



International Balzan Foundation

The Balzan Prizewinners'
Research Projects:
An Overview
2012

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An Overview
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Balzan Prizes (1961-2011)

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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 20th 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 correspondent¹. 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 Zürich 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 15th July 1953².

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

¹ Renata Brogginì (ed.), *Eugenio Balzan. L'emigrazione in Canada nell'inchiesta del Corriere*, Fondazione Corriere della Sera, Milan, 2009.

² Renata Brogginì, *Eugenio Balzan 1874-1953. Una vita per il Corriere, un progetto per l'umanità*, RCS Libri, Milan, 2001. Renata Brogginì, *Eugenio Balzan 1874-1953. A Biography*, Hoepli, Milan, 2007.

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 projects involve many young researchers. 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 sheer variety of projects undertaken to date is striking, covering almost all academic disciplines. Significant cutting edge research has emanated from these endeavours. The details of this, one can readily observe in the lengthy bibliographies attached to the individual projects presented here. This 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. What however is probably the most important element of the Balzan Research Projects is the role played by young researchers. This again fits closely with the aims of the Balzan Foundation.

The total amount to date allocated to over forty Balzan Research Projects is 21.5 million Sfr. A significant number of academic institutions and individual researchers worldwide have been involved in these research projects. This list includes institutions from countries including Australia, Austria, Canada, France, Germany, Greece, Italy, Japan, Russia, Switzerland, The Netherlands, Norway, the UK and the USA. Over five hundred researchers and administrators have been involved, representing an input from many other countries in addition to these, including China, Finland, India,

Iran, Romania, Ukraine, Ireland and Poland. Some researchers have already concluded their work. Most though are still implementing, or just beginning to implement, their Balzan Resources Projects.

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

July 2012

Editor's Note

The overview is divided into two sections, following the division between the sciences and the humanities that delineates the actual subjects of the Balzan Prizes. The entries for each Prizewinner are organized as follows: name; current position; year of award; subject and citation; institution administering research funds; adviser for the Balzan General Prize Committee; Research 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, Vicenza
- 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"

2. Summer School in Applied Palaeography

American Academy in Rome

1. *James Ackerman Award.* 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 Professor Ackerman’s donation to the Centro Internazionale di Studi di Architettura Andrea Palladio. The James Ackerman Award has been conferred since 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 have not yet published any books. The texts selected by the Jury presided over by James Ackerman himself are published in a series created for this purpose. The first James Ackerman Award was given 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 Award was presented 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 Eight-*

eenth-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 2012 Award was won by Matthew A. Cohen for his book *Beyond Beauty: Reexamining Architectural Proportion in the Basilicas of San Lorenzo and Santo Spirito in Florence*, which will be published in May 2013.

Members of the selection board include(d) James S. Ackerman (President), Arnaldo Bruschi (1928-2009), Past President of the Scientific Council of the Centro, Howard Burns, President of the Scientific Council of the Centro, Guido Beltramini, Director of the Centro, Fernando Marías, Director of “Annali di architettura”, the journal of the Centro, and two members of the current Scientific Council of the Centro Internazionale di Architettura.

2. *Summer School in Applied Palaeography*. 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 Professor Ackerman’s way of studying Renaissance architecture “based on a systematic critical examination of written and visual sources”, as the citation for the Balzan Prize reads. The courses were offered free of charge to graduates and scholars, who did not necessarily have to be Americans. They were chosen according to their curricula, and 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. Amongst the participants of the 2002 Summer School were: Sandra Chang, Walter Cupperi (today at Scuola Normale Superiore di Pisa), Federica Ciccolella, Frederick Lauritzen and Dana Munteanu. Other organizers and participants were Karl Appuhn, Antonio Ciaralli, Christine Huemer, Melissa Bullard, Armando Petrucci, John Petruccione, Charles M. Radding, Ingrid Rowland, Fabio Troncarelli (2003); Lorenzo Calvelli, Eileen Jaxcsens, Jennifer Knust, Christine Kralik, Manu Radhakrishnan and Sonia Sabnis (2005). Maria Pia Blasi (Biblioteca Nazionale Centrale di Roma) and Don Faustino Avagliano (Abbazia di Montecassino) facilitated the scholars’ work on the ancient manuscripts.

