquid helium cryostat. After a pre-flight integration in Palestine, TX, SPIDER was deployed to Antarctica this fall for its first flight in December 2013. The 2013/14 balloon campaign was cancelled, however, due to the logistical challenges caused by the October government shutdown. SPIDER is currently targeting a flight in the 2014/15 season.

The BICEP2 instrument completed its expected 3 years of scientific observations from the South Pole and was decommissioned in December 2012. BICEP2 successfully led to the implementation of the Keck Polarimeter Array with 5 receivers of equal sensitivity that have now been fielded at the South Pole station and are currently observing. The collaboration is putting forth a comprehensive effort to analyze the BICEP2/Keck data set. Because BICEP2/Keck comprises the most sensitive probe of inflationary B-mode polarization to date, extreme care must be taken to account for
all possible sources of systematic error and foreground contamination. Furthermore, with multiple receivers observing over many years, the data set allows for numerous checks on systematic errors that must be carefully accounted. In the meantime, several intermediate papers have been published describing the instrument performance and the state of the detector technology that enable these measurements [14-21]. The team is now on the cusp of a scientific publication and is very excited to be in this privileged position, made possible by Balzan funding.

The research group was shocked and saddened by Professor Andrew Lange’s tragic death in 2010, and greatly moved by the outpouring of sympathy and support from the worldwide scientific community in the months following. Professor Lange’s thoughtful acceptance speech from the Balzan Prize ceremony was the centerpiece of a video tribute to his scientific career shown at his Caltech memorial. They feel a deep personal commitment to carry forward his legacy, a combination of passionate curiosity about the universe and its origins, experimental inventiveness, selfless teamwork, and his tremendous enthusiasm for scientific exploration. The experiments that Professor Lange began have been largely realized, and are now poised to return initial scientific results in the coming years.

Researchers:
Randol Aikin
James Bock
John Kovac
Roger O’Brient
Tom Soifer

Publications:
[6] Brevik JA et al., 2010. Initial Performance of the BICEP2 Antenna-Coupled Superconducting Bolometers at the South Pole. SPIE 7741, 41B.
Pierre Deligne

Professor at the Institute for Advanced Study, Princeton NJ

2004 Balzan Prize for Mathematics
For major contributions to several important domains of mathematics (including algebraic geometry, algebraic and analytic number theory, group theory, topology and Grothendieck theory of motives), enriching them with new and powerful tools and with magnificent results such as his spectacular proof of the Riemann hypothesis over finite fields (Weil conjectures).

Institution Administering Funds: Independent University Moscow

Adviser for the Balzan General Prize Committee: Jacques Tits

Pierre Deligne Contest

The Pierre Deligne Contest was a competition for young mathematicians of Russia, Ukraine and Belarus. The contest winner was awarded a three-year research grant. The aim of the contest was to help young mathematicians to stay in their home countries to carry out scientific research.

The main rules were:
- Any person 35 or under who had a PhD in mathematics and lived in Russia, Ukraine or Belarus was eligible for the competition.
- Competitors had to provide a research statement, and grant recipients had to present an annual report with a summary of that year’s achievements and their plans for the following year.
- All papers submitted by grant recipients during the grant period were to mention partial funding from Pierre Deligne’s 2004 Balzan Prize in Mathematics.

The Jury consisted of two Co-Chairmen, two Vice-Chairmen, two scientific secretaries and numerous experts. The Jury members were: Pierre Deligne (Co-Chairman), Victor Vassiliev (Co-Chairman), Boris Feigin (Vice-Chairman), Yuliy Ilyashenko (Vice-

Balzan funds were used to finance seventeen three-year research grants: five in December 2005; five in 2006; five in 2007; two in 2008. Since the grants were for three years, those awarded in 2008 continued until the end of 2011. Even though the funds were exhausted after the 2008 round, Pierre Deligne found the resources to prolong the awarding of grants through 2009.

**Researchers:**

**2005 Winners:** Pavel Kolesnikov (Sobolev Institute of Mathematics, Novosibirsk), Alexander Kuznetsov (Steklov Mathematical Institute, Russian Academy of Sciences), Marat Rovinski (Independent University of Moscow), Sergei Shadrin (Moscow), Arcady Skopenkov (Moscow State University).

**2006 Winners:** Mikhail Bondarko (St. Petersburg State University), Denis Borisov (Bashkir State Pedagogical University, Ufa), Sergey Loktev (Institute for Theoretical and Experimental Physics, Moscow), Taras Panov (Moscow State University), Leonid Rybnikov (Institute for Theoretical and Experimental Physics, Moscow).

**2007 Winners:** Ivan Arzhantsev (Moscow State University), Leonid Positselski (Independent University of Moscow), Anton Savin (Independent University of Moscow), Evgenii Feigin (Independent University of Moscow), Ilya Shkredov (Moscow State University).

**2008 Winners:** Evgenii Vdovin (Sobolev Institute of Mathematics, Novosibirsk), Dmitry Chelkak (St. Petersburg).

**2009 Winners:** S.V. Oblezin (Moscow), V.A. Timorin (Moscow).

Sergei Shadrin left Russia to take up a position at the Universität Zürich a few months after winning his grant in December 2005. Hence, according to the rules of the contest, he was no longer able to receive the grant.
Publications:
Ivan Arzhantsev

Mikhail Bondarko

Denis Borisov


Evgenii Feigin


Pavel Kolesnikov


Alexander Kuznetsov

Sergey Loktev

Taras Panov

Marat Rovinski

Leonid Rybnikov

Anton Savin

Ilya Shkredov

Arcady Skopenkov

Evgenii Vdovin

Link:
http://www.mccme.ru/pdc/rules_e.html
Ian Frazer

Research Director of the Translational Research Institute, Brisbane; Research Group Head, The University of Queensland Diamantina Institute

2008 Balzan Prize for Preventive Medicine, including Vaccination
For his outstanding scientific achievement and lasting contribution to preventive medicine through his role in the development of a vaccine that promises to prevent virus-induced carcinoma of the cervix, which claims 250,000 lives every year.

Institution Administering Funds: Diamantina Institute, University of Queensland

Adviser for the Balzan General Prize Committee: Werner Stauffacher

Immune Regulation and Therapeutic Immunisation

Ian Frazer used the funds available from his 2008 Balzan Prize to support two fellowships. The two fellows were based with Frazer’s group at the University of Queensland in Brisbane, and worked on individual projects in the frame of Professor Frazer’s program aimed at the development of a “therapeutic vaccine” against HPV induced cervical cancer. They were given the opportunity to visit other labs in Australia and internationally as part of their research projects.

Dr. Antje Blumenthal

Dr. Blumenthal has extensive experience in studying the role of the innate immune system in chronic infections. She investigated how pathogens are recognized by the immune system, how appropriate inflammatory responses are initiated and regulated, and how this instructs adaptive immune responses that are critical to control chronic infections. Together with Professor Frazer, she directed research that aimed to understand mechanisms of immune suppression and cancer development in the skin and cervix. The fellowship also supported the establishment of Dr Blumenthal’s independent research program on regulatory mechanisms that control inflammation and pathogen control during infection. Her work addressed important knowledge gaps on endogenous regulators of the nature and strength of immune responses. This is likely to pioneer new concepts of mechanisms of immune regulation with the potential for the identification of novel therapeutic targets.
Supported by the fellowship, Dr. Blumenthal established a dynamic research group and attracted independent research funding from major national and local sources. She established and maintained strong collaborative ties within the UQ Diamantina Institute and the University of Queensland, as well as at a national and international level. Furthermore, the fellowship has accelerated the maturation of Dr Blumenthal’s national and international profile through presentations at conferences and institute seminars, contributions to conference organization, research leadership within the Institute and University as well as peer-review for international journals and the main national funding agency for biomedical research.

**Dr. Steven Mattarollo**

Dr. Mattarollo has experience in the cellular mediators of innate immunity in cancer. He was funded for 2 years to work in Melbourne, Australia with Professor Mark Smyth, an acknowledged world expert on the role of NKT cells in control of cancer cell growth. During these two years as a Balzan Fellow he pursued two main lines of research:

- Development of a therapeutic cancer vaccine against melanoma and non-Hodgkins B cell lymphoma that induces innate and adaptive immunity by targeting the immune adjuvant properties of NKT cells.

- Determining the immune constituents that are important for the therapeutic effectiveness of chemotherapies, and assessing combination chemo-immunotherapy strategies for treating solid tumours.

In May 2012 he returned to Brisbane to continue this research within Professor Frazer’s group, where he established an independent group consisting of 6 personnel, focusing on immune-based therapies for blood cancers. He was awarded 3 years’ NHMRC project funding commencing in 2013 to continue this research. In January, 2013 he attended the Cancer Immunology and Immunotherapy Keystone Meeting in Vancouver, Canada, where he was selected to present his recent findings in developing a therapeutic vaccine against B cell lymphomas.

**Publications:**

**Journal Articles Arising from the Research**


Review Articles, Commentaries and Letters to the Editor
Walter Gehring †

Emeritus Professor at the Biozentrum, Universität Basel

2002 Balzan Prize for Developmental Biology
For his seminal contribution to the discovery of a universal principle underlying the body plan and eye development in metazoans.

Institution Administering Research Funds: Biozentrum, Universität Basel

Adviser for the Balzan General Prize Committee: Nicole Le Douarin

Genomic Analysis of Eye Development

The second half of the Balzan Prize was used by Walter Gehring to support the young postdoctoral fellow Lydia Michaut at the start of her academic career. She has become an expert in the genomic analysis of DNA chips (microarrays) applying her expertise to study eye development and eye diseases.

Insects have complex compound eyes and vertebrates have inverse lens eyes. Although these types of eye are different, the same genes are used in the early stages of development. The project has led to distinct conclusions, primarily due to the large volume of data that it produced. A special model system was used to conduct a total of 154,000 individual measurements of genetic activities. This system is based on the fact that there is only a single gene, PAX-6 at the outset of eye development and that insects can, in certain instances, form eyes on extremities such as legs or antennae. By introducing and activating PAX-6 in certain cells of the fly, Professor Gehring’s team was able to initiate the development of eyes in places where they would not normally be expected to grow. This is an ideal system for identifying the genes that only occur in relation to eye development. Comparing the differences in gene activity patterns between normal fly legs and those with PAX-6 induced eyes reveals which genes are involved in eye development. To understand how the activity of identical genes can lead to the development of different eye types, it is essential to know how the relevant genes behave.
Lydia Michaut completed a first round of genomic analysis of *Drosophila* eye development, performing whole genome profiling in the eye primordia of larva, pupae and adults, followed by an evolutionary comparison of gene expression in the eyes of fruit flies and mice. Large-scale analysis of gene expression has shown that the number of genes activated in the eye increases dramatically as an insect develops. During the larval stage, 98 genes are specially activated for this purpose. The figure rises to 409 during the pupal stage, and 474 in the fully grown insect. However, the functions of the activated genes vary considerably (Michaut et al., 2003).

In collaboration with the Institut de Recherche en Ophtalmologie, in Sion, she then later analyzed the gene response in the retina of a mouse model of Leber’s congenital *amaurosis*, an early onset form of *retinitis pigmentosa* that results in blindness or severely impaired vision in children. Mutations in seven different genes, one of which is called RPE 65, have been associated with this disease. Lydia Michaut and Sandra Cottet have studied mice mutants lacking RPE 65, using high density microarrays to compare gene expression in the retina of normal and RPE 65-deficient mice, and identified the secondary defects which lead to the death of the photoreceptor cells in the retina. These gene products can serve as potential targets to screen for protective drugs or compounds which limit cell death in the retina (Cottet et al., 2006). To allow general and easy access of these expression data in mouse and fly eyes, Lydia Michaut has set up a searchable database where *Drosophila* and mouse gene expression profiles in the eye can be easily queried and visualized (Eyebase).

**Researchers:**
Sandra Cottet
Lydia Michaut

**Publications:**

**Link:**
http://eyes-on-chips.webiro.ch
Reinhard Genzel

Director at the Max-Planck-Institut für extraterrestrische Physik, Garching, Germany

2003 Balzan Prize for Infrared Astronomy

Professor Reinhard Genzel has made fundamental contributions to Infrared Astronomy. He has developed instrumentation which enabled him and colleagues to make outstanding discoveries, including evidence for a massive black hole in the centre of our galaxy.

Institutions Administering Funds:
Max-Planck-Institut für extraterrestrische Physik (MPE)
University of California, Berkeley

Adviser for the Balzan General Prize Committee: Per Olof Lindblad

Cosmic Formation and the Evolution of Galaxies and Massive Black Holes

Research over the past two decades has demonstrated that most large galaxies in the local Universe harbour massive black holes at their centres. In particular, the detailed study of the motions of stars by Professor Genzel’s group shows that our galactic centre contains a central black hole a few million times as massive as the Sun, beyond any reasonable doubt. The evidence at the galactic centre is thus now arguably the best evidence for the existence of black holes. The galactic centre has turned out to be an ideal laboratory for testing the black hole paradigm and general relativity in the strong field limit, and for investigating the interaction of a massive black hole with its environment. It has also become clear that most massive black holes had formed early in the evolution of the universe, and that the evolution of the central black holes and the galaxies in which they are embedded are intimately related. The most spectacular examples of these accreting black holes are quasars, which have been discovered at a cosmological redshift corresponding to <1 billion years after the Big Bang.

Professor Genzel’s projects supported by Balzan funds were aimed at exploring how this connection came about, what physical processes were involved and when the lo-
cal black hole – galaxy mass relationship was established. They also investigated how massive galaxies like the Milky Way were formed and what the role of galaxy collisions and mergers in the assembly of galaxies was, including the mechanisms leading to the fuelling of the most luminous quasars. This was done by using instruments his team had developed for ground-based, airborne and space telescopes.

The second part of the Balzan Prize was used to strengthen the interaction between the experimental/observational group at the Max-Planck-Institut für extraterrestrische Physik (MPE) and several theoretical and interpretative research groups, in particular, the University of California, Berkeley (USA) and the University of Tel Aviv (Israel), by supporting scientific exchange and providing short-term support for collaborative research, specifically carried out by young scientists.

One major highlight of the research supported in part by the Balzan funds was a new major effort using the MPE-developed SINFONI near-infrared integral field spectrometer (at the ESO-VLT) for the first-ever survey of the kinematics of massive star forming galaxies at redshift ~2, approximately 3 billion years after the Big Bang. This groundbreaking survey, called SINS, has been highly successful and has given key insights into the evolution of stars forming galaxies at that epoch. It has become clear that large and massive disks comparable in mass to the modern Milky Way already existed at that time, but with substantially different physical properties. These recent observations, in conjunction with theoretical work of other groups in Israel and California, have now led to a significant shift in thought on how massive galaxies formed and evolved during this epoch. The SINFONI observations suggest that, rather than major mergers, rapid and continuous accretion of gas from the dark matter halos (the so-called ‘cold flows’) may have dominated the mass assembly of massive galaxies. This very ambitious and unique survey has just been completed, and has led to the publication of about a dozen papers, including a milestone paper published in *Nature* in 2006 (Förster-Schreiber et al., 2006, 2009; Genzel et al., 2006, 2008, 2009; Nesvadba et al. 2006; Shapiro et al., 2008, 2009; Cresci et al., 2009; Bouche et al., 2007, 2009).

The Balzan funds have also been helpful in providing seed funding for the support of young researchers at MPE, and for stimulating international collaboration. A young scientist, Dr. Natascha Förster-Schreiber, was hired at MPE (in part by Balzan funds), and has now become the leading scientist of the SINS survey. Her outstanding work has attracted world-wide attention. As a result, Dr. Förster-Schreiber won a prestig-
ious Minerva MPG Fellowship (an independent research position funding a small research group for five years) in 2007. In Tel Aviv, a research group led by Professor Amiel Sternberg also carried out active work on this project. The seed funding by the Balzan Foundation led to the award of prestigious Deutsch-Israelische Projektkooperation (DIP) funding by the Deutsche Forschungsgemeinschaft (DFG). The DIP funding allowed MPE-Israel collaboration to include the theoretical group of Professor Avishai Dekel at Hebrew University, Jerusalem.

Balzan funding also supported scientific research and international exchange in galaxy formation/evolution at the University of California, Berkeley, mainly with Professors Christopher McKee and Eliot Quataert, while also including graduate student Kristen Shapiro, who spent part of her time at Berkeley, and part at MPE.

**Researchers:**
Professor Avishai Dekel
Professor Christopher McKee
Professor Eliot Quataert
Professor Amiel Sternberg

Natascha Förster-Schreiber
Kristen Shapiro

**Publications:**


Peter and Rosemary Grant

Peter Grant is ‘Class of 1877’ Professor of Zoology and Professor of Ecology and Evolutionary Biology (Emeritus), Princeton University.

Rosemary Grant is Emeritus Professor, Senior Research Biologist, Ecology and Evolutionary Biology, Princeton University.

2005 Balzan Prize for Population Biology
Peter and Rosemary Grant are distinguished for their remarkable long-term studies demonstrating evolution in action in Galápagos finches. They have demonstrated how very rapid changes in body and beak size in response to changes in the food supply are driven by natural selection. They have also elucidated the mechanisms by which new species arise and how genetic diversity is maintained in natural populations. The work of the Grants has had a seminal influence in the fields of population biology, evolution and ecology.

Institutions Administering Research Funds:
Department of Ecology and Evolutionary Biology, Princeton University
Zoologisches Museum, Universität Zürich

Adviser for the Balzan General Prize Committee: John Krebs

Evolution in Small Populations

With their second half of the Balzan Prize, Peter and Rosemary Grant financed four lines of research concerned with mate choice and speciation in species of Drosophila; inbreeding and disease in small populations of Galápagos mockingbirds; the molecular basis of species-specific craniofacial patterning in birds; and beak development in an unusual Darwin’s finch species, the warbler finch.