Researchers:**Ackerman Prize**

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

Publications:

- Cafà, V., *Palazzo Massimo alle Colonne di Baldassare Peruzzi: storia di una famiglia romana e del suo palazzo in rione Parione*, Marsilio, Vicenza-Venezia, 2007.
- Cohen, M., *Beyond Beauty: Reexamining Architectural Proportion in the Basilicas of San Lorenzo and Santo Spirito in Florence* (forthcoming 2013).
- Dressen, A., *Pavimenti decorati del Quattrocento in Italia*, Marsilio, Vicenza-Venezia, 2008.
- McReynolds, D., *Palladio's Legacy. Architectural Polemics in Eighteenth-Century Venice*, Marsilio, Vicenza-Venezia, 2011.
- Rifkind, D. *The Battle for Modernism: Quadrante and the Politicization of Architectural Discourse in Fascist Italy*, Marsilio, Vicenza-Venezia, 2012.
- Rossi, F., *Palladio in Russia. Nikolaj L'vov architetto e intellettuale russo al tramonto dei Lumi*, Marsilio, Vicenza-Venezia, 2009.
- Schubert, L., *La villa Jeanneret-Perret di Le Corbusier, 1912. La prima opera autonoma*, Marsilio, Vicenza-Venezia, 2006.

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. 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.

The development of the project will involve graduate students from the Ecole doctorale interdisciplinaire dix-huitiémiste of the Université de Genève, Université de Lausanne, Université de Neuchâtel, Université de Fribourg and 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.

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 a fundamental change. Shifting prerequisites, new production methods and structures of organisation 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 are 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 decentralised 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, internationalisation, 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 independent performing artists' socio-economic position. 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 colloquiums 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 20th 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. What was very helpful

in this regard was Prof. Dr Manfred Brauneck's elucidation of the research proposal. The focus on the developments of the last twenty years reveal a shift towards globalisation, evident since the 1990s in the increasing interconnection, digitalisation and concomitant economic pressure in most European countries. Just as important, however, are the complex social transitions in Eastern Europe countries that have led to a rearrangement of theatre there. Another of the study's aims is to investigate within the European context the phenomenon of "independent theatre" - 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 whilst 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*
- Andrea Hensel: *Independent Scene(s) as Core and Catalyst of New Structures in the Theatre. On the Relationship between Innovative Production Forms and Creativity in Theatre Aesthetics.*
- Christine Koch: *Children's (and Youth) Theatre since 1990: Developments, Trends, Visions. A Comparative European Study.*
- Dr Petra Sabisch: *Artistic Working Practices and Criticism in Contemporary Dance and Performance Art at the Point of Intersection between Production and Aesthetics, 1990-2011*
- Dr Azadeh Sharifi: *Post-Migrant Theatre*

The discussion of the individual topic areas was centred 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 27th and 28th January. 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, the Kulturfabrik's director, Amelie Deufelhard, provided an extensive report on her work in Kampnagel and as head of the production house "sophiensaele" 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 professionalisation 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 at the invitation of the Stiftung Universität Hildesheim from 11th to 13th May 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 saw as primarily multidisciplinary, 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 professionalisation, state support, which has now been established, and improvements to infrastructure, which have now been made.

The next colloquium is planned for November 2012 in Leipzig. The discussions and panels will address primarily international perspective; this will entail considering the structures and working practices of free and independent theatre in other European countries. ITI-Germany placed information about the research project on the ITI homepage, in its annual report, in the members' magazine *Impuls* and also has regular updates in its newsletter. Moreover, the ITI centre, co-operating organisations and the Goethe-Institut have been informed of the Balzan Project.