1. Mate choice and speciation in species of Drosophila. Margarita Ramos addressed the genetic bases and adaptive significance of morphological evolution in Drosophila by focusing on the pigmentation differences between Drosophila yakuba and Drosophila santomea. While Drosophila yakuba displays the typical abdominal pigmenta-
tion pattern of the *Drosophila melanogaster* subgroup, in *Drosophila santomea* both sexes have lost most pigmentation so that their abdomens appear yellow. *Drosophila santomea* is a species endemic to the island of São Tomé. Margarita developed and applied a technique for identifying the individual genes responsible for abdominal pigment differences between species. The laboratory research was supervised by Dr. David Stern at Princeton University.

2. **Inbreeding and disease in small populations of Galápagos mockingbirds.** With her study, Paquita Hoeck tested the hypothesis that reduced genetic variation due to inbreeding lowers the ability of small and inbred populations to respond to infectious diseases. For this purpose, four allopatric species of mockingbirds on the Galápagos Islands were studied, and the genetic variability in populations of different size was determined by using neutral genetic markers (microsatellites). The positive results are of direct importance to the conservation management of the endangered Floreana mockingbird species, which today consists of only 2 populations (20-45 individuals on Champion and approx. 100 on Gardner-by-Floreana). In collaboration with the Galápagos National Park Service and the Charles Darwin Research Station in Galápagos, it is planned to reintroduce this mockingbird species onto Floreana Island to re-establish a larger, third population that once existed on Floreana and became extinct due to human impact approximately 120 years ago. This research was supervised by Dr. Lukas Keller at Universität Zürich.

3. **The molecular basis of species-specific craniofacial patterning in birds.** Céline Clabaut (post-doctoral fellow) studied the molecular basis of craniofacial patterning in Darwin's medium ground finches under the direction of Dr. Arkhat Abzhanov at Harvard University. Dr. Abzhanov had already found that the level and timing of expression of Bone Morphogenetic Protein 4 (Bmp4) in the distal mesenchyme of the upper beak is correlated with wider and deeper beaks. The main aim of Céline Clabaut’s Balzan Foundation fellowship was to study the genetic basis of species-specific Bmp4 expression. Together, they were able to (1) show that the Bmp4 coding sequence in Darwin’s Finches is too conserved to be responsible for the species specific expression of Bmp4; (2) start the analysis of cis-regulatory changes; and (3) develop two powerful approaches to identify the enhancers: first, long-range detection of the enhancer activity with transgenic hybrid mice, and second, a more precise search using a lentivirus approach.
4. Beak development in an unusual Darwin’s finch species, the warbler finch.

Jennifer Gee (post-doctoral fellow) worked in the same lab as Céline, applying similar techniques to the investigation of differences between the warbler finch (Certhidea) and the ground finches (Geospiza). Results from this study suggest that the unique pointed and elongate shape of the warbler finch beak results from suppression of the same molecular factors that are upregulated in the ground finches with broad and wide bills. Thus, the ancestor of the warbler finch may have had a more typical Darwin’s finch bill and a developmental program corresponding to this morphology. The candidate gene approach was used to detect differences at early stages of development, and as in Clabaut’s project, chicken material is being used to try out new techniques before chosen ones are applied to the limited finch material.

A two-day Balzan Symposium Population Biology and Evolution, dedicated to the overall results was held on 5 and 6 September 2008 at Princeton University. Participants were: Michael Arnold (University of Georgia), Leticia Avilés (University of British Columbia), Veronica Barragán (Universidad San Francisco de Quito, Ecuador), Kimberly Bostwick (Cornell University), Paul Brakefield (University of Sheffield), Jeffrey Feder (University of Notre Dame), Michaela Hau (Universität Konstanz), Raymond Huey (University of Washington), Richard Lenski (Michigan State University), Jonathan Losos (Harvard University), H. Frederik Nijhout (Duke University), Mohamed Noor (Duke University), Stephen Nowicki (Duke University), Nicolás Peñafiel (Universidad San Francisco de Quito, Ecuador), Kenneth Petren (University of Cincinnati), Paolo Piedrahita (La Pontificia Universidad Católica del Ecuador), Uli Reyer (Universität Zürich), Robert Ricklefs (University of Missouri St Louis), Michael Ryan (University of Texas), Pablo Sanchez (La Pontificia Universidad Católica del Ecuador), Kerry Shaw (Cornell University), Thomas Smith (University of California, Los Angeles), Klaus Schwenk (Goethe-Universität, Frankfurt am Main), John Thompson (University of California, Santa Cruz), David Wake (University of California, Berkeley), Mary Jane West-Eberhard (Smithsonian Tropical Research Institute), Martin Wikelski (Max-Planck-Institut für Ornithologie).

Researchers:
Céline Clabaut
Jennifer Gee
Paquita Hoeck
Margarita Ramos-Womack
Publications:
Michael Grätzel

Professor at the École Polytechnique Fédérale de Lausanne (EPFL), Head of the Laboratoire de photonique et interfaces (LPI)

2009 Balzan Prize for the Science of New Materials
For his many contributions to the Science of New Materials, and in particular for his invention and development of a new type of photovoltaic solar cell, the Dye Sensitized Cell, commonly known as the Grätzel Cell.

Institution Administering Research Funds:
École Polytechnique Fédérale de Lausanne (EPFL)

Adviser for the Balzan General Prize Committee: Nicola Cabibbo †

Improving the Performance of the Dye Sensitized Solar Cell (DSC)

The overall goal of the Balzan research project proposed by Professor Michael Grätzel is to improve the performance of the Dye Sensitized Cell (DSC), commonly known as the Grätzel Cell. An increase in the overall efficiency of this kind of photovoltaic cell from its present 12.3 to nearly 15 percent is predicted, which would strongly contribute to making the DSC a widely used method for electricity production from sunlight.

With the second half of the 2009 Balzan Prize for the Science of New Materials, the Laboratory of Photonics and Interfaces at the École Polytechnique Fédérale de Lausanne (EPFL), directed by Michael Grätzel, acquired an Atomic Layer Deposition System for the Laboratory and hired Dr. Aswani Yella as a postdoctoral fellow for two years. Aswani Yella finished her thesis with Professor Wolfgang Tremel at the Johannes Gutenberg-Universität Mainz in Germany. A sum has also been set aside to support visits of students and researchers from Italian universities within a framework of collaboration on the research project.

Adopting an experimental approach to the design of the Grätzel Cell, the Balzan research project has focused its attention on the interface that separates the materials used in the device for transporting the negative charge carriers (electrons) and positive
charge carriers (called holes). The electron transporting material is constituted by a network of very small titanium dioxide (TiO$_2$) particles whose size is in the nanometer range (a nanometer is one million times smaller than a millimeter), while the hole transporting medium is either an electrolyte or a solid p-type semiconductor. These electric charges are generated by dye molecules that are anchored as a monomolecular layer at the surface of the nanocrystalline TiO$_2$ film. Following excitation by sunlight, the dye molecules inject electrons in the TiO$_2$ particles and holes in the electrolyte or solid p-type conductor. In order to reach high conversion efficiencies with the solar cell, it is very important to collect these photo-generated charge carriers as electric current before they recombine. In order to achieve this goal, the charge carrier collection has to be significantly faster than their recombination. Contrary to conventional photovoltaic devices where electrons and holes are generated – and recombine – in the same semiconductor solid, in the Grätzel Cell their recombination has to take place across the interface that separates the electron transporting material from the hole transporting material. This offers the opportunity to retard the charge carrier recombination by judicious engineering of this interface.

The Balzan research project is exploring several new strategies to retard the interfacial charge carrier recombination rate. The dye molecule itself is a molecular insulator and hence should impair the electron-hole recombination on its own. However, the molecular dye layer formed by adsorption on the TiO$_2$ nano-particles is usually disordered, leaving part of the surface exposed to the electrolyte or hole conductor. Hence, research will be conducted to improve the self-assembly of the dye molecules in order to form more compact films at the surface. Thus, Grätzel’s research group is modifying the chemical structure of the dye molecules to endow them with long alkyl chains enhancing their lateral attraction. This is expected to increase the packing of dye molecules retarding the unwanted interfacial recombination of negative and positive charge carriers. They are also attempting to use additives in the electrolyte that will promote the formation of dense monolayers of dye molecules. Finally, the atom layer deposition (ALD) system acquired with the second half of the Balzan Prize is a powerful tool to modify the titanium oxide surface by depositing a very thin overlayer of a semiconducting oxide in a contiguous and conformal manner. The goal here is to eliminate defects such as oxygen vacancies that are present at the nanocrystal surface. These defects, called electronic surface states, are known to accelerate the interfacial electron-hole recombination. Judicious engineering of the interface will retard the interfacial charge carrier recombination increasing the open circuit voltage and cell efficiency.
The work on introducing the ALD overlayers on the surface of the mesoscopic titania films to stop interfacial charge recombination was carried out by Aravind Kumar Chandiran. He is a very gifted graduate student from India, with previous experience in material science. Dr. Aswani Yella has now started to test the films prepared by Dr. Chandiran to realize gains in voltage output and overall efficiency as foreseen in the proposal.

**Researchers:**
Aravind Kumar Chandiran
Aswani Yella

**Publications:**


Russell Hemley and Ho-kwang Mao

Russell J. Hemley is Senior Staff Scientist at the Geophysical Laboratory of the Carnegie Institution, Washington DC and Director of the Carnegie/DOE Alliance Center (CDAC).

Ho-kwang Mao is Senior Staff Scientist at the Geophysical Laboratory of the Carnegie Institution, Washington DC.

2005 Balzan Prize for Mineral Physics
For the impressive impact of their joint work leading to fundamental breakthroughs, theoretical and experimental, in the field of minerals submitted to extreme physical conditions. They have operated as a highly effective team, characterized by twenty years of research contributions at the highest level. They have developed techniques which allow them to study the behaviour of a wide range of materials, such as hydrogen, the most abundant “mineral” in the universe. Their results have deep implications for our understanding of nature.

Institution Administering Research Funds:
Carnegie Institution of Washington, Geophysical Laboratory

Adviser for the Balzan General Prize Committee: Enric Banda

New Directions in Mineral Physics: Multidisciplinary High Pressure Science

With the second half of their Balzan Prize, Russell Hemley and Ho-kwang Mao implemented a project focused on bringing bright young people from diverse backgrounds into the multidisciplinary field of High Pressure Science. Recent advances in mineral physics are unleashing the power of high pressure research to tackle a broad range of great challenges that span numerous scientific disciplines. Breakthroughs are expected in applications of high pressure research to mineralogy, geophysics, geochemistry and bioscience, as well as specific areas such as hydrogen storage, superhard materials and superconductivity. We are thus coming close to solving mysteries like the Earth’s inner core and the roots of plate tectonics. The project was focused on training and its goal was the exploration of the new high-pressure dimension in multi-
disciplinary physical sciences. The fellowships encouraged the development, design, and fabrication of new instrumentation that exploited the CVD diamond technology developed by Professors Hemley and Mao. Publications and dissemination of results have also been financed.

- Dr. Pierre Beck was a Balzan Prize supported post-doctoral associate from 2006-2007. He was trained in high-pressure meteorite impact phenomena at the École Normale Superieure in Lyon, France. Prior to joining Professors Hemley and Mao, he published a series of papers on meteorite studies including an important article in *Nature* in 2005. As part of his Balzan-supported project, he developed time-resolved (i.e., dynamic) high pressure-temperature phenomena with diamond anvil cells. His work has led to the first high pressure-temperature Raman studies of olivine and to a novel method for measuring the thermal conductivity of materials at high pressures and temperatures, with two papers and a series of abstracts in press. This is part of Professors Hemley and Mao’s Balzan-supported project to develop combined static and dynamic (i.e., shock-wave) compression science.

- Dr. Lin Wang was a Balzan Prize supported post-doctoral associate who received his PhD degree from Jilin University, China. He developed a new method for the synthesis of controlled shape C60 fullerene nanorods. Further high-pressure/temperature treatments lead to polymerization and transitions to tetragonal, orthorhombic, or rhombohedral phases. These nanorods exhibit very rich nanoeffects in their optical, structural, phase transition, and compressional properties but lack an in situ probe to characterize the structure directly. Dr. Wang developed a new technique to integrate the high-pressure diamond anvil cell with the high brilliance x-ray beam focused down to 50-200 nm size at the Advanced Photon Source. This will open a new field of single-crystal x-ray nanocrystallography that will explore the correlation between crystal structure, dimensionality, and size of nanomaterials under high pressures. With Balzan Award support, Dr. Lin Wang has been working at the High Pressure Synergetic Consortium (HPSynC) at the Advanced Photon Source (APS), Argonne National Laboratory (ANL) in 2008. He is pioneering the x-ray nanocrystallographic studies that explore the correlation between crystal structure, dimensionality and size of nanomaterials under high pressures.

- Mr. Charles Qiaoshi Zeng received Balzan Prize support from 1 September to 31 December 2008. Mr. Zeng was a pre-doctoral fellow from Zhejiang University, China, and had done a superb job both at the Geophysical Laboratory and APS. Mr.
Zeng has conducted numerous x-ray diffraction experiments at the APS synchrotron facility. Most recently, he has discovered a new type of alloy and a new phenomenon in metallic glass that have far-reaching impact in fundamental physics as well as materials applications. This discovery was published in the 24 February 2009 issue of PNAS as “Substitutional Alloy of Ce and Al”.

The following high school students also received Balzan Award support: Andrew Kung, Daniel Cohen, Alexander Levedahl, Claire Barkett, Maura James, Manchali Madurri and Jaqueline Rivera.

- Mr. Andrew Kung received Balzan Prize support to develop a high-pressure project studying the pressure, temperature and temporal effects on a newly discovered O$_2$-H$_2$ alloy. This alloy was synthesized by compressing water into high-pressure phase ice VII and irradiated by x-rays, splitting the H$_2$O molecules into O$_2$ and H$_2$. At ordinary pressure, O$_2$ reacts explosively with H$_2$ to form H$_2$O, but they coexist stably at high pressures. Mr. Kung used Raman spectroscopy as an in situ diagnostic probe to find the amounts of O$_2$ and H$_2$ in the alloy and their changes with pressure, temperature and time. The study provides important information about this novel material and its possible energy and environmental applications.

- Mr. Daniel Cohen received Balzan Award support to study novel electronic phenomena in diamond. Professors Hemley and Mao have extended their previous methods for growing large single crystal diamond by chemical vapor deposition (CVD) to include very high levels of doping with nitrogen. The goal of Mr. Cohen’s project is to produce a new material with metallic electrical conductivity, and possibly superconductivity. The project involved careful measurement of electrical resistivity as a function of temperature from 4-500 K of well characterized nitrogen doped CVD diamond that Professors Hemley and Mao produce in their laboratory.

- Mr. Alexander Levedahl received Balzan Prize support to investigate the high pressure-temperature behavior of hydrogen-containing ice materials known as hydrogen clathrates. These newly discovered materials are important for a broad range of problems, including understanding planetary evolution and climate change, as well as the development of new hydrogen storage materials. The experiments use laser spectroscopy techniques to determine the melting curve and new possible high pressure-temperature solid phases containing H$_2$ and H$_2$O.
Ms. Claire Barkett attended high school at Good Counsel High School in Olney, MD and was at Carnegie during the 2008-2009 school year. She received Balzan Prize support as she followed up on the earlier work of Jaqueline Rivera by synthesizing several solid solutions in the \( \text{Fe}_2\text{O}_3-\text{Al}_2\text{O}_3 \) system very close to the 1:1 \( \text{FeAlO}_3 \) composition. Because \( \text{FeAlO}_3 \) has a completely different structure to the rest of the \( \text{Fe}_2\text{O}_3-\text{Al}_2\text{O}_3 \) join, which have a rhombohedral corundum structure that is isostructural to the end members, it is of interest to know the precise range of compositions where the \( \text{FeAlO}_3 \) structure is stable. The careful chemical synthesis methods developed and carried out in this work were therefore crucial. Diffraction measurements on these materials allowed a refinement of work carried out in the 1950s, and a better understanding of the role of magnetic interactions between ferric ions in stabilizing the \( \text{FeAlO}_3 \) structure.

Ms. Maura James received Balzan Prize support in the summer of 2008 when she was a high school student from the Convent of the Sacred Heart in Greenwich, CT. She investigated high pressure clathrate formation in the \( \text{H}_2\text{O-NH}_2\text{-H}_2 \) ternary system with Stephen Gramsch and Maddury Somayazulu. This was an exploratory project in which Ms. James worked out special techniques for sample loading and mapping the composition of the mixture inside the diamond anvil cell. Using Raman spectroscopy, she found that with increasing pressure, the ammonium hydroxide-\( \text{H}_2 \) mixture separates into two phases, a water-rich phase and an ammonia-rich phase that appears be composed of a clathrate containing the hydrogen molecules.

Ms. Manchali Madurri was a high school student at Thomas Jefferson High School in Alexandria, VA when she received Balzan Prize support in the summer of 2008 for her study of \( \text{H}_2 \)-crown ether complexes at high pressure. Using Raman spectroscopy to track the vibrational properties of both the crown ether host and the complexed hydrogen molecules, she found that crown ether-hydrogen complexation is promoted by applied pressure, and that the optimal crown ether ring size for effective complexation of hydrogen is approximately 1.7-2.2 Å. This complexation appears to be enhanced upon decompression from pressures of approximately 5GPa, a result that has important implications for the use of such materials in hydrogen storage applications. As a result of her work, Ms. Madurri was named a semifinalist in both the Intel and Siemens national science fair competitions.

Ms. Jaqueline Rivera went to high school at Cesar Chavez High School in Washington, DC, and received Balzan Prize support during the summer of 2008. Ms.
Rivera developed new room-temperature, solution-based synthesis methods for solid solutions in the Fe₂O₃-Al₂O₃ solid solution system. These methods ensure that the resulting material is as homogeneous as possible, but allow precise control of composition. This particular series of compounds can serve as a model system for understanding the effect of aluminum on the concentration of ferric iron, ferrous iron and oxygen vacancies in deep mantle minerals, particularly silicate perovskite and post-perovskite. The concentration and role of ferric iron in the deep mantle has important consequences for many high-pressure mineral properties. Ms. Rivera subsequently went on to study biochemistry at the Catholic University of America.

Presentations:

- Liang Q, Yan CS, Meng YF, Lai J, Krasnicki S, Yu T, Shu H, Mao HK, Hemley RJ. *Recent progress in fabrication of high quality single crystal diamond at high growth rates*. Lithosphere petrology and origin of diamond International Symposium (Novosibirsk, Russia, 5-7 June 2008).

Researchers:
Pierre Beck
Lin Wang
Charles Qiaoshi Zeng
Claire Barkett
Daniel Cohen
Maura James
Andrew Kung
Alexander Levedahl
Manchali Madurri
Jaqueline Rivera

Publications:


Somayazulu M, Levedahl A, Scott S, Gramsch S, Mao HK, Hemley RJ. High pressure-high temperature Raman spectroscopy of C2 clathrate of H₂-H₂O (to be communicated).
Sumio Iijima

Professor at Meijo University, Nagoya; Director of the Research Center for Advanced Carbon Materials at the National Institute of Advanced Industrial Science and Technology (AIST) in Tsukuba; Senior Research Fellow at NEC Central Research Laboratories

2007 Balzan Prize for Nanoscience
For his discovery of carbon nanotubes, in particular the discovery of single-wall carbon nanotubes and the study of their properties.

Institution Administering Funds: Meijo University, Nagoya

Adviser for the Balzan General Prize Committee: Nicola Cabibbo †

Carbon Nanotubes: Structural Study and Applications in Biomedicine

Sumio Iijima’s Balzan Research Project was composed of two parts:

1. The first part was concerned with the characterization of atomic-level structures and physical properties of carbon nanotubes (CNTs) and their related nano-structures, by means of in situ high-resolution electron microscopy (HR-TEM). The detail of the atomic structures of individual tubes has become increasingly important for understanding their physical properties and growth behaviors where the atomic defects are believed to play an important role.

2. The second part dealt with the basic characterization of the CNTs necessary for biomedical applications, namely, drug delivery systems (DDS). CNTs have advantageous properties with respect to conventional DDS materials, such as liposomes and polymeric systems. They can be modified physically and chemically to meet optimum conditions for loading drugs in the inner spaces of CNTs and releasing them at specific sites and timing.

In the main, the program was conducted at Meijo University, Nagoya, Sumio Iijima’s affiliation from 2008 to 2010. Some research was performed at the Research Center
of Nanocarbon Materials at the National Institute for Advanced Industrial Science and Technology (AIST), Tsukuba, a governmental organization which is also directed by Professor Iijima.

**Researchers:**
1 post-doctoral research fellowship

**Link:**
Kurt Lambeck

Emeritus Professor at the Australian National University

2012 Balzan Prize for Solid Earth Sciences, with emphasis on interdisciplinary research
For his exceptional contribution to the understanding of the relationship between post-glacial rebound and sea level changes. His findings have radically modified climate science.

Institution Administering Research Funds: Australian National University

Adviser for the Balzan General Prize Committee: Enric Banda

Sea-level Change during Glacial Cycles

Sea levels have changed throughout the Earth’s history, and have impacted on the movements of species between land masses, including human movements over the more recent period of the past 100,000 or so years. The causes include tectonic and climate processes, and over the past million years it is the latter, with the cyclic growth and decay of the great ice sheets, that has been most important. Understanding how sea level has changed helps understand the fundamental processes that have shaped the earth through time. It is a truly interdisciplinary area of research involving the disciplines of solid-earth geophysics, geology and geochemistry, underpinned by physics and mathematics, with implications for past climates and human pre-history. The research component of the Balzan Prize addresses some important elements of this broad subject.

Research Themes
1. Geophysical modelling of interactions between ice sheets, the solid earth and sea level. When ice sheets melt or grow, they stress the earth and change the gravity field, which together leads to a complex spatial pattern of sea level change. Modelling of these interactions rests on a number of hypotheses that need testing, something that is now possible because of both enhanced computational facilities and observational data. Numerical modelling developments include refinement of
our models through improved characterisation of the Earth’s rheological parameters and improved inversions of field data for inferring the ice sheet history. One of the goals is to develop a version of the numerical models suitable for use by ‘non-experts’ so as to make the methodology available to geologists and archaeologists. Another goal is to develop the next iteration of ice sheet models with a particular focus on the Antarctic ice sheet, which up to now has played a rather passive role in the discussion of past sea levels, despite it being important in assessing the future of this ice sheet in a framework of a warming planet. Other targets include an improved ice sheet model for southern Greenland and improvements in the North American ice sheet model. These models provide improved reference points for testing climate models under conditions very different from today as well as the basis for palaeogeographic reconstructions during recent glacial cycles to explore possible constraints on human migrations.

2. Past interglacials as analogs of the present interglacial. The past interglacials that occur about every 110,000 years are periods when climate was similar to today and sea levels were close to present-day values. The last interglacial is particularly important because its traces are best preserved in the geological record. Its climate was similar to today, but possibly a few degrees warmer, and sea levels were 4-6 meters higher than today. But the precise timing of this occurrence and any variability within the interglacial interval remains poorly constrained. Yet this information is important in the context of current climate change debate for understanding the sensitivity of ice sheets to changes in temperature. Field sites from which we have preliminary information include: Western and Northern Australia, the Seychelles and the Mediterranean. Earlier interglacials will also be examined, including the Pliocene (~ 3 million years ago), when the global glacial-interglacial cycles were markedly different from those of the past 800,000 years.

3. The present interglacial (the Holocene). Ocean volumes have remained approximately constant during the past 6000 years, but periodically the argument arises that large amplitude (1-2 m) changes have occurred within relatively short time periods (a few hundred years). If correct, this has major implications for the instability of the climate system when the planet is not in an ice age. There are many reasons why this question remains debated. One is of the nature of the observational evidence. Another is land movement caused by tectonic and global dynamic processes. A third is the ongoing interaction between the past ice sheets and the solid earth and oceans. We
address these issues to arrive at what should be a definitive answer to the question of sea-level (and hence climate) stability or instability during interglacial periods.

**The Research Plan**

The funding has enabled a research associate to be appointed for 2 years at the Australian National University (ANU) to work on the modelling aspects of the various components of the earth-ocean-ice system. The appointee, Dr Anthony Purcell, has experience in this research area, so as to build on past work. A second appointment of a Post Doctoral Fellow, Dr Hélène Rouby, has been made together with the École Normale Supérieure (ENS) in Paris to work on the analysis of sea-level data to develop high-resolution models for sea-level change in low- and mid-latitude regions. This is part of a longer-term proposal to transfer the ANU software and experience to ENS for use by French researchers and to introduce a more complex mantle rheology into our models.

Support has also been provided to Ms Ye-Ying Sun from the University of Hong Kong (UHK) to work as a Balzan Student at the Australian National University (ANU) during 2013 compiling and analyzing sea-level data from South East Asia, from Malaysia to Japan, and learning the elements of geophysical modelling. This work is significant for both the global studies and for examining the past subsidence rates of the large east and southeast Asian river deltas. Contributions to two field projects have been made to permit students to extend their PhD work. One is a project with Ms Brigid Morrison from the University of Tasmania to collect further core samples from sites in Tasmania, and to provide radiocarbon dating to examine the rise of sea level during the past 7,000 years. The significance of this study is that it may answer questions about the role of Antarctica to the global sea level change since the last glacial maximum. The other project has provided support for PhD student Belinda Dechnik from Sydney University to participate in fieldwork in the Seychelles that examines earlier interglacial reefs that are now above sea level. These projects focus on specific scientific targets that bring together young and experienced researchers in selected field environments, in the requisite laboratory methods and in computational methods. Further field projects involving young researchers in Australia are being examined and will be gradually introduced over the next two years.
Sea level is an important component of the four-yearly Intergovernmental Panel on Climate Change assessment of the science of climate change. The Final Draft of the Working Group 1 report was delivered in May 2013. It highlights many of the important questions for which better answers are required. It is expected that through research inspired by the Balzan Foundation, the project will contribute significantly to providing useful answers.

**Researchers**

Belinda Dechnik  
Brigid Morrison  
Anthony Purcell  
Hélène Rouby  
Ye-Ying Sun
Russell Scott Lande

Royal Society Research Professor at Imperial College London

2011 Balzan Prize for Theoretical Biology or Bioinformatics
For pioneering contributions to the development and application of theoretical population biology, including the modern development of the theory of quantitative genetics, and the study of stochastic population dynamics.

Institution Administering Research Funds: Imperial College London

Adviser for the Balzan General Prize Committee: H. Charles J. Godfray

Theories of Quantitative Character Evolution and Stochastic Population Dynamics

With the second part of his Balzan Prize, Russell Lande is supporting young researchers at the postdoctoral and graduate student levels. Two experienced postdoctoral researchers are employed through Imperial College London, Silwood Park Campus, modeling the joint evolution of mating systems, flowering phenology and inbreeding depression in plants. Both are to be based at their home institutions in France, Dr. Emmanuelle Porcher at the Muséum national d’Histoire naturelle and Dr. Céline Devaux at Université Montpellier 2, doing collaborative research supervised by Professor Lande, with frequent visits to Silwood Park by them and to their home institutions by Professor Lande.

The Centre for Conservation Biology (CCB) organized a workshop entitled Stochastic demography in fluctuating environments: theory and empirical patterns from 23-27 April 2012. The workshop was aimed at young scientists in the initial stages of their scientific career and focused on models for describing the demography of populations in fluctuating environments, methods for estimation of parameters from data and presentations of empirical examples that illustrate the practical application of this quantitative approach for understanding dynamics of populations. Central topics covered were the concepts of demographic and environmental stochasticity, density-
dependence in age-structured populations, techniques for estimating key parameters in age-structured models, spatial synchrony in population fluctuations, population viability analyses and community dynamics.

A major part of the workshop was comprised of introductory lecturers by Prof. Steinar Engen, Prof. Russell Lande and Prof. Bernt-Erik Sæther. The aim of these lectures was to give an overview of the theories in stochastic population dynamics and demography, to show their significance for general understanding of principles explaining patterns in fluctuations of natural populations and to demonstrate how these models could be parameterized using data from different model systems. The second part of the course consisted of exercises in practical applications of the models in analyses of data using a multitude of computer programmes mainly developed by researchers at CCB. These practicals were supervised by Professor Jarle Tufto and Researcher Vidar Grøtø. The final part of the course consisted of short presentations in which the participants presented their own research.

The venue for the course was Lovund Rorbuhotell on the island of Lovund in northern Norway. This rather isolated island was chosen because it provided the participants with knowledge concerning one of the major study areas for field projects at CCB. All together 42 persons (37 invited participants and 5 lecturers) participated in the workshop. 16 of the participants were Scandinavian, 19 came from rest of Europe, 1 from the USA and 1 from Asia. Lecturers - Russell Lande, United Kingdom; Steinar Engen, Norway; Bernt-Erik Sæther, Norway; Vidar Grøtø, Norway; Jarle Tufto, Norway. Invited participants - Adriana Plicanti, Italy; Aline M Lee, Norway; Agata Czapracka, Poland; Alva Curtsdotter, Sweden; Anders Wikstrom, Sweden; Anna Nilsson, Sweden; Arne Schröder, Sweden; Ayco Tack, The Netherlands/Finnland; Brancila Raluca Ioana, Romania; Chris Sutherland United Kingdom/Sweden; Daisy Brickhill, United Kingdom; Deborah Pardo, France; Diala Abu Awad, France; Edwige Bellier, France/Norway; Erik Blystad Solbu, Norway; Helena Johansson, Sweden; Henna Fabritius, Finland; Henrik J. de Knegt, The Netherlands/Finnland; Håkon Holand, Norway; Karen Lesley Szostek, Germany; Linda Kaneryd, Sweden; Marcin Tobolka, Poland; Markku Karhunen, Finland; Nele Schuwirth, Switzerland; Peter Hellström, Sweden; Piotr Tryjanowski, Poland; Shouli Li, China/Finnland; Simona Imperio, Italy; Sonja Leidenberger, Germany/Sweden; Stephanie Jenouvrier, France/USA; Stine Svalheim Markussen, Norway; Tanjona Ramiadantssoa, Madagascar/Finnland; Thomas Cameron, United Kingdom/Sweden; Thomas Kvalnes, Norway; Thor Harald Ringsby, Norway; Uli Steiner, Switzerland/France/USA.
Based on the feedback received from the participants during the course, it was clear that they considered it a huge success. Thus, this type of course may be replicated on a later occasion, using the same organizational concept.

**Research publications**

Research was conducted with Dr. Celine Devaux, who was hired as a consultant for two summers (likely to be extended to a third one), and with Dr. Emmanuelle Porcher, who was hired as an employee of Imperial College London for two years beginning September 2012. Results to date include one published paper, listed below with its abstract, two submitted papers under review, listed by authors and title, and three manuscripts in advanced stages of preparation (not listed). The research focuses on developing quantitative theories of the evolution of plant mating systems, particularly mixed self-fertilization and outcrossing, as influenced by pollination ecology and the evolution of inbreeding depression.


  A comprehensive understanding of plant mating system evolution requires detailed genetic models for both the mating system and inbreeding depression, which are often intractable. A simple approximation assuming that the mating system evolves by small infrequent mutational steps has been proposed. We examine its accuracy by comparing the evolutionarily stable selfing rates it predicts to those obtained from an explicit genetic model of the selfing rate, when inbreeding depression is caused by partly recessive deleterious mutations at many loci. Both models also include pollen limitation and pollen discounting. The approximation produces reasonably accurate predictions with a low or moderate genomic mutation rate to deleterious alleles, on the order of $U = 0.02–0.2$. However, for high mutation rates, the predictions of the full genetic model differ substantially from those of the approximation, especially with nearly recessive lethal alleles. This occurs because when a modifier allele affecting the selfing rate is rare, homozygous modifiers are produced mainly by selfing, which enhances the opportunity for purging nearly recessive lethals and increases the marginal fitness of the allele modifying the selfing rate. Our results confirm that explicit genetic models of selfing rate and inbreeding depression are required to understand mating system evolution.


Xavier Le Pichon

Honorary Professor at the Collège de France

2002 Balzan Prize for Geology

One of the pioneers of the Plate Tectonics Theory and of the high resolution exploration of plate boundaries in the ocean depths with submersibles.

Institution Administering Research Funds: Collège de France

Advisers for the Balzan General Prize Committee: Eugen Seibold † and Enric Banda

A Geodynamic Research Team in Aix-en-Provence

The research team of Professor Le Pichon moved to the Université Paul Cézanne, Aix-Marseille III, to install a new outpost of the Collège de France there in 2003. The second part of the Balzan Prize was used in part to finance new scientific equipment (a system to visualize seismic reflection data, a system to process images, a SIG and a rapid computer system). In addition, it was used to complement post-doctoral salaries and to finance geological field work. Xavier Le Pichon highlighted two projects in which young researchers who benefited in part from the Balzan financing have been especially active.

1. The first project concerned the tectonics of the Western Gulf of Mexico and was the result of cooperation with oil companies over four years. The young researchers involved were N. Flotté, L. Husson, C. Le Roy and L. Andréani. The results of the research have been published in a special issue of the Bulletin de la Société Géologique de France 179, co-published with the American Association of Petroleum Geology in 2008. The main result of the project is to have established that this continental margin, which was thought to be inactive since the Jurassic period, has been affected by active tectonics in the last 30 million years.

2. The second project concerned the geodynamics of the Provence basin. It was published as a special issue of the Bulletin de la Société Géologique de France 181, and was the result of research carried out in this part of France since the research team moved to Aix-en-Provence in 2003. The young researchers involved were N. Flotté,
L. Husson, Y. Hamon, J.Y. Lin, L. Andréani and N. Loget. The main result of this project is to have established that the so-called alpine tectonics is the result of en masse gravity gliding of the thick Triassic salt layer. This gliding occurred when the Alps were uplifted during the Miocene epoch.

Researchers:
Louis Andréani
Nicolas Flotté
Youri Hamon
Laurent Husson
Charlotte Le Roy
Jing-Yi Lin
Nicolas Loget

Publications:


Bulletin de la Société Géologique de France. 179, 2, 2008:

Bulletin de la Société Géologique de France. 181, November 2010:
Wen-Hsiung Li

James Watson Professor, Department of Ecology and Evolution, University of Chicago

2003 Balzan Prize for Genetics and Evolution
Wen-Hsiung Li has made seminal contributions to the field of evolutionary molecular genetics. He has developed widely used methods for inferring phylogenetic relationships and has made important discoveries about the rate of genetic change in different groups of animals.

Institution Administering Funds: The University of Chicago

Adviser for the Balzan General Prize Committee: John Krebs

Evolution of Gene Regulation and Regulatory Modules in Yeast

The development and the physiology of an organism are controlled by genes. For this purpose a gene must be turned on or off at the right time and under the right conditions, and when it is on, the level of its expression must be appropriate; otherwise, the organism can become sick or even die. The turn-on and -off and the level of expression of a gene are called gene regulation. Thus, one can imagine that evolutionary change in gene regulation (in short, regulatory evolution) might be important for the morphological or physiological differences between organisms. However, although this idea has existed since the 1960s, the subject is still not well studied because of experimental difficulties. Recent advances in molecular biology and genomics have allowed fruitful investigations of this subject. These advances notwithstanding, it is still not simple to study higher organisms. He has therefore chosen the budding yeast as the model organism for this purpose because its genetics and molecular biology are well understood and it is experimentally much easier to manipulate than higher organisms are.

The purpose of the project was to study how the regulation of yeast genes have evolved over time. Also, instead of looking at one gene at a time, the aim was to look at a group of genes that are subject to the same or similar regulation at the same time. Such a group of genes is called a regulatory module.
Researchers:
Y.-W. Chang
F.-G. R. Liu
E. Marland
A. Prachumwat
H.-M. Sung

Publications; Major Results:

Gene duplication produces an extra copy that may be free to evolve in function. Therefore, gene duplication is the primary source of genetic novelties. Because in the yeast and the bacterium E. coli, the expression level of genes whose products (usually enzymes and proteins) are required for metabolism may often be high, it would be advantageous for them to have extra copies, that is, to have duplicate genes. We examined whether this view is supported by DNA sequence data of the yeast and E. coli. We indeed found strong support for this view. In fact, we found that metabolic proteins tend to have higher gene duplicability than non-metabolic proteins. Moreover, a detailed analysis of metabolic pathways in these two organisms revealed that genes in the central metabolic pathways and the catabolic pathways have, on average, higher gene duplicability than do other genes.