Researchers:

Friederike Felbeck

Andrea Hensel

Christine Koch

Petra Sabisch

Azadeh Sharifi

Link:

http://www.iti-germany.de/pro_balzan_en.shtml

Peter 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

Recent developments in the study of late antiquity has led to the inclusion of research on the great Sasanian Empire of Persia and the cultural powerhouse of a largely Syriac-speaking Christianity which stretched east of Antioch as far as the Iranian plateau, as far north as the Caucasus and as far south as Ethiopia. Syriac is the final, classical version of the Aramaic spoken by Jesus of Nazareth and a language that was spoken throughout that vital zone between the Mediterranean and Asia. The vibrant Syriac-speaking Christianity of late antiquity was represented by communities of saints and poets and the subject of a rich hagiographical tradition.

With the second half of his Balzan Prize, Peter Brown will direct an intensive study of the topography and literature of the Syriac-speaking world in late antiquity and the early middle ages, tracing its vivid figures and setting them in their own distinctive landscape.

The aim of the research project is two-fold:

1. To produce a data-base cartography of the monasteries, the centers of learning, the location of the production of manuscripts, the activities of holy persons and the cult-sites associated with their memory in the Syriac world from ancient into early modern times.
2. To encourage the publication and translation of newly-discovered or little noticed lives of the saints of the Syriac world, both in Syriac and in Christian Arabic. Such sources are of interest in their own right; but they are also invaluable sources for the topography of the regions in which they were produced.

Peter Brown will direct his research project acting with an advisory council of American and European scholars from Duke University Beth Mardutho Syriac Institute, Piscataway, St. John's School of Theology at Collegeville, Minnesota, New York University and Georgetown University as well as from the University of Oxford and the Centre National de la Recherche Scientifique (CNRS), Paris.

The executive director will be David Michelson, University of Alabama. The research project will last approximately three years.

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 prize-winner and which involves 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 the 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 during this period of the image of *Roma-Triumphans*. In addition many new aspects regarding the restoration projects of classical Roman edifices and structures undertaken in this period, 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 Caravaggesque 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 critical edition of the great number of scattered, already known documents. In the course of the research, being carried out by Michele Nicolaci, it is possible that new documents on Caravaggio himself might also be discovered, and they would thus be included in the publication.

Research Project C. *Complete Catalogue of the Works of Umberto Boccioni*. There is already a catalogue of Boccioni's works, compiled by Ester Coen with the supervision of Maurizio Calvesi, who penned the introductory essay, which appeared in 1982. In consideration of the documentary innovations that have emerged on the painter since, and taking into account the great number of unpublished works discovered since then, 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 shall appear in two volumes published by Allemandi.

Researchers:

Stefano Colonna Filippone de Montagu

Jacopo Curzietti
Alberto Dambruoso
Camilla Fiore
Michele Nicolaci

Publications:

Maurizio Calvesi

Ester l'Expert, Leggerezze su Boccioni, in "Storia dell'arte" 119, (n.s. 19) pp. 131-70; *1607: Pomarancio a Loreto e Caravaggio tra Malta e Corfù*, in "Storia dell'arte" 127, (n.s. 27) pp. 36-40; *Caravaggio, i documenti e dell'altro* in "Storia dell'arte" 128, (n.s. 28) pp. 22-51; *Caravaggio, ancora due asterischi: la veste di cappuccino, e l'Humilitas*, in "Storia dell'arte" 130, (n.s. 30) pp. 38-40

Project A

Stefano Colonna
Filippone de Montagu

La fortuna critica dell'Hypnerotomachia Poliphili, CAM Editrice, Rome, 2009.

Jacopo Curzietti

La decorazione della cappella Pasqualoni in San Lorenzo in Lucina. Note e Documenti su Domenico e Giovan Francesco de Rossi, in "Storia dell'arte" 128, (n.s. 28) pp. 98-121; *Gian Lorenzo Bernini e Domenico de Rossi. I busti di Giovan Battista d'Aste e Clarice Margana in S. Maria in Via Lata*, in "Storia dell'arte" 130, (n.s. 30) pp. 65-82.

Camilla S. Fiore

Mattia de Rossi: documenti inediti per il cantiere del monastero di S. Giuseppe a Capo le Case, in "Storia dell'arte" 130, (n.s. 30) pp. 83-93.

The final conclusions of the research will be published in the following publications:

Camilla S. Fiore

Parmi d'andare peregrinando dolcissimamente per quell'Etruria – Scoperte antiquarie e natura nell'Etruria di

- Camilla S. Fiore *Curzio Inghirami e Athanasius Kircher in “Storia dell’arte”* (forthcoming).
Un carteggio inedito: incisioni e documenti sulle antichità etrusche di Athanasius Kircher e Ovidio Montalbani (forthcoming).
- Jacopo Curziotti and Camilla S. Fiore *Gli eruditi dell’Accademia alessandrina: la politica antiquaria sotto il pontificato di Alessandro VII (Chigi)*, (forthcoming).
- Project B**
- Michele Nicolaci *Caravaggio. Mecanati e pittori*, exhibition catalogue (Caravaggio, Museo Diocesano, 2010), ed. M.C. Terzaghi, Silvana editoriale, Cinisello Balsamo, 2010, 8 contributions.
- Michele Nicolaci and F. Valdinoci (eds.) *Vite di Caravaggio*, Casadei Libri, Padua, 2010.
- Michele Nicolaci (with Riccardo Gandolfi) *Il Caravaggio di Guido Reni. La ‘Negazione di Pietro’ tra relazioni artistiche e operazione finanziarie*, in “Storia dell’arte” 130, (n.s. 30) pp. 41-64.
- Michele Nicolaci *Caravaggio a Roma. Una vita dal vero*, exhibition catalogue (Rome, Archivio di Stato, complesso Sant’Ivo alla Sapienza, 2011), ed. O. Verdi and M. Di Sivo, Rome, De Luca editore, 2011, 5 contributions.
- Michele Nicolaci ‘Appendice I. Artemisia Lomi Gentileschi (1593-1654)’, in *Artemisia. Storia di una passione*, exhibition catalogue (Milan Palazzo Reale 2011/12), eds. R. Contini and F Solinas, 24Ore cultura, Milan 2011, pp. 258-69, in addition 7 contributions.
- Michele Nicolaci *Lettere di Artemisia*, ed. F. Solinas, Rome, De Luca editore, 2011.

and Y. Primarosa
(with the participation of)

Michele Nicolaci ‘Biographie. Artemisia Gentileschi (1593-1654)’ in *Artemisia, 1593-1654*, exhibition catalogue (Paris, Musée Maillol, 2012), eds. R. Contini and F. Solinas, Paris Gallimard, 2012, pp. 229-37, in addition 5 contributions.

Michele Nicolaci *Roma al tempo di Caravaggio*, exhibition catalogue (Rome, Palazzo Venezia, 2011/12), ed. R. Vodret, Milan Skira 2011, 8 contributions including 3 biographies (Caravaggio, Gentileschi & Guidotti).

Forthcoming publications:

Michele Nicolaci ‘Sul naturalismo di Giovanni Baglione (1598-1606)’ in *Roma moderna e contemporanea*, eds. F. Curti, M. Di Sivo, O. Verdi, (2012).

Michele Nicolaci ‘Il Pensionante del Saraceni. Storiografia di un enigma caravaggesco’, in *Carlo Saraceni (1578-1619)*, exhibition catalogue, (Rome, Palazzo Venezia, 2012/13), ed. M.G. Aurigemma, in addition 6 contributions, (2012).

Michele Nicolaci *L’inventario dei beni di Giulio Mancini (1568-1630) e qualche riflessione sulle ‘Considerazioni sulla pittura’* in “Storia Dell’Arte”, 134, 