Protein-protein interaction networks have evolved mainly through connectivity rewiring and gene duplication. However, how protein function influences these processes and how a network grows in time have not been well studied. Using protein – protein interaction data and genomic data from the budding yeast, it was first examined whether there is a correlation between the age and connectivity of yeast proteins. A steady increase in connectivity with protein age was observed for yeast proteins except for those that could be traced back to bacteria. Second, it was investigated whether protein connectivity and duplicability vary with gene function. Results showed a higher average gene duplicability for proteins interacting with external environments than for proteins localized within intracellular compartments. For example, proteins that function in the cell periphery (mainly transporters) show a high duplicability but are lowly connected. Conversely, proteins that function within the nucleus (e.g., transcription, RNA and DNA metabolisms, and ribosome biogenesis and assembly) are highly connected but have a low duplicability. Finally, a negative correlation between protein connectivity and duplicability was demonstrated.

The yeast *Saccharomyces cerevisiae* proliferates rapidly in glucose-containing media. As glucose is getting depleted, yeast cells enter the transition from fermentative to non-fermentative metabolism, known as the diauxic shift, which is associated with major changes in gene expression. To understand the expression evolution of genes involved in the diauxic shift and in non-fermentative metabolism within species, a laboratory strain (BY), a wild strain (RM), and a clinical isolate (YJM) were used in this study. Data showed that the RM strain enters into the diauxic shift ~1 hour earlier than the BY strain with an earlier, higher induction of many key transcription factors (TFs) involved in the diauxic shift. Sequence data revealed sequence variations between BY and RM in both coding and promoter regions of the majority of these TFs. The key TF Cat8p, a zinc-finger cluster protein, is required for the expression of many genes in gluconeogenesis under non-fermentative growth, and its derepression is mediated by deactivation of Mig1p. The kinetic study of CAT8 expression revealed that CAT8 induction corresponded to the timing of glucose depletion in both BY and RM and CAT8 was induced up to 50-90 folds in RM, whereas only 20-30 folds in BY. In order to decipher the relative importance of cis- and trans- variations in expression divergence in the gluconeogenic pathway during the diauxic shift, studies on the expression levels of MIG1, CAT8, and their downstream target genes in the co-cultures and in the hybrid diploids of BY-RM, BY-YJM, and RM-YJM, and in strains with swapped promoters were carried out. Data showed that the differences between BY and RM in the expression of MIG1, the upstream regulator of CAT8, were affected mainly by changes in cis elements, though also by changes in trans-acting factors, whereas those of CAT8 and its downstream target genes were predominantly affected by changes in trans-acting factors.


In addition to the evolution of yeast regulatory modules, Anuphap Prachumwat, a graduate student, had studied the origins of vertebrate genes by analyzing eight completely-sequenced land vertebrate genomes and six completely-sequenced invertebrate genomes. Approximately 70% of the vertebrate genes can be found in the six invertebrate genomes with the standard homology search criteria (denoted as VMCL), another ~6% can be found with relaxed search criteria, and an additional ~2% can be found in sequenced fungal and bacterial genomes. Thus, a substantial proportion of vertebrate genes (~22%) cannot be found in the non-vertebrate genomes studied (denoted as Vonly). Interestingly, genes in Vonly are predominantly singletons, while the majority of genes in the other three groups belong to gene families. The proteins of Vonly tend to evolve faster than those of VMCL. Surprisingly, in many cases the family sizes in VMCL are only as large as or even smaller than their
counterparts in the invertebrates, contrary to the general perception of a larger family size in vertebrates. Interestingly, in comparison with the family size in invertebrates, vertebrate gene families involved in regulation, signal transduction, transcription, protein transport and protein modification tend to be expanded, whereas those involved in metabolic processes tend to be contracted. Furthermore, for almost all of the functional categories with family-size expansion invertebrates, the number of gene types (i.e., the number of singletons plus the number of gene families) tends to be overrepresented in *Vonly* but underrepresented in *VMCL*. The study suggests that gene function is a major determinant of gene family size.

**Note:**
In pursuant to the intention of the Balzan research project, which is to cultivate a new generation of scholars, most of the researchers involved in the above studies were all graduate students or postdoctoral fellows. Anuphap Prachumwat, then a graduate student, has gone on to pursue postdoctoral research at the Genomics Research Center, Academia Sinica, Taiwan. Dr. Elizabeth Marland, then a postdoctoral fellow, later became a research scientist at Argonne National Laboratory, Illinois. Dr. Y.-W. Chang, then a postdoctoral fellow, has become an assistant professor at National Taiwan University Medical School, Taipei, Taiwan. Dr. F.-G. R. Liu, who was also a postdoctoral fellow, has become an assistant professor at National Central University, Taiwan. Finally, former postdoctoral fellow Dr. H.-M. Sung has become an assistant professor at National Cheng-Kung University, Taiwan. Thus, most of the young scholars involved in the project have continued to pursue scientific research and are now faculty members at prestigious universities or research institutes.
Claude Lorius

Director Emeritus of Research at the Centre National de la Recherche Scientifique (CNRS), Grenoble

2001 Balzan Prize for Climatology
For his outstanding activities and innovative results in the field of polar paleoclimatology.

Institution Administering Funds: CNRS, Grenoble

Adviser for the Balzan General Prize Committee: Enric Banda

Research on the Mechanisms Governing the Climate System

Global climate change has become a pressing topic of scientific research. The central problem is explaining the causes of the increase in temperature and its potential effects. The study of this problem is extremely complex because of the many factors that can contribute to global warming, whether natural or related to human activity. Thus, an analysis of the history of thermal evolution of the surface of the earth is fundamental in distinguishing between changes that are “physiological” and those caused by human activity.

One of the most important methods of inquiry into past climate change is the study of polar ice, which is a natural laboratory preserving a “historic memory” of climate changes. Claude Lorius and his group worked for decades on this issue. They were the first to reconstruct not only the history of the Earth’s climate by analyzing polar ice, but also that of the composition of the atmosphere, derived from the analysis of air bubbles that were trapped in the ice over hundreds of thousands of years. Research was carried out in particular on ice samples taken in proximity to Lake Vostok in Antarctica. Their research allowed them to establish the causal relationships between climate and content of greenhouse gases in the atmosphere.

In this context, Claude Lorius initially planned to finance three projects with the second half of the Balzan Prize, but in actual fact was also able to finance a fourth. The
four groups of young researchers, each led by a senior researcher, presented their results in March 2008.

**Project I**  
Antartic Palaeo-temperatures and Antarctic climate mechanisms: cross-use of water isotopes (\(\text{D}, \text{^18O}\)) and air isotopes (\(\text{^15N}, \text{^40Ar}\))  
Senior Researcher: Jean Jouzel

**Project II**  
Climate and atmospheric chemistry: Constraints due to isotopes of oxygen and sulfur  
Senior Researcher: Joel Savarino

**Project III**  
Study of impurities in the ice: aerosols and organic content  
Senior Researcher: Jean Robert Petit

**Project IV**  
Record of atmospheric CO2 during Stage 11, 400,000 years ago  
Senior Researcher: Dominique Raynaud

**Publications:**  


ing the last 220,000 years: stratigraphical correlation and provenance in glacial periods. Earth Science Reviews”, 66: 63-87.


Michael Marmot

Director of the Institute of Health Equity; Director of the International Institute for Society and Health; MRC Research Professor of Epidemiology and Public Health, University College London; Adjunct Professor in the Department of Society, Human Development and Health at Harvard University

2004 Balzan Prize for Epidemiology
Sir Michael Marmot has made seminal contributions to epidemiology by establishing hitherto unsuspected links between social status and differences in health and life expectancy. He has initiated the era of social epidemiology and paved the way for the development of a wholly new concept of preventive medicine.

Institution Administering Funds: University College London

Adviser for the Balzan General Prize Committee: Werner Stauffacher

UCL Balzan International Fellowship Programme

As initiator of the era of social epidemiology and a pioneer in the development of a wholly new concept of preventive medicine, Professor Marmot is using half of his Balzan Prize for a new programme of international fellowships at University College London’s International Institute for Society and Health. The Institute was founded in 2007 to bring together strong individual research programmes on the determinants of health and well-being in society. Multidisciplinary and international in scope, the Institute is unequalled in offering opportunities for research and interdisciplinary research experience for young scholars. The international fellowships have two key objectives in Michael Marmot’s field of scientific interest: research experience in the social determinants of health and well-being, and the fostering of international networks of research and policy development. The aim is to develop the next cadre of researchers for the future and to benefit from the clear advantages that international collaboration brings.

- Dr. Kavita Sivaramakrishnan (Public Health Foundation of India) and Dr. Rama Baru (Jawaharlal Nehru University, Delhi, India) have jointly written a paper for *The National Medical Journal of India* entitled “The Commission on Social Deter-
- Dr. Krisztina László (Semmelweis Egyetem, Budapest, Hungary) has successfully published her paper “Job insecurity and health: A study of 16 European countries” in *Social Science and Medicine* (with Hynek Pikhart, Mária S. Kopp, Martin Bobak, Andrzej Pająk, Sofia Malyutina, Gyöngyvér Salavecz, Michael Marmot; Soc Sci Med. 2010 March; 70(6-3): 867-874). She presented results from this study to the American Psychosomatic Society Conference in Chicago in March 2009.

- Dr. Nelly Salgado (Instituto Nacional de Salud Publica, Cuernavaca, Mexico) has developed a short course on the Social Determinants of Health (with Tarani Chandola and Roberto De Vogli) for her Institute. The course took place from 10-15 August 2009 in Cuernavaca, Mexico, with over forty public health academics and practitioners from all over Latin America.

- Dr. Alex Gaina (University of Toyama, Japan) has submitted several papers on the social determinants of child obesity and development using data from the Toyama Birth Cohort Study. He participated in the International Conference on Health and the Changing World in November 2008 in Bangkok, with a presentation on SES and health among Japanese schoolchildren. His work on maternal employment and child obesity in Japan has been published in the *International Journal of Obesity*.

- Dr. Sergio Luiz Bassanesi (Universidade Federal do Rio Grande do Sul – UFRGS, Brazil) joined the department in January 2009 for twelve months. He is a medical doctor, with residency medical training in cardiology. Dr. Bassanesi was also trained in public health (Fundacao Oswaldo Cruz, Brazil). He received his Master of Public Health degree from Johns Hopkins University, USA, and received his PhD in Medicine from UFRGS, Brazil. Dr. Bassanesi’s research area for the Balzan fellowship is related to socioeconomic urban segregation and its impact on health. He also has been working on the measurements of socioeconomic health disparities, especially in relation to cardiovascular mortality. He has also collaborated on epidemiological and clinical studies on tuberculosis. During his stay at UCL, Dr. Bassanesi was a coapplicant on a successful application to the Economic and Social Research Council on spatial and social inequalities in health in Brazil and India.
- Dr. Adrienne Stauder (Semmelweis Egyetem, Budapest, Hungary) joined the institute for a period of three months (April 2009-July 2009). A senior researcher, psychiatrist and psychotherapist, her residency was proposed to explore opportunities for increased data analysis of extant Central and Eastern European data on inequalities, the potential to develop collaborative database analysis and collaborative data collection, and the opportunities for new research questions on protective factors.

- Dr. Eleonor Fransson (Högskolan i Jönköping, Sweden) resided at UCL for five months (September 2009-February 2010). A postdoctoral fellow, Dr. Fransson earned her PhD from the Karolinska Institutet and an MSc in Statistics from Stockholms Universitet. Her period at UCL allowed her to work on Whitehall II data, and more specifically, on the relationship between BMI/WHR and inflammatory markers, thereby developing her skills and increasing her international contacts.

- Ms. Gyöngyvér Salavecz (Semmelweis Egyetem, Budapest, Hungary) spent September 2009, February 2010 and May 2010 at the institute. Working on the cross cultural consistency of associations between positive effect and cortisol and heart rate variability, her periodic residency has both provided a training opportunity for her as well as supported increased collaboration between UCL, Princeton and Semmelweis Egyetem. She also completed a paper “Work Stress and Poor Health in Western European and in Post-communist Countries: an East-West Comparison Study” (coauthored by Chandola T, Pikhart H, Dragano N, Siegrist J, Jockel KH, Erbel R, Malyutina S, Pajak A, Kubinova R, Marmot M, Bobak M, Kopp M. Journal of Epidemiology and Community Health 2010, 64: 57-62) during her stay at UCL.

- Professor Philippa Howden-Chapman (University of Otago, Wellington, New Zealand) joined the department in January 2010 for a period of five months. Her expertise on the effect of housing conditions on health has resulted in discussions of housing as a neglected but crucial social determinant of healthy ageing and possibilities of housing conditions data collection in the ageing cohort studies at UCL.

Researchers:
Rama Baru
Sergio Luiz Bassanesi
Eleonor Fransson
Alex Gaina
Philippa Howden-Chapman
Krisztina László
Gyöngyvér Salavecz
Nelly Salgado
Kavita Sivaramakrishnan
Adrienne Stauder

Publications:

Link:
http://www.ucl.ac.uk/iish/fellowships
Elliot Meyerowitz and Christopher R. Somerville

Elliot Meyerowitz is currently George W. Beadle Professor of Biology and Chair at the California Institute of Technology, Division of Biology.

Christopher R. Somerville is the Philomathia Professor of Alternative Energy and Director of the Energy Biosciences Institute at the University of California, Berkeley.

2006 Balzan Prize for Plant Molecular Genetics
For their joint efforts in establishing Arabidopsis as a model organism for plant molecular genetics. This has far reaching implications for plant science at both the fundamental level and in potential applications.

Institutions Administering Research Funds:
California Institute of Technology (Caltech)
Carnegie Institution of Science
University of California, Berkeley

Adviser for the Balzan General Prize Committee: Marc Van Montagu

Live Imaging of Cellular Differentiation in Shoot Apical Meristems and in Cellulose Synthesis

Plants are remarkably dynamic, with rapidly changing metabolic processes (on the order of seconds), processes of genome readout (scale of minutes), and cellular differentiation (scale of hours). One novel suite of methods that is now being developed, both at Caltech and at Carnegie, involves live imaging of dynamic processes followed by computational image processing. Two key processes under study are cellular differentiation in shoot apical meristems and cellulose synthesis.

Elliot Meyerowitz initially involved Marcus Heisler, a pioneer of the new live imaging method. He works on the live imaging of growing shoot apical meristems and computational modeling of cell behavior and cell-cell communication during meristem growth. The orientation of cortical microtubule arrays in shoot apical meristem cells
under a variety of conditions has been live-imaged, and a set of rules whereby physical stress regulates their orientation has been derived. As the microtubule orientation affects the anisotropy of the cell wall (via regulation of cellulose deposition) and also cell division plane, this work is leading to a coherent theory of cell expansion and cell division in the shoot apical meristem. The first set of results was based on work done with collaborators at ENS Lyon, ENS Paris, the Université Denis-Diderot Paris 7 and Lunds Universitet. Published in Science in December 2008, it showed that the cortical microtubule array in meristematic cells aligns in response to the stress field, such that the microtubules align parallel to the principal direction of stress. A mathematical model of the stresses in the meristem was developed from the experimental data, and suggests future experiments that are in progress.

After Dr. Heisler departed from Caltech to establish his own laboratory at the European Molecular Biology Laboratory in Heidelberg; the project has involved two additional postdoctoral fellows, Dr. Wuxing Li and Dr. Paul Tarr. They carried the shoot apical meristem work forward by investigating the involvement of the plant hormones auxin and cytokinin in the control of cell expansion, division and gene expression, and therefore, to the contribution of these growth hormones to the interaction of physical and chemical signaling that controls meristem cell behavior. The work done in this part of the project has led to a new National Institutes of Health grant on the action of hormones in the shoot apical meristem, which will allow the work to continue.

Professor Somerville has involved three post-doctorate students in studies concerning the molecular mechanisms associated with the synthesis or depolymerization of cellulose. In spite of the abundance of cellulose in the terrestrial biosphere, and the importance to life processes, very little is known about how cellulose is made. The research program in the Somerville laboratory has been focused on understanding several aspects of the control of cellulose synthesis or depolymerization. In early 2013, postdoctoral fellow Patricia Bubner joined the Somerville groups following doctoral studies in Graz, Austria, and is studying the role of glycosylation on enzyme activity by using genetic methods to modify the amount and location of glycans on proteins. Former postdoctoral fellow Ying Gu studied the role of the microtubule cytoskeleton in orienting the deposition of cellulose microfibrils by analyzing mutants in which the deposition is altered. In order to identify proteins that mediate the interaction between cellulose synthase and microtubules, she used a two hybrid screen to search for candidate proteins and then characterized mutations in the genes corresponding
to the proteins that interact with cellulose synthase subunits. She identified a novel protein, named CSI1, and discovered that the protein is associated with the cellulose synthase complex using live cell imaging. This was published in the Proceedings of the National Academy of Sciences (PNAS Jan. 2012). She also screened directly for mutations that alter the deposition of cellulose, and has cloned two of the corresponding genes by map-based cloning. The first gene characterized proved to be a subunit of a large complex called the prefoldin complex, which is involved in folding tubulin. A manuscript describing the characterization of this mutant was published in Proceedings of the National Academy of Sciences (PNAS Nov. 2008). Gu is now an Assistant Professor at Pennsylvania State University.

Balzan funds were also used by Professor Somerville to support then postdoctoral fellow Seth DeBolt, who investigated the involvement of sterol glycosides in cellulose synthesis. This class of compounds had previously been suggested to act as primers for cellulose synthesis. However, Seth found that mutant lines with greatly reduced amounts of sterol glycosides had no effect on cellulose. The mutants did, however, have altered deposition of suberin, and the protein responsible for synthesis of the glycoside was found to be present in plasma membrane patches reminiscent of lipid rafts. His research on sterol glycosides was published in Plant Physiology in 2009. Seth is now an Associate Professor at the University of Kentucky.

In December 2007, Professor Somerville moved his laboratory from Carnegie to the University of California, Berkeley and, because of the administrative delays associated with moving funds from one institution to another, was unable to access the remaining Balzan funds until the summer of 2009. He has used the funds to partially support two graduate students, Adisorn Chaibang and Brad Dotson. Chaibang is examining the role of two laccase enzymes in lignin biosynthesis and Dotson is exploring the function of a family of proteins of unknown function that appear to play important roles in cell wall biosynthesis.

Researchers:
Professor Meyerowitz:
Marcus Heisler
Wuxing Li
Paul Tarr
Professor Somerville:
Patricia Bubner
Adisorn Chaibang
Seth DeBolt
Brad Dotson
Ying Gu

Publications:
Brenda Milner

Dorothy J. Killam Professor of Psychology in the Montreal Neurological Institute; Professor in the Department of Neurology and Neurosurgery, McGill University

2009 Balzan Prize for Cognitive Neurosciences
For her pioneering studies of the role of the hippocampus in the formation of memory and her identification of different kinds of memory system.

Institution Administering Research Funds:
Montreal Neurological Institute at McGill University

Adviser for the Balzan General Prize Committee: John Krebs

Hemispheric Interaction in Cognitive Processes

Pioneering work by Dr. Brenda Milner and her colleagues has long established the important distinctions in functions of the left and right hemispheres of the human brain. Although language dominance in the left hemisphere had previously been established, her team used specific memory tasks in patients with damage to one side of the brain to demonstrate equally important, complementary specializations of the right hemisphere for visuospatial and other non-verbal information. However, the integration of information between the two is required for adequate memory processing. Through her careful study of patients who have undergone commissurotomy for the relief of intractable epilepsy, Dr. Milner has demonstrated that each hemisphere, when acting alone, is severely limited in its capacity to encode and retain information successfully, thus highlighting the critical contribution of interhemispheric communication for normal memory function. The research project funded with the Balzan Prize awarded to Dr. Milner aims to illuminate the nature of hemispheric interaction in the human brain and how the integration of information between the two hemispheres enables remembering. To this end, we will combine fine-grained behavioural paradigms with conventional functional magnetic resonance imaging (fMRI) experiments as well as newly emerging tools in fMRI that allow us to examine patterns of interaction between distant brain regions. In a large cohort of healthy young subjects, we plan to
study how individual differences in patterns of hemispheric connectivity relate to the natural variation we see in capability for different types of memory tasks and to the cognitive strategies adopted by each individual.

One important component of this project will be the resting-state fMRI paradigm, which takes advantage of the natural patterns of fluctuations in the brain activity at rest. In particular, brain regions that normally work together during cognitive tasks are tightly coupled in their activity patterns in the absence of any external task requirement. In recent years, this discovery has led to an explosion of studies investigating the correlated activity of the resting brain to study functional interactions, and has contributed to a new understanding of intrinsic network organization of the brain. Dr. Randy Buckner’s research team at Harvard is one of the world leaders in this new field. Of particular interest to Dr. Milner’s research project, he and his colleague, Dr. Hesheng Liu, have used the approach to investigate the asymmetry of connectivity patterns in the right and left hemispheres. They have offered to lend their technical expertise to apply their method to examine the individual differences in the intrinsic connectivity architecture within and between the two hemispheres. As the first step of this collaborative effort, one of Dr. Milner’s postdoctoral fellows spent the summer of 2012 at Dr. Buckner’s lab at Harvard to learn how to use the analysis tools they had developed for the resting-state fMRI data. Soon after the second postdoctoral fellow joined the lab in October 2012, both attended a Functional Connectivity workshop offered by the Martinos Center for Biomedical Imaging in Boston to further explore the different approaches available to study brain interactions.

Dr. Milner’s team is currently in the final stages of testing a preliminary sample of twenty subjects on a paradigm to assess the role of interhemispheric connectivity in memory. Although interhemispheric connectivity-strength between the two hippocampi predicts individual differences in memory performance for dually encodable (i.e., visuospatial and verbal) objects, it is unclear if this connectivity reflects integration of visuospatial and verbal information, or whether interhemispheric connectivity is related more generally to memory performance, regardless of the type of information being processed. To investigate this question, twenty healthy, right-handed subjects are presented with ninety concrete and ninety abstract words. Subjects provide an imageability rating, indicating how easily they can visually imagine the word (i.e., to assess integration of verbal and visuospatial information). This task is followed by an out-of-scanner recognition memory test. Subjects also undergo a resting-state fMRI scan to assess intrinsic interhemispheric connectivity differences between in-
individuals and how they relate to variation in neuropsychological measures of verbal and nonverbal memory.

In the task fMRI, strength of hemispheric interaction between the hippocampi should correlate with performance on a recognition memory test for stimuli presented in the scanner, in line with previous studies. Further, we predict that if interhemispheric hippocampal connectivity in memory encoding is related to the integration of verbal and visuospatial information, we should observe increased interhemispheric connectivity in the hippocampi for highly imageable concrete items (involving both verbal and visuospatial processing) that were subsequently remembered, compared to low-imageable abstract items (primarily involving verbal processing) that were subsequently remembered. In contrast, conditions that require predominantly verbal processing (i.e., low imageability abstract) should involve a more laterialized network.

Resting-state scans will be used to examine how individual differences in intrinsic interhemispheric connectivity relate to integration of visuospatial and verbal information, memory performance on our task and standardized neuropsychological measures. In particular, individuals with high intrinsic hemispheric connectivity should display greater integration of visuospatial and verbal information relating to superior subsequent memory performance, as well as enhanced performance on standardized neuropsychological memory measures compared to individuals exhibiting less connectivity during resting state. Thus, this work builds upon classical neuropsychological observations of split-brain patients with the use of novel, cutting-edge neuroimaging techniques. Findings will be presented at the Society for Neuroscience meeting in Washington, DC in November 2014.

In addition to the aforementioned project, Dr. Milner’s lab is developing several other memory paradigms to understand fully the nature of interhemispheric connectivity:

(1) Subjects will be presented with a pair of pictures of common objects. In one condition, subjects will be asked to combine the pair in a mental image, emphasizing the visual quality of the association. In another condition, they will be asked to generate a sentence using verbal labels for the pictures, in order to encourage integration of verbal description with the visually presented stimuli.

(2) Another test will use meaningful adjective-noun pairs that differ in the degree of imageability. For example, memory for association between highly imageable combinations, such as “green” and “book”, will be contrasted with meaningful but more
abstract associations, such as “engaging” and “book”. Processing of highly imageable word pairs has been shown to recruit both right and left hemispheres, while processing of abstract pairs depends more on the left-lateralized language network.

(3) Subjects will study name-name or face-face pairs, which are expected to depend primarily on left- or right-lateralized memory structures, respectively. The subjects will then learn name-name and face-face associations together, so that the facilitation of name-pair learning in the presence of associated visual information or the face-pair learning in the presence of associated verbal information can be measured.

To summarize, Dr. Milner’s lab is (1) gaining experience in relevant neuroimaging methods through workshops and collaborative interaction with the Harvard team; (2) running and analyzing a preliminary sample of 20 subjects; and (3) designing behavioural paradigms for future task-fMRI experiments. These are critical steps for carrying out this innovative and large-scale study.

Researchers:
Dr. Randy Buckner
Dr. Joelle Crane
Dr. Denise Klein
Dr. Hesheng Liu
Dr. Kate Watkins

Two Post-doctoral fellowships:
Meera Paleja, PhD Ryerson University, Toronto 2012
Ami Tsuchida, PhD McGill University 2012
Jacob Palis

Professor at the Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro

2010 Balzan Prize for Mathematics (pure and applied)
For his fundamental contributions to the Mathematical Theory of Dynamical Systems.

Institution Administering Research Funds:
Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro

Adviser for the Balzan General Prize Committee: Étienne Ghys

Dynamical Systems, Chaotic Behaviour – Uncertainty, Linear Cocycles and Lyapunov Exponents

Jacob Palis is coordinating his Balzan Research Project together with Jean-Christophe Yoccoz at the Instituto de Matemática Pura e Aplicada, IMPA, Rio de Janeiro, Brazil. The creation of the modern theory of dynamical systems towards the end of the nineteenth century is attributed to Henri Poincaré. It is the principal mathematical approach used to model the evolution of many phenomena in nature. Classical examples are population growth of species, weather and climate prediction. Perhaps the same theory can be applied to understand certain aspects of turbulence in physics. Since Poincaré we have been wondering if it is possible to understand the typical behaviour of a typical dynamical system, where typical should be understood in a probabilistic sense to cover almost all possibilities.

Starting from a selected initial position of the system, one tries to describe the behaviour of its future trajectory, defined by its successive positions as time evolves. For example, the motion of the atmosphere is governed by a very complicated evolution equation, which cannot be solved explicitly. In 1963, Edward Norton Lorenz, a theoretical meteorologist, proposed a “toy” weather model, involving only three dimensions and intended to be much easier to understand. The question of knowing whether this oversimplified model still captures the main properties of the actual atmospheric motion is controversial among physicists and meteorologists. However, Lorenz was able to observe “chaotic behaviour” in his “toy” model. Minute changes in the initial
data used were shown to produce extremely radical changes in the outcome. This was very surprising at the time. Jacob Palis’s research project proposes to tackle several conjectures which would imply that the phenomenon witnessed by Lorenz is not an exception but, on the contrary, may capture some fundamental features of general dynamics. The research project will study (and hopefully prove) a set of conjectures for dynamical systems that leads to a global perspective in this important branch of mathematics.

Towards the proof of this main conjecture concerning attractors of dynamical systems, in dimension one there was good progress on the finiteness of the number of attractors for typical dynamical systems in the case of maps of the interval. In fact, the conjecture is true even when there is a finite number of discontinuities, considering C3 maps having negative Schwarzian derivatives. The result is due to Brandão, Palis and Pinheiro. Relevant results have been achieved by Lyubich and Martens for diffeomorphisms in two dimensions in their work on the renormalization of Hénon attractors. In higher dimensions, for C1 diffeomorphisms of compact manifolds, the conjecture is essentially true by the result of Crovisier and Pujals. Progress in the differentiable case in two dimensions has also been achieved by Martens and Winckler for Lorenz Maps. Several other results are underway and shall be reported later. In brief, progress towards the proof of this hard conjecture is clear and steady.

An important contribution to the scientific popularization of dynamical systems, and particularly the main conjecture of the project concerning attractors, was made by Étienne Ghys in a fascinating film “Chaos” (http://www.chaos-math.org, http://www.chaos-math.org/it/chaos-i-moto-e-determinismo).

The Research Project is scheduled to take place over the period 2011-2015. Part of the funds of the project will support the activities of young researchers at IMPA in research on Dynamical Systems, Chaotic Behaviour and Uncertainty. Also, as part of the project, three Balzan Symposia were planned to take place, two of them at the Institut Henri Poincaré in Paris (2013 and 2015) and one at IMPA (2012). The first Palis-Balzan Symposium on Dynamical Systems was held at IMPA, Rio de Janeiro, in June 2012. These symposia are designed to review advances and to stimulate further progress along the lines of the research project.

Papers presented at the First Palis-Balzan Symposium on Dynamical Systems IMPA, 25-29 June 2012:
Artur Ávila - IMPA, Rio de Janeiro and CNRS, France - On the metric properties of Feigenbaum-Julia sets; Pierre Berger - CNRS, France - Zoology in the Hénon family from twin baby Hénon-like attractors; Christian Bonatti - Université de Bourgogne, Dijon - Foliated hyperbolicity; Sylvain Crovisier - CNRS, France - Newhouse phenomenon and uniformity of extremal bundles; Lorenzo Diaz - Pontificia Universidade Católica do Rio de Janeiro (PUC) - Robust vanishing of all central Lyapunov exponents; Luiz Henrique de Figueiredo - IMPA, Rio de Janeiro - Images of Julia sets that you can trust; Nicolas Gourmelon - Université Bordeaux 1 - C’ dichotomies between Newhouse phenomena and dominated splittings, at homoclinic points; Pablo Guarino - IMPA - Rigidity of Critical Circle Map; Alejandro Kocsard - Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil - Distributionally uniquely ergodic diffeomorphisms; Andrés Koropecki - UFF, Niterói, RJ - Prime ends rotation number and periodic points; Yuri Lima - Weizmann Institute of Science, Rehovot, Israel - Stationary spaces of discrete groups: an Abramov formula; Jorge Eric López - IMPA - Stable projections of Cartesian products of regular Cantor sets; Michael Lyubich - SUNY at Stony Brook, USA - On homoclinic tangencies in the complex Henon family; Marco Martens - SUNY at Stony Brook, USA - On the hyperbolicity of Lorenz renormalization; Carlos Gustavo Moreira - IMPA, Rio de Janeiro - On the continuity of fractal dimensions of horseshoes in dimension 3; Sheldon Newhouse - Michigan State University - The Lorenz equations: A survey of rigorous results; Maria José Pacífico - Universidade Federal do Rio de Janeiro - Fiber contracting maps versus Lorenz-like attractors; Vilton Pinheiro - Universidade Federal da Bahia, Brazil - Measures with historic behavior; Rafael Potrie - Universidade la República, Uruguay - Partial hyperbolicity and leaf conjugacy in nilmanifolds; Enrique Pujals - IMPA, Rio de Janeiro; Critical points for surfaces diffeomorphisms, abundance of periodic orbits and structural stability; Alvaro Rovella - Universidad de la República, Uruguay - Structural stability in dimension two; Martín Sambarino - Universidad de la República, Uruguay - Some questions, problems and remarks regarding $C^r$ dynamics; Carlos Matheus Santos - CNRS, France - Fractal geometry of non-uniformly hyperbolic horseshoes; Waliston Luiz Silva - Universidade Federal de São João Del-Rei - On the geometry of horseshoes; Sebastian Van Strien - Imperial College London - On stochastic stability of expanding circle maps with neutral fixed points; J. Regis Varão - Universidade de São Paulo, São Carlos, Brazil - Center foliation: Absolute continuity, disintegration and rigidity; Marcelo Viana - IMPA, Rio de Janeiro - Time 1 maps of geodesic flows; Jiagang Yang - UFF Niterói, RJ - Diffeomorphisms with contracting Center.
The second Palis-Balzan Symposium on Dynamical Systems was held at the Institut Henri Poincaré, Paris, in June 2013.

Papers presented at the Second Palis-Balzan Symposium on Dynamical Systems, 10-14 June, 2013:
S. Alvarez - Institut de Mathématiques de Bourgogne, Dijon - Ergodic study of some foliations; A. Avila - IMPA, RJ and CNRS, France - The Billiard on the regular polygon; P. Berger - CNRS, France - Two results around the positive metric entropy conjecture for the standard map; C. Bonatti - Université de Bourgogne, Dijon - France - Pesin theory for C1-dynamics: a story of domination; P. Brandão - IMPA, Pós-doutorado - On the Finiteness of Attractors for Maps of the Interval Allowing Discontinuities; J. Buzzi - Department de Mathématiques d’Orsay, France - Diffeomorphisms without measures of maximal entropy; S. Crovisier - CNRS, France - Horseshoes with large entropy; V. Delecroix - l’Institut de Mathématiques, Paris VII. - Wind-tree models; W. de Melo - IMPA, RJ - Rigidity of Critical Circle maps; L. Diaz - Puc - Rio de Janeiro - Flip-flops in a blender. Robust existence of non-hyperbolic ergodic measures; N. Gourmelon - Université Bordeaux 1, France - Lyapunov exponents along periodic orbits for \( C^r \) generic dynamics; P. Guarino (USP) - Geometric rigidity of critical circle maps; A. Hammerlinl - University of Sidney - Ergodicity and Classification of Partially Hyperbolic Systems; A. Kocsard - UFF, Niterói, RJ - Livsic theorem for diffeomorphism cocycles; A. Koropecki - UFF, Niterói, RJ - Strictly toral dynamics; R. Leplaideur - Université de Brest, France - SRB measures for Almost Axiom-A diffeomorphisms. End of the story; Y. Lima - Weizmann Institute, Israel - Ergodicity of skew products over shifts of finite type; M. Lyubich - SUNY at Stony Brook, USA - Dynamics of dissipative polynomial automorphisms of \( C^2 \); M. Martens - SUNY at Stony Brook, USA - Generalized Henon Renormalization; C. Moreira - IMPA, RJ - Dynamical Markov and Lagrange Spectra and Geodesic Flows; S. Newhouse - Michigan State University, USA - A partial linearization theorem for three dimensional vector fields and applications; M. J. Pacifico - UFRJ, Rio de Janeiro - On measure expansive diffeomorphisms; R. Potrie - Centro de Matemática - Univ. de la Republica - Geometric properties of partially hyperbolic attractors; E. Pujals - IMPA, RJ - Minimality or density of periodic points for transitive attractors; J. Rodriguez-Hertz - Centro de Matematica - Universidade de La Republica, Uruguay - Partial hyperbolicity in dimension 3; M. Sambarino - Centro de Matematica - Universidade de La Republica, Uruguay - Dynamical coherence for partially hyperbolic diffeomorphisms istopic to Anosov; C. Matheus Santos - Collège de France, France - Finiteness of algebraically primitive closed SL (2,R)-orbits in moduli spaces; Y. Shi - Institut
de Mathématiques de Bourgogne-Dijon, France - Hyperbolic Dynamics on Heisenberg Nilmanifolds; S. Van Strien - University of Warwick, UK - Stochastic stability of expanding circle maps with neutral axed point; M. Viana - IMPA, RJ - Partially hyperbolic maps with 2-dimensional center; J. Yang - UFF, Niterói, RJ - Dynamical behavior of ergodic measure along weak direction; A. Zorich - Université de Rennes 1, France - Right-angled billiards and volumes of moduli spaces in genus zero.

Researchers
Supervisor: Jean-Christophe Yoccoz, IMPA
A. Avila (Fields Medad 2014)
P. Berger
P. Guarino
A. Kocsard
A. Koropecki
Y. Lima
J. E. López
R. Poterie
C. M. Santos
W. Silva
J. R. Varão
J. Yang
D. Zmiaikou

Links:
First Palis-Balzan International Symposium on Dynamical Systems
http://www.impa.br/opencms/pt/eventos/store_old/evento_1203?link=2

Second Palis-Balzan International Symposium on Dynamical Systems
http://www.impa.br/opencms/pt/eventos/store_old/evento_1305?link=2
Joseph Ivor Silk

Professor of Physics at the Institut d’Astrophysique, Université Pierre et Marie Curie, Paris; Homewood Professor in the Department of Physics and Astronomy, Johns Hopkins University, Baltimore; Senior Fellow in the Beecroft Institute of Particle Astrophysics and Cosmology, Department of Physics, University of Oxford

2011 Balzan Prize for the Early Universe (From the Planck Time to the First Galaxies)
For his pioneering work on the early evolution of the Universe, studying the effects of various physical processes and phenomena such as dark matter and space curvature on the fluctuations of the Cosmic Microwave Background and the formation of galaxies of different types.

Institution Administering Research Funds: New College, University of Oxford

Adviser for the Balzan General Prize Committee: Bengt Gustafsson

An Oxford New College - Johns Hopkins Centre for Cosmological Studies

Cosmology is in a golden age of discovery, but a deeper understanding of what is meant by a science of cosmology, in the fuller reaches of these words, is in its infancy. It must involve astrophysics, physics, philosophy, and cosmogony, and tackle genuinely fundamental questions in cosmology.

Joseph Silk has designated part of his Balzan research funds for the creation of a Centre for Cosmological Studies based at New College Oxford and at the Department of Physics and Astronomy at the Johns Hopkins University in Baltimore. It will also involve the Oxford University Department of Physics and the Institut d’Astrophysique of the Université Pierre et Marie Curie in Paris.

The Centre’s goal will be to provide Balzan grants for young researchers in cosmology in frontier areas of research that are consistent with the scientific themes supported by the Centre, and to establish international links involving leading young researchers to develop scientific interactions and collaborations that will benefit their
careers as well as enhance the scientific life of the partner institution. The first grants were awarded in the autumn of 2013 to Visiting Junior Research Fellows who will be hosted at the three institutions mentioned above.

Projects: Balzan Awardees 2013/14

Sarah Andreas (DESY Theory Group, Hamburg, Germany): visit to Johns Hopkins University, October 2013

Hidden Sectors with Hidden Photons and Dark Matter
Hidden sectors are frequently proposed as part of the physics beyond the standard model. This research is concerned with the phenomenology of models with a hidden sector which possesses an extra U(1) symmetry, is connected to the standard model through the corresponding light U(1) gauge boson and possibly contains a candidate for dark matter. Experimental constraints were derived on the mass $m_{\gamma'}$ and interaction strength $\chi$ of this new light gauge boson, the hidden photon $\gamma'$, and further examine the possibilities to search for this particle in future experiments. After having studied the dark matter particle of these hidden sector models with respect to its signature in direct detection experiments (e.g., LUX), Dr. Andreas continued to analyse the corresponding constraints from different indirect searches. Such models in which dark matter interacts via a light mediator like the hidden photon are additionally of interest since this self-interacting dark matter might undergo gravothermal collapse and allow the formation of massive black holes. In this context, Andreas studies the possibility and consequences of energy losses due to the Bremsstrahlung of hidden photons.

Shant Baghram (Institute for Research in Fundamental Sciences, Iran): visit to Institut d’Astrophysique, September 2013

Effects of structures (galaxies and voids) in expansion rate measurement of SNIa
(In preparation)
The accelerated expansion of the Universe and the physical mechanism behind it is one of the main open questions in cosmology, known as the Dark Energy problem. The standard model of (Lambda) CDM can explain the observational data, like luminosity distance of Supernova type Ia (SNIa) and the CMB power spectrum. However, there are other alternatives for cosmological constants, like the effect of structures on the expansion rate of the universe, modified gravity theories and dark energy models.
In this research project, the effect of large scale structures like cosmic voids and galaxies (group of galaxies) on the luminosity distance of SNIa-s will be investigated. This effect can be quantified by the total amount of gravitational lensing convergence $\kappa_g$ and Doppler lensing effect parameters $\kappa_\nu$ ($\kappa = \kappa_g + \kappa_d$). Using the SDSS DR10 void catalogue, the lensing convergence function for each line of sight of SNIa was produced. The deviation of distance modulus ($\Delta \mu = \mu - \mu^m$) from the standard model and its correlation with the lensing convergence parameter was investigated. Results show that the current catalogue of large scale structures SDSS DR10 up to redshift $z=0.15$ with the Union2 catalogue (considering the observational uncertainties) shows no significant deviation from the standard model.

Jonathan Davis (Institute for Particle Physics Phenomenology, Durham University): visit to Johns Hopkins University, October 2013
Dr. Davis primarily worked with Professor Joseph Silk on a novel signal of Dark Matter particles in both our own galaxy and others, the basic idea being that particles of Dark Matter annihilate with themselves near sites of shock acceleration. This results in the products of such annihilations, such as electrons or protons, being injected into these shocks, which would then potentially accelerate such particles to high energies. These particles could then be detected on Earth as cosmic rays.

It was shown that the signal of these cosmic rays could be distinguished from the background under certain conditions. The work is soon to be completed and will appear on the arXiv shortly.

Yohan Dubois (Institut d’Astrophysique de Paris): visit to Astrophysics, University of Oxford, November 2013
Dr Dubois’ recent research has focused on two different topics:

1) The evolution of mass and spin of supermassive black holes (BH).
2) The alignment of galaxies with the cosmic web.

By means of high-resolution hydrodynamical simulations, Dubois and his colleagues from Oxford and Paris have shown that BHs at the heart of galaxies are spun up by gas accretion from the dense gas in galaxies. Due to the strong time coherence of the gas accretion onto the BH, the accreted gas angular momentum adds up constructively to the BH angular momentum (Dubois et al., 2014a). Those compact objects keep very large values (close to maximum) until a galaxy merger and binary BH-BH
coalescence re-orientate the direction of the spin and change its magnitude (Dubois et al., 2014b).

The large-scale hydro cosmological simulation, Horizon-AGN (PI Y. Dubois, co-I J. Devriendt, C. Pichon), has led to the investigation of how galaxies are aligned with the cosmic filaments. The simulation self-consistently follows the gas dynamics, the star formation process within galaxies and the feedback from stars and from BHs. Therefore, the simulation allows for large variety in simulated galaxies, from dwarf to massive, passive to actively star-forming, blue to red. They have shown that low-mass, blue, star-forming, rotation-supported galaxies tend to align their angular momentum with their cosmic filament, while massive, red, passive and pressure-supported galaxies are more perpendicularly orientated to the filament axis (Dubois et al., 2014c). Galaxy mergers that rapidly swing the spin axis of the galaxy remnant drive the transition from alignment to misalignment (Welker et al., in preparation).

Related publications:

Ely Kovetz (Department of Physics, Weinberg Theory Group, University of Texas): visit to Johns Hopkins University, June 2013
The ideal method to detect the curl-component, or B-mode, signature of inflationary gravitational waves (IGWs) in the cosmic microwave background (CMB) polarization, in the absence of foregrounds and lensing, is a prolonged integration over a single patch of sky of a few square degrees. However, since foregrounds abound, the sensitivity to B modes can be improved considerably by finding the region of sky cleanest of foregrounds. The best strategy to detect B modes thus
involves a trade-off between exploration (to find lower-foreground patches) and exploitation (through prolonged integration). The question is how to balance this trade-off efficiently. This problem has similar properties to the multi-armed bandit (MAB) problem in probability theory, wherein a gambler faces a series of slot machines with unknown winning odds and must develop a strategy to maximize his/her winnings with some finite number of pulls. While the optimal MAB strategy remains to be determined, a number of algorithms have been developed in an effort to maximize the winnings.

In order to develop adaptive survey strategies to optimize the sensitivity to IGW B modes, the search for IGW B modes was formulated in the presence of spatially-varying foregrounds as an MAB problem and demonstrated, using realistic foreground models and taking lensing-induced B modes into account, that adaptive experiments can substantially improve the upper bound on the tensor-to-scalar ratio (by factors of 2–3 in single frequency experiments, and possibly even more). Similar techniques can be applied to other surveys, including 21-cm measurements of signatures of the epoch of reionization, searches for a stochastic primordial gravitational wave background, deep-field imaging by the James Webb Space Telescope or various radio interferometers, and transient follow-up searches. A few of these other implementations are now being investigated in follow-up work.

A preprint of this work has recently been uploaded to the arXiv (http://arxiv.org/pdf/1308.1404.pdf) and submitted it to Phys. Rev. D. for review.

Mark Richardson (School of Earth & Space Exploration, Arizona State University): visit to Astrophysics, University of Oxford, October 2013

The cosmological hydrodynamics code Ramses, which uses adaptive mesh refinement was central to this project. Using Ramses and the smoothed-particle hydrodynamics code Hydra, high resolution simulations of energetic feedback from active galactic nuclei (AGN) in a cluster environment were performed. This permitted the comparison of the effect of numerical method (grid vs particle), resolution and feedback model on the impact of this feedback on the environment. Preliminary work involved comparing the impact of feedback on the central cluster gas density by a redshift of 4. The model with AGN feedback (labeled AGN) was compared with that of no AGN feedback (labeled FID). This work is still ongoing, with a publication expected in the spring. Results were to be presented at a conference in February 2014.
Measuring our local motion using high precision CMB measurements

The CMB photons can be used to define a global rest frame. Any observer who does not detect a dipole in the CMB temperature anisotropy map can be defined to be at rest - the CMB rest frame. As a result of this motion, the CMB photons arriving from the direction of motion of the observer get Doppler boosted to higher energies while the ones arriving from the direction opposite to the direction of motion are de-boosted to lower energies. In addition to this, the motion of the observer also results in the CMB photons arriving from a slightly different direction, as compared to their direction of arrival had they been observed from the CMB rest frame. These effects result in a distortion of the observed CMB sky.

Specifically, this distortion causes the CMB sky to be rendered statistically anisotropic. The BipoSH basis forms a convenient basis to study the CMB two point correlation function in an anisotropic universe. The coefficients of expansion in this basis, BipoSH coefficients, are a natural generalisation to the well-known CMB angular power spectrum. These BipoSH coefficients completely encode complete information of the distortions induced in a Doppler boosted CMB sky. It can be shown that by measuring the BipoSH coefficients from a Doppler boosted CMB map, it is possible to recover the amplitude and direction of the velocity of the observer. An algorithm was developed to recover the direction and magnitude of the moving observer (with respect to the CMB rest frame) from measurements of Doppler boosted CMB temperature anisotropies.

Researchers:
Project Director: Dr. Chris Lintott
Advisory Committee: Dr. Adrienne Slyz
Professor Marc Kamionkowski
Professor John March-Russell

Balzan Awardees 2013/14
Sarah Andreas
Shant Baghram
Jonathan Davis
Yohan Dubois
Ely Kovetz
Mark Richardson
Aditya Rotti

Link:
http://balzan.new.ox.ac.uk/home.shtml
Shinya Yamanaka

Director of the Center for iPS Cell Research and Application (CiRA) at Kyoto University; Scientific Advisor at the Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University; Senior Investigator at the Gladstone Institute of Cardiovascular Disease in San Francisco; Professor of Anatomy at the University of California, San Francisco

2010 Balzan Prize for Stem Cells: Biology and Potential Applications
For the discovery of a method to transform already differentiated cells into cells presenting the characteristics of embryonic stem cells.

Institution Administering Research Funds: Kyoto University

Adviser for the Balzan General Prize Committee: Nicole Le Douarin

Molecular Basis During iPS Cell Generation and Its Application

Shinya Yamanaka will use half of his prize to support a five- to six-year research project on molecular mechanisms and application of induced pluripotent stem (iPS) cells at the Center for iPS Cell Research and Application (CiRA), Kyoto University. iPS cells were originally generated from mouse and human fibroblasts by retroviral introduction of four factors, Oct3/4, Sox2, c-Myc and Klf4. iPS cells are similar to embryonic stem (ES) cells in morphology, proliferation, gene expression and most importantly, pluripotency. It is important to develop a method to differentiate various target cells from iPS cells with high efficiency and safety. Synthetic RNA technologies have a promising outlook for controlling such cell-fate conversion. For example, direct injection of synthetic mRNAs into mammalian cells could serve as a powerful tool for gene therapy and regenerative medicine because transfected mRNAs do not integrate into the genome, thus eliminating the risk of cellular damage such as tumor formation. Furthermore, the injection (being irrelevant to transfer to the nucleus and nuclear events) enables rapid and homogenous gene expression in cell clusters. However, precise control of protein production from directly transferred synthetic RNAs has yet to be attained. Thus, elucidating the design principle of functional RNA molecules could be particularly useful for the next generation of stem cell research.
The Center for iPS Cell Research and Application (CiRA) hired one young faculty member, Dr. Saito, on 1 July 2011, to promote the research to control cell fate using synthetic RNA-based gene manipulation technologies. Dr. Saito attempts to take a synthetic biology approach that leads to understanding and controlling cells through the process of “artificially designed” RNA molecules and RNA-based gene expression systems. Creating artificial RNAs that freely control the functions of cells and applying them to examinations and medical treatments is one of the research goals of this new field. His laboratory will use the unique technology of synthetic biology that designs RNA and/or RNA-protein complexes (RNP) artificially and experimentally evolve them in order to control the fate of target cells depending on cellular environment. In concrete terms, he will engage in the following research projects:

1. Developing a technique to control cell fate with high safety and purity using artificial RNA/RNP molecular complexes.
2. Developing artificial RNA/RNP-based genetic switches that can detect specific protein and/or RNA expression and control ON/OFF of the translation of target genes.

 Advances made in fiscal year 2013 included the successful development of synthetic RNA switch extension technology that points to next-generation technology for control of gene expression (Endo K., Nat. Commun. 4:2393, 2013). An outline of these developments is given below.

At present, in order to alter cell fate from iPS cell to differentiated cell, genes have to be induced, for instance by adding growth factor, chemical substances, or other external additives at each stage of the culture process. This means that fate control responsive to intracellular conditions is challenging. The research team introduced above is engaged in the development of RNA switches that will make it possible to control cell fate by adjusting the expression of external genes in response to intracellular conditions (Saito H., Nat. Commun. 2:160, 2011). In their previous research, an OFF switch to repress gene expression and an ON switch to activate expression had to be designed and tuned separately, thus making it difficult to create a switch based on calculating the functions of a module with the target levels of sensitivity and performance.

In their latest work, the Saito group developed a method that allows ready adjustment and inversion of the action of the RNA switch. They have named the resulting device, made of RNA, an “RNA inverter”. The newly developed RNA inverter is able to turn
the RNA switch from OFF to ON, switching its function flexibly while maintaining its properties intact. The synthetic mRNA sequence into which this RNA inverter is inserted is rapidly degraded if the target factor is not expressed within the cell. This means that expression of the target gene is switched OFF. Conversely, when the target factor is expressed, the mRNA binds to the target (detection), the mRNA is stabilized depending on the volume of expression (assessment), and the translation of the target external gene is turned on by the inverter (activation). Because the RNA switch is able to independently control gene expression by sensing the intracellular conditions, it should lend itself to a range of applications. It could, for instance, lead to a method for inducing differentiated cells from iPS cells in response to intracellular conditions, or a method of inducing cell death based on exclusive detection of target cells such as undifferentiated cells or cancer cells.

iPS cells and subsequently differentiated target cells/tissues would provide unprecedented opportunities not only for regenerative medicine, but also in disease modelling and drug development. In early 2013, Shinya Yamanaka decided to use his prize to spread iPS cell research over institutes other than CiRA with Dr. Aoi at Kobe University to study recapitulation of several intractable diseases, including cancer by iPS cell technology. In this fiscal year, a new laboratory for the Aoi Group was built at the Kobe University graduate school of medicine. Currently, his team focuses on cancer stem cells, which have been suggested to be the potential for self-renewal and tumorigenesis in certain cancers. To start off, Aoi’s group successfully established a novel technology to induce cancer stem cell (CSC) properties in intestinal cancer cells by introducing defined factors and collecting the cells with CSC properties, which leads to a further understanding of cancer disease mechanisms and medical applications.

**Researchers:**
Hirohide Saito, Associate Professor, Center for iPS Cell Research and Application (CiRA), Kyoto University
Takashi Aoi, Professor, Department of iPS Cell Applications, Graduate School of Medicine, Kobe University

**Publications:**


Other Relevant Information

References for the RNA-based gene synthetic biology technologies developed by Dr. Saito:


*corresponding author
Index
Institutions

A
Abbazia di Montecassino, 18
Academia Sinica, Taipei, Taiwan, 206
    Genomics Research Center, 206
Academy of Social Sciences, Beijing, 87
    Archaeological Institute, 87
Accademia Clementina, Bologna, 36
Accademia Nazionale dei Lincei, Rome, 36, 105, 107, 108
Agenzia Spaziale Italiana Data Center (ASDC), Frascati, 150
American Academy in Rome, 17, 18
American Academy of Arts and Sciences, Cambridge MA, 72
American Association of Petroleum Geology, Tulsa OK, 200
Amsterdams Historisch Museum, 67
Argonne National Laboratory, IL, 184, 206
Aristotle University of Thessaloniki, 78
Association internationale des sociologues de langue francaise (AISLF), Toulouse, 114
Australian National University, Canberra, 124, 191, 193, 195

B
Bashkir State Pedagogical University, Ufa, Russia, 158
Beth Mardutho Syriac Institute, Piscataway NJ, 33
Biblioteca Nazionale Centrale di Roma, 18
Bowdoin College, Brunswick ME, 78
British Academy, London, 43, 72
Brown University, Providence RI, 35, 86

C
California Institute of Technology (Caltech), Pasadena CA, 148, 218
Carnegie Institution for Science, Washington DC, 183, 186, 187, 218, 220
    Carnegie/DOE Alliance Center, 183
    Geophysical Laboratory, 183, 184, 187
Catholic University of America, Washington DC, 187
Central European University, Budapest, 97, 98, 99
Centre International de Recherche aux Frontières de la Chimie, Strasbourg, 137
Centre National de la Recherche Scientifique (CNRS), Grenoble, 207
Centro Internazionale di Studi di Architettura Andrea Palladio, Vicenza, 17
Cesar Chavez High School, Washington DC, 186
China Academy of Art, Hangzhou, China, 86
Chinese University of Hong Kong, 98, 99
Collège de France, Paris, 58, 59, 127, 144, 200, 229
Columbia University, New York NY, 76, 86, 95, 128, 140
    Lamont-Doherty Earth Observatory, 140, 141
Comer Science and Education Foundation, Chicago IL, 140
Convent of the Sacred Heart, Greenwich CT, 186
Cornell University, Ithaca NY, 52, 177

D
Daugavpils Universitātes, Latvia, 78
De Montfort University, Leicester, 78
Deutsche Forschungsgemeinschaft (DFG), Bonn, 173
Duke University, Durham NC, 33, 177

E
École des Hautes Etudes en Sciences Sociales (EHESS), Paris, 78, 90, 112
    Centre de Recherches sur le Japon (CRJ), Paris, 78
École Normale Supérieure (ENS), Lyon, 184
École Normale Supérieure (ENS), Paris, 58, 195
    Institut européen d’histoire de la République des Lettres – Respublica Literaria, 58
École Polytechnique Fédérale de Lausanne (EPFL), 179
    Laboratoire de Photonique et Interfaces (LPI), 179
European Commission, Brussels, 113
European Molecular Biology Laboratory, Heidelberg, 219
European University Institute (EUI), San Domenico di Fiesole, 116, 117

F
Fondation Maison des Sciences de l’Homme, Paris, 89, 90
    Laboratoire Européen de Psychologie Sociale (LEPS), 89, 90
Fondation Singer Polignac, Paris, 59
Fondazione Ezio Franceschini, Florence, 128
Fondazione Palazzo Albizzini Collezione Burri, Città di Castello (Perugia), 36
Fonds national suisse de la recherche scientifique (FNS), Bern, 128
Foundation of the Center for the Study of Social Representations Studies of Southeast Asia, Jakarta, 91
Freie Universität zu Berlin, 87
Friedrich-Schiller-Universität Jena, 118
Fundação Carlos Chagas, São Paulo, Brazil, 89
Fundação Oswaldo Cruz, Rio de Janeiro, Brazil, 215

G
Georg-August-Universität Göttingen, 118
German Centre of the International Theatre Institute (ITI), Berlin-Kreuzberg, 24, 28
Gladstone Institute of Cardiovascular Disease, San Francisco, 238
Goethe-Universität, Frankfurt am Main, 55, 114, 177
Good Counsel High School, Olney MD, 186

H
Harvard University, Cambridge MA, 17, 48, 78, 85, 86, 87, 96, 154, 176, 177, 214, 223, 225
   Graduate School of Education, 45
Harvard Medical School, 223, 225
Hebrew University, Jerusalem, 63, 121, 173
Heidelberger Akademie der Wissenschaften (HAW), 85, 87, 88
Helsingin Yliopiston (University of Helsinki), 118
Högskolan i Jönköping (University of Jönköping), 216
Humboldt-Universität zu Berlin, 78, 121, 123

I
Imperial College London, 77, 78, 197, 199, 228
Imperial War Museum, London, 77
Independent University of Moscow, 157, 158
Institut d’Optique Graduate School (IOGS), Palaiseau, 133
Institut de France, Paris, 58, 127
   Académie des Inscriptions et Belles Lettres, 58, 59, 125
   Académie Française, 58
Institut de Recherche en Ophtalmologie, Sion, 169
Institut Henri Poincaré, Paris, 227, 229
Institut Pasteur, Paris, 144, 147
Institute for Advanced Study, Princeton NJ, 157
Institute for Theoretical and Experimental Physics, Moscow, 158
Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Brazil, 226
Instituto Nacional de Salud Publica (INSP), Cuernavaca, 215
International Court of Justice, The Hague, 72, 73, 75
International Criminal Court, The Hague, 73
Istituto Italiano per gli Studi Filosofici, Naples, 59
Istituto Nazionale di Studi sul Rinascimento, Florence, 105

J
Jawaharlal Nehru University, Delhi, 214
Jilin University (JLU), Changchun, China, 184
Johannes Gutenberg-Universität Mainz, 179
John Moores University, Liverpool, 78
Johns Hopkins University, Baltimore MD, 117, 215, 231, 232, 233, 234, 236

K
Karolinska Institutet, Stockholm, 216
King’s College London, 75, 78, 121, 124
Koninklijke Nederlandse Akademie van Wetenschappen (KNAW), Amsterdam, 66
Huygens Instituut voor Nederlandse Geschiedenis, 66
Kyoto University, 238, 240
Center for iPS Cell Research and Application (CiRA), 238, 239, 240
Institute for Integrated Cell-Material Sciences (iCeMS), 238

L
London School of Economics (LSE), 78
London School of Hygiene & Tropical Medicine (LSHTM), 77
Lunds Universitet, Lund, Sweden, 219

M
Massachusetts Institute of Technology (MIT), Cambridge MA, 69, 70, 96
Max-Planck-Institut für extraterrestrische Physik (MPE), Garching, 171, 172
Max-Planck-Institut für Kunstgeschichte, Rome, Bibliotheca Hertziana, 59
Max-Planck-Institut für Ornithologie, Seewiesen, 177
McGill University, Montreal, Canada, 86, 222, 225
Montreal Neurological Institute, 222
Medical Research Council (MRC), London & Swindon UK, 214
Meijo University, Nagoya, 191
Michigan State University, Lansing MI, 177, 228, 229
Ministère de l’Éducation nationale, Paris, 58
Ministère de l’Enseignement supérieur et de la Recherche, Paris, 58
Musée de Lille, 59
Museum für Ostasiatische Kunst, Köln, 87

National Central University (NCU), Jhongli City, Taiwan, 206
National Cheng-Kung University (NCKU), Tainan City, Taiwan, 206
National Institute for Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, 191, 192
Research Center for Advanced Carbon Materials, 191
National Taiwan University (NTU), Taipei, Taiwan, 86, 122, 206
Medical School, 206
National Yang Ming University (NYMU), Taipei, Taiwan, 98
NEC Central Research Laboratories, Kawasaki, Japan, 191
Nederlands Instituut voor Oorlogsdocumentatie (NIOD), Amsterdam, 78
New York University, New York NY, 31, 32, 50, 53, 63, 78, 86, 94

Office of the United Nations High Commissioner for Refugees (UNHCR), 73
Ohio State University, Columbus OH, 86
Oxford Brookes University, Oxford, 78

Pennsylvania State University, University Park PA, 220
Polo Museale Romano, Rome, 59
Pomona College, Claremont CA, 82
Pontificia Universidad Católica del Ecuador, Quito, 177
Princeton University Princeton NJ, 30, 31, 33, 35, 65, 77, 78, 118, 157, 175, 176, 177, 216
Department of Ecology and Evolutionary Biology, 175
Public Health Foundation of India, New Delhi, 214

Queen’s University, Kingston, Canada, 59
R
Rice University, Houston TX, 77, 78
Ruprecht-Karls-Universität, Heidelberg, 55, 85, 86, 87
    Institut für Kunstgeschichte Ostasiens, 85
Russian Academy of Sciences, Moscow, 158
    Sobolev Institute of Mathematics, 158
    Steklov Mathematical Institute, 158
Ryerson University, Toronto, Canada, 225

S
Scripps Research Institute, La Jolla CA, 137, 138
Scuola Normale Superiore di Pisa, 18, 62, 63, 105
Semmelweis Egyetem (University), Budapest, 215, 216
Sheffield Hallam University, Sheffield, 77, 78
Smithsonian Tropical Research Institute, Panama, 177
Società Filosofica Italiana, Rome, 109
St. Petersburg State University, St. Petersburg, Russia, 158
Stanford University, Stanford CA, 86, 87, 124
State University of New York (SUNY), Stony Brook NY, 228, 229
Stiftung Universität Hildesheim, 25, 27
Stockholms Universitet, 216

T
Technische Universität Berlin, 109
Thomas Jefferson High School, Alexandria VA, 186
Translational Research Institute (TRI), Brisbane, 164

U
United Nations, New York and Geneva, 72, 74
    Office of the United Nations High Commissioner for Refugees (UNHCR), Geneva, 73
Universidad de Buenos Aires, 97, 98
Universidad de Guadalajara, 91
Universidade de Brasília, 89
    Centro Internacional de Pesquisa em Representações e Psicologia Social “Serge Moscovici”, 89
Universidade Federal da Bahia, Brazil, 228

250
Universidade Federal do Rio de Janeiro, Brazil, 228
Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil, 215
Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil, 228
Universidad San Francisco de Quito, Ecuador, 177
Università di Bologna, 22, 36, 91
Università di Firenze, 128
Università di Napoli “Federico II”, 89, 90
Centro Mediterraneo per lo studio delle Rappresentazioni Sociali, 89, 90
Università di Napoli “L’Orientale”, 23, 86
Università di Roma “La Sapienza”, 136, 148, 149, 150
Università di Roma “Tor Vergata”, 78
Università di Teramo, 78
Università di Trento, 78
Università di Verona, 127
Universitas Katolik Atmajaya, Jakarta, 91
Ganeca Foundation, 91
Universitas Varsoviensis (Warsaw), 78
Universitat de València, 90
Universität Basel, 168
Biozentrum, 168
Universität Bern, 22, 56
Universität Bielefeld, 102
Zentrum für interdisziplinäre Forschung (ZiF), 102
Universität Hamburg, 24
Zentrum für Theaterforschung, 24
Universität Konstanz, 45, 128, 177
Universität Leipzig, 25, 27
Universität Münster, 78
Universität Zürich, 55, 120, 121, 158, 175, 176, 177
Zoologisches Museum, 175
Universitatea din București, 91, 97, 98
Université Bordeaux 1, 228, 229
Université de Fribourg, 22
Université de Genève, 20, 22, 23, 45, 105, 107, 109
Institut d’Histoire de la Médecine et de la Santé, 105, 109
Université de Lausanne, 20, 22, 23
Université de Montréal, 122, 123
Université de Neuchâtel, 22, 23
Université de Provence, Aix-Marseille I, 91
Université de Toulouse II - Le Mirail, 112
Université Denis-Diderot Paris 7, 219
Université Libre de Bruxelles, 78
Université Lumière Lyon 2, 90
Université Marc Bloch de Strasbourg, 112
Université Paul Cézanne, Aix-Marseille III, 200
Université Pierre et Marie Curie, Paris, 231
Institut d’Astrophysique, 231
Universiteit Leiden, 86
Universiteit van Amsterdam, 67
Universitetet i Oslo, 45, 46, 47
Centre for the Study of Mind in Nature, 45, 46, 47
University College London, 45, 48, 50, 69, 75, 214
The Bartlett School of Planning, 69
International Institute for Society and Health, 214
Institute of Health Equity, 214
University of Athens, Greece, 77
University of Birmingham, 47, 77
University of British Columbia, Vancouver, Canada, 177
University of California, Berkeley CA, 40, 171, 172, 173, 218, 220
Energy Biosciences Institute, 218
University of California, Irvine CA, 86
University of California, Los Angeles CA, 62, 81, 86, 118, 177
University of California, San Diego CA, 96, 118
University of California, San Francisco CA, 238
University of California, Santa Cruz CA, 177
University of Cambridge, 40, 41, 47, 100, 101, 116, 122, 135, 140
Centre for Research in the Arts, Social Sciences and Humanities (CRASSH), 116, 119
The McDonald Institute for Archaeological Research, 100, 101
University of Chicago IL, 86, 88, 203
University of Cincinnati OH, 177
University of Edinburgh, 117
University of Essex, Colchester, 78
University of Exeter, 101, 102, 118
University of Georgia, Athens GA, 177
University of Glasgow, 74
University of Kentucky, Lexington KY, 220
University of Leicester, 118
University of Limerick, 77
University of Liverpool, 77, 78
University of London, 28, 45, 47, 76, 86, 116, 117, 121, 122
  Birkbeck College, 76
  Goldsmiths, 28
  Queen Mary, 45, 116, 117
  School of Advanced Study (Institute of Contemporary British History), 78
  School of Oriental and African Studies (SOAS), 86
  Warburg Institute, 122
University of Manchester, 77, 78
University of Melbourne, 63
University of Michigan, Ann Arbor MI, 18, 86, 95, 96
University of Missouri, St. Louis MO, 78, 177
University of Notre Dame, South Bend IN, 177
University of Nottingham, 45, 47, 48, 74
  Human Rights Law Centre, 74
University of Otago, Wellington NZ, 216
University of Oxford, 231, 233, 235
  Beecroft Institute of Particle Astrophysics and Cosmology, 231
  New College, 231
  Oxford Institute for Ethics, Law and Armed Conflict, 74
  St. John’s College, 43, 45, 47, 48
University of Pittsburgh PA, 86
University of Queensland, St. Lucia, 164, 165
  Diamantina Institute, 164, 165
University of Reading, 77
University of Sheffield, 177
University of Southampton, 77, 102
University of Southern California, Los Angeles CA, 40, 96
University of Sydney, 95
University of Tel Aviv, 172
University of Texas, Austin, TX, 177
University of Toronto, Canada, 53, 86, 96
University of Toyama, Japan, 215
University of Ulster, Coleraine, 76
University of Victoria, Canada, 118
University of Virginia, Charlottesville VA, 78
University of Warwick, 230
University of Washington, Seattle WA, 177
University of Western Ontario, London, Canada, 96
University of Westminster, London, 77
University of Wolverhampton 77, 78
University of York, 77, 177
Uppsala Universitet, 118

W
Weizmann Institute of Science, Rehovot, Israel, 228, 229
Wellcome Trust, London, 77

Y
Yale University, New Haven CT, 52, 77, 78, 117
York University, Toronto, Canada, 78
Young Foundation, London, 69, 70

Z
Zhejiang University (ZJU), Hangzhou, China, 184
People

A
Abric, Jean-Claude, 91, 92
Abzhanov, Arkhat, 176
Ackerman, James, 17-19
Afary, Janet, 81, 82
Agranovich, Mikhail, 158
Aikin, Randol, 154, 155, 156
Akande, Dapo, 72, 74
Akiko of Mikasa, 86
Allouche, Jean-Paul, 127
Amir-Ebrahimi, Masserat, 81, 82, 83
Anderson, Miranda, 49
Andréani, Louis, 200, 201, 202
Andreas, Sarah, 232, 236
Angeli, Giovanna, 128
Appuhn, Karl, 18
Arnold, Carrie, 138
Arnold, Michael, 177
Arzhantsev, Ivan, 158, 159
Atkin, Nicholas, 77
Avagliano, Don Faustino, 18
Ávila, Artur, 228, 229, 230
Avilés, Leticia, 177
Aymard, Maurice, 92

Ballone, Angela, 63
Banda, Enric, 140, 183, 193, 200, 207
Banks, Kathryn, 47, 49
Barber, John, 77
Barkett, Claire, 185, 186, 188
Barragán, Veronica, 177
Baru, Rama, 214, 216, 217
Basak, Polly, 77
Bassanesi, Sergio Luiz, 215, 216
Beck, Pierre, 184, 187
Beevor, Antony, 78
Beloshapka, Valery, 158
Beltramini, Guido, 18
Berberian, Houri, 81, 82, 83
Berger, Michael, 137, 138
Berger, Pierre, 228, 229, 230
Berridge, Virginia, 77
Berry, Sharon Elizabeth, 96
Bessel, Richard, 77, 78, 79
Betea, Lavina, 91, 92
Beutler, Bruce, 137-139
Bhattacharya, Sanjoy, 77
Bi, Fei, 86
Biasiori, Lucio, 63
Bitter, David, 99
Blasi, Maria Pia, 18
Blasius, Amanda, 138
Block, Ned, 98, 99
Bloom, Phillip, 87
Blumenthal, Antje, 164, 165, 166
Bobak, Martin, 215, 216, 217
Bock, James, 148, 155
Boehmer, Elleke, 45
Bogdanovich, Zhanna, 77
Boger, Dale, 138
Bolens, Guillemette, 45
Bombarde, Odile, 127, 130
Bonatti, Christian, 228, 229
Bomarko, Mikhail, 158, 159
Bonnefoy, Yves, 127
Bordes-Benayoun, Chantal, 112, 114
Borisov, Denis, 158, 159, 160
Borri, Matteo, 106, 107, 110
Bostwick, Kimberly, 177
Botley, Paul, 66, 67
Bourgain, Pascale, 127
Boyd, Michael, 102, 104
Brauneck, Manfred, 24-29
Brett, Annabel, 118
Broecker, Wallace, 140-143
Brown, Peter R. L., 30-35
Bruschi, Arnaldo, 18
Bubner, Patrizia, 219, 221
Buchstabner, Victor, 158, 161
Buckland, Rosina, 86
Buckner, Randy, 223, 225
Bügener, Annette, 86
Bulinskiy, Alexander, 158
Bullard, Melissa, 18
Burman, Yuri, 158
Burns, Howard, 18
Busino, Giovanni, 89
Büttner, Christof, 86

Campos, P. H. F., 90, 92
Carpenter, John, 86
Carr, Jennifer, 96
Carrante, Massimo, 86
Carrère d’Encausse, Héléne, 81, 112
Carston, Robyn, 45
Case, Ramiro, 97
Catanzorchi, Olivia, 105, 107, 110
Cave, Terence, 43-49
Celenza, Christopher S., 18
Cerquiglini-Toulet, Jacqueline, 128
Chaibang, Adisorn, 220, 221
Champtiaux, Nicolas, 145, 146
Chandiran, Aravind Kumar, 181, 182
Chandola, Tarani, 215, 216, 217
Chang, Sandra, 18
Chang, Y.-W., 204, 206
Changeux, Jean-Pierre, 144-146
Chelkak, Dimitry, 158
Chen, Kaijun, 86
Chen, Li-Wei, 86
Chen, Xin, 85
Cheneau, Marc, 133, 134
Chesters, Timothy, 47, 49
Chien, Li-Kuei, 86
Chiu, Lingting, 86
Chong, Yun-Chak, 98
Christov, Theodor, 118
Ciaralli, Antonio, 18
Ciccolella, Federica, 18
Ciliberto, Michele, 105, 107
Ciomei, Sergio, 56, 57
Clabaut, Céline, 176, 177
Clancy-Smith, Julia, 82
Clément, David, 133, 134
Clunas, Craig, 86
Coen, Ester, 37
Frank, Matthew, 77, 78
Franklin-Hall, Laura, 95, 97, 98
Fransson, Eleonor, 216
Frazer, Ian, 164-167
Freiburghaus, Gabriela, 56, 57
Frith, Chris, 101
Fukuyama, Hidehiro, 138, 139
Fumaroli, Marc, 58-61, 127

G
Gabriel, Angharad, 123
Gaina, Alex, 215, 216, 217
Galdersi, Claudio, 228
Galli, Ida, 89, 90, 92
Gardikas, Katerina, 77, 79
Garon, Sheldon, 77
Gasparini, Patrizia, 128, 129
Gatrell, Peter, 77, 78
Gavallas, Giorgos, 101, 102, 104
Gee, Jennifer, 177
Gehring, Walter, 168-170
Genewein, Claire, 57
Genzel, Reinhard, 171-174
Georgakopoulou, Myrto, 102
Ghys, Étienne, 226, 227
Gibbard, Allan, 95
Gillingham, John, 78
Ginzburg, Carlo, 62-64, 107
Gisiger, Thomas, 145, 146
Godfray, H. Charles J., 197
Goeschel, Christian, 77
Golub, Camil, 97
Gorlitzki, Yoram, 77
Gorodentsev, Alexey, 158
Gosetti-Ferencei, Jennifer, 49
Gourmelon, Nicolas, 228, 229
Grafton, Anthony, 65-68
Gramsch, Stephen, 186, 187, 190
Granon, Sylvie, 145
Grant, Peter, 175-178
Grant, Rosemary, 175-178
Grasskamp, Anna Katharina, 86
Grassmück-Zhang, Shaohua, 86
Grätzel, Michael, 179-182
Green, Felicity, 118
Gregor, Neil, 77
Gromelski, Thomasz, 118
Gross, Jan, 77, 78
Gu, Yi, 86
Gu, Ying, 219, 221
Guarino, Pablo, 228, 229, 230
Gündüz, Eran, 114, 115
Guo, Hui, 86
Gussein-Zade, Sabir, 158
Gustafsson, Bengt, 231
Gyewon, Kim, 86

H
Ha, Polly, 118
Haggith, Toby, 78
Hall, Peter, 69-71
Halldenius, Lena, 118
Hamon, Melanie, 147
Hamon, Youri, 201
Hampsher-Monk, Iain, 118
Han, Zhi-Yan, 145
Haroche, Claudine, 127
Harris, Paul, 45, 48
Harrison, Mark, 78, 79
Hassiotis, Loukianos I., 78
Hattori, Cordélia, 58, 59, 60
Hau, Michaela, 177
He, Liqun, 87
Heeg, Günther, 25, 27
Kuncevic, Lovro, 118
Kung, Andrew, 185, 188
Kuznetsov, Alexander, 158, 161

L
Labarthe, Patrick, 128
Lagrou, Pieter, 78, 80
Lamagna, Luca, 150, 151
Lando, Sergey, 158
Lande, Russell S., 197-199
Lange, Andrew, 148-156
Langlois, Suzanne, 78
László, Krisztina, 215, 217
Lauritzen, Frederick, 18
Le Douarin, Nicole, 137, 144, 168, 238
Le Magueresse, Corentin, 145
Le Novère, Nicolas, 145
Le Pichon, Xavier, 200-202
Le Rider, Jacques, 127
Le Roy, Charlotte, 200, 201, 202
Lebow, Katherine, 78
Ledderose, Lothar, 85-88
Lee, Daniel, 118
Lefevre, Sylvie, 128
Lenski, Richard, 177
Leonardi, Lino, 128
Levedahl, Alexander, 185, 187, 188, 190
Levy, Carl, 77
Lewinsohn, Jed, 52-53
Li, Wen-Hsiung, 203-206
Li, Wuxing, 219, 220
Lifschitz, Avi, 118
Lima, Yuri, 228
Lin, Fan, 86
Lin, Jing-Yi, 201
Lindblad, Per Olof, 148, 171
Lintott, Chris, 236
Liu, F.-G. R., 204, 206
Liu, Hesheng, 223, 225
Liu, Lihong, 86
Liu, Yu-jen, 86
Loget, Nicolas, 201, 202
Loktev, Sergey, 158, 161
López, Jorge Eric, 228, 230
Lorius, Claude, 207-213
Losada, Alfonso, 98
Losos, Jonathan, 177
Loughlin, Thomas, 102
Luk, Yu Ping, 86
Lullo, Sheri A., 86
Lütteken, Laurenz, 56, 57, 122, 123
Lynch, Frances, 77
Lyne, Raphael, 45, 47, 49
Lyubich, Michael, 227, 228, 229

M
Ma, Ya-Chen, 86
MacAuslan, Rowan, 77
Mac Carthy, Ita, 47, 49
Macioce, Stefania, 37
Madurri, Manchali, 185, 186, 188
Maezaki, Shinya, 86
Magnusson, Lars, 118
Maiani, Luciano, 133
Maissen, Thomas, 118
Malafouris, Lambros, 100, 101, 102, 103
Malcolm, Noel, 118
Maliks, Reidar, 118
Mantena, Karuna, 117, 118
Malyutina, Sofia, 215, 216, 217
Mao, Ho-kwang, 183-190
March-Russell, John, 236
Margaritis, Evi, 102
Marías, Fernando, 18
Marková, Ivana, 92
Marland, Elisabeth, 204, 206
Martens, Marco, 227, 228, 229
Marmot, Michael, 214-217
Masi, Silvia, 151
Matarollo, Steven, 165, 166, 167
Matteoli, Marco, 106, 107, 111
Matthiae, Paolo, 30, 100
Matveev, Sergey, 158
Mayhew, Emily, 77
Mazower, Mark, 76, 77, 78, 79
McEligott, Anthony, 77
McKee, Christopher, 173
McReynolds, Daniel, 17, 19
Mény, Yves, 117
Merridale, Catherine, 77
Meyerowitz, Elliot, 218-221
Michaut, Lydia, 168, 169, 170
Michelson, David, 31, 32, 33, 34
Milam, Per-Erik, 96
Milner, Brenda, 222-225
Milstein, Oren, 138
Milward, Alan, 77, 78
Molinari, Luisa, 91, 92
Molloy, Barry, 102
Morcom, Shaun, 77
Moreira, Carlos Gustavo, 228, 229
Mortimer, Sarah, 118
Moscovici, Serge, 89-93
Mottahehdeh, Roy, 82
Mout, Nicolette M.E.H., 65, 105
Moutafi, Ioanna, 102
Mraz, Attila, 98
Mühle, Eduard, 78
Müller, Sabine, 48, 49
Müller-Wesemann, Barbara, 25, 26
Munteanu, Dana, 18

N
Nagel, Thomas, 50, 51, 94-99
Natanzon, Sergey, 158
Nelson, Eric, 118
Newhouse, Sheldon, 228, 229
Ng, Sau Wah, 86
Nicolaci, Michele, 37, 38, 39
Nijhout, Frederik H., 177
Noor, Mohamed, 177
Nord, Philip, 77
Nowicki, Stephen, 177
Nozomi, Naoi, 86

O
Oblezin, S.V., 158
O’Brient, Roger, 154, 155, 156
Orfali, Birgitta, 92
Oudai Celso, Yamina, 106, 107, 109, 111
Ozkul, Basak Demires, 69, 70, 71

P
Pacífico, Maria José, 228, 229
Pacquette, Gabriel, 117
Padoa Schioppa, Antonio, 50
Pajak, Andrzej, 215, 216, 217
Paleja, Meera, 225
Palis, Jacob, 226-230
Panayi, Panikos, 78
Panov, Taras, 158, 161
Park, Jong Phil, 86
Pastur, Leonid, 158
Patel, Kiran, 78
Peñafliei, Nicolás, 177
Pérez, Juan Antonio, 90, 92, 93
Perkins, Ryan, 96
Permanadeli, Risa, 91, 92
Petit, Jean Robert, 208
Petren, Kenneth, 177  
Petrolini, Chiara, 106, 107, 111  
Petrucci, Armando, 18  
Petruccione, John, 18  
Pettit, Philip, 118  
Pick, Daniel, 78  
Piedrahita, Paolo, 177  
Pikhart, Hynek, 215, 216, 217  
Pinho, Vilton, 227, 228  
Polenta, Gianluca, 150, 151  
Pons, Silvio, 78, 79  
Porret, Michel, 20, 22, 23  
Positselski, Leonid, 158  
Potrie, Rafael, 228, 229  
Prachumwat, Anuphap, 204, 205, 206  
Prettyman, Adrienne, 96  
Pujals, Enrique, 227, 228, 229  
Purcell, Anthony, 195, 196  

Q  
Quataert, Eliot, 173  

R  
Raben, Remco, 78  
Radding, Charles M., 18  
Radhakrishnan, Manu, 18  
Radut, Luciana, 91, 92  
Ramos-Womack, Margarita, 177, 178  
Raphaël, Freddy, 112, 114  
Rawson, Jessica, 86  
Raynaud, Dominique, 208, 209, 211, 212, 213  
Razborov, Alexander, 158  
Read, Christopher, 77  
Reades, Jonathan, 70, 71  
Recchia, Francesca, 70, 71  
Reed, Jim, 45  
Reich, Orsolya, 98  
Reinisch, Jessica, 76, 77, 78, 79, 80  
Renfrew, Colin, 100-104  
Rentsch, Ivana, 57  
Reuter, Martina, 118  
Reyer, Uli, 177  
Riall, Lucy, 78  
Richardson, Mark, 235, 237  
Ricklefs, Robert, 177  
Ridoux, Charles, 128, 129  
Rifkind, David, 17, 19  
Ringer, Monica, 82  
Rivera, Jaqueline, 185, 186, 187, 188  
Robert, Jean-Noël, 127  
Romijn, Peter, 78  
Rösch, Petra, 87  
Rosset, François, 20, 22, 23  
Rossi, Federica, 17, 19  
Rossi, Luciano, 127  
Rossi Monti, Paolo, 105-111  
Rostaing, Corinne, 114, 115  
Rostam-Kolayi, Jasamin, 81, 82, 83, 84  
Rothschild, Emma, 78  
Rotti, Aditya, 236, 237  
Rouby, Hélène, 195, 196  
Rovella, Alvaro, 228  
Rovinski, Marat, 158, 162  
Rowland, Ingrid, 18  
Roy, Olivier, 82  
Rueger, Jan, 77  
Rüegg, Walter, 58, 112  
Ruini, Daniele, 128, 129  
Ryan, Michael, 177  
Rybnikov, Leonid, 158, 161, 162  

S  
Sabisch, Petra, 25, 26, 29
Sabnis, Sonia, 18
Sæther, Bernt-Erik, 198
Saint-Laurent, Jeanne-Nicole, 31, 32, 34, 35
Saito, Hirohide, 239, 240, 241
Salatino, Maria, 151, 152
Salavecz, Gyöngyvér, 215, 216, 217
Salenice, Irena, 78
Salgado, Nelly, 215, 217
Salavetz, Gyöngyvér, 215, 216, 217
Salenice, Irena, 78
Salvecz, Gyöngyvér, 215, 216, 217
Sambarino, Martin, 228, 229
Sanchez, Pablo, 167
Santelli, Emmanuelle, 113, 115
Sanchez, Pablo, 167
Santis, Carlos Matheus, 228
Savarino, Joel, 208, 209, 211, 212
Savin, Anton, 158, 162
Scheffler, Samuel, 51, 98
Scherl, Samuel, 51, 98
Schiavazzi, Silvija, 78
Schillaci, Alessandro, 150, 151
Schimmelpfennig, Irene, 141
Schlombs, Adele, 87, 88
Schneider, Nicola, 56, 57
Schneider, Wolfgang, 25, 26, 27, 28, 29
Scholz, Gottfried, 24, 25, 55, 120
Schmidt, Georg, 118
Schmitt, Alexander, 118
Schubert, Leo, 17, 19
Schulze, Rainer, 78
Schweizer, Anton, 85
Schwenk, Klaus, 177
Seibold, Eugen, 200
Sellevold, Kirsti, 46, 47, 48, 49
Semerdjian, Elyse, 82
Seo, Yoonjung, 86
Sergeev, Armen, 158
Sevela, Marie, 78
Shadrin, Sergei, 158
Shapiro, Kristen, 173
Sharifi, Azadeh, 25, 26, 27, 28, 29
Shaw, Kerry, 177
Shen, Alexander, 158
Shephard, Ben, 77, 78, 79
Shi, Jie, 86
Shilnikov, Leonid, 158
Shimazu, Naoko, 77, 78
Shirali, Mahnaz, 113, 115
Shiryaev, Albert, 158
Shissler, Holly, 81, 82, 84
Shkredov, Ilya, 158, 163
Shvidkovsky, Dmitry, O., 17, 36, 85
Sider, Ted, 97
Sierhuis, Freya, 118
Silk, Joseph I., 231-237
Silva, Waliston Luiz, 228, 230
Sin Ting Wong, Sapphires, 99
Sivakumaran, Sandesh, 72, 74
Sivaramakrishnan, Kavita, 214, 217
Skinner, Quentin, 62, 116-119
Skopenkov, Arcady, 158-163
Sloan, James G., 72, 74
Smith, Iain, 78
Smith, Olivia, 46, 47, 48, 49
Smith, Thomas, 177
Smyth, Mark, 165, 166, 167
Snowden, Frank, 78, 79
Snyder, Timothy, 77
Sofier, Tom, 148, 155
Somayazulu, Maddury, 186, 187, 188, 190
Somerville, Christopher, 218-221
Sora, Adriana, 98
Sripada, Chandra, 95
Stacey, Peter, 118
Stanton, Timothy, 117, 118
Stargardt, Nick, 78
Stauder, Adrienne, 216, 217
Stauffacher, Werner, 164, 214
Steinert, Johannes-Dieter, 77, 78, 79
Stephanson, Anders, 78
Stern, David, 176
Sternberg, Amiel, 173
Stierle, Karlheinz, 43, 45, 58, 125, 127, 128
Street, Sharon, 95, 97
Strevens, Michael, 97
Stroumsa, Guy, 62, 63
Summerfield, Penny, 77, 78
Sun, Lei, 138
Sun, Ye-Ying, 195, 196
Sung, H.-M., 204, 206
Swain, Nigel, 77
Suter, Peter, 147

T
Tahvanainen, Antti, 118
Taimanov, Iskander, 158
Takahashi, Nobushiro, 86
Takamatsu, Mari, 86
Tambakopoulos, Dimitris, 102
Tanner, Jakob, 78
Tarantino, Giovanni, 63, 64
Tarr, Paul, 219, 220
Thane, Pat, 78
Thomas, Keith, 69, 76
Thompson, John, 41, 42
Timorin, V.A., 158
Tits, Jacques, 157
Tohidi, Nayereh, 81, 82, 84
Tooze, Adam, 77, 78, 79
Touraute, Caroline, 114, 115
Trede, Melanie, 86
Tremel, Wolfgang, 179
Trentmann, Frank, 77
Treshchev, Dmitry, 158
Troncarelli, Fabio, 18
Troschianko, Emily, 48, 49
Tsai, Suey-ling, 87
Tseng, Chin-Yin, 86
Tsfasman, Michail, 158
Tsilaga, Flora, 78, 79
Tsuchida, Ami, 225
Tully, James, 118

U
Unger, Peter, 98
Urqueguía, Cristina, 56, 57
Uulders, Hedzer, 128, 129

V
Vale, Lawrence, 69
Valencia, Sylvia, 90, 91, 92
van Miert, Dirk, 66, 67, 68
Van Montagu, Marc, 135, 218
Van Strien, Sebastian, 228, 230
Varão, J. Regis, 228, 230
Vassiliev, Victor, 157
Vdovin Evgenii, 158, 163
Vega, Salvatore, 11, 62, 94, 116
Vershik, Anatoly, 158
Viana, Marcelo, 228
Vinberg, Ernest, 158
Volpi, Caterina, 37

W
Wachsmann, Nik, 78
Wake, David, 177
Wakita, Mio, 86
Wang, Ching-Ling, 87
Wang, Lianming, 87
Wang, Lin, 184, 187
Wang, Su-chin, 86
Wang, Xianfeng, 141
Wang, Xiang, 87
Wanzenried, Elisabeth, 56
Watkins, Kate, 225
Webb, Philippa, 72, 74, 75
Webster, Aness, 96
Weindling, Paul, 78, 79
Weinrib, Jacob, 53-54
Weinrich, Harald, 127
Wenzel, Claudia, 87
West-Eberhard, Mary Jane, 177
Westbrook, Chris, 134
White, Elizabeth, 76, 77, 78
White, Nick, 78
Wikelski, Martin, 177
Wilde, Ralph, 72, 74, 75
Wildhaber, Luzius, 72
Williams, Wes, 45
Winter, Jay, 77
Won, Sungyong, 138
Wright, Crispin, 97, 98

X
Xue, Lei, 86

Y
Yamanaka, Shinya, 238-241
Yang, Jiagang, 238
Yao, Ning, 86
Yella, Aswani, 179, 181
Yi, Lidu, 86
Yilmaz, Huseyn, 118
Yin, Hwang, 88
Yoccoz, Jean-Christophe, 226, 230
Yoshida, Ken, 86
Yu, Jimin, 140, 141

Z
Zagorski, Andrea, 25, 26, 27
Zahra, Tara, 78, 80
Zaidi, Waqar, 77, 78, 79, 80
Záskaliczky, Mártón, 118
Zelkin, Mikhail, 158
Zeng, Charles Qiaoshi, 184, 187
Zink, Michel, 127-130
Zmiaikou, D., 230
Zuccari, Alessandro, 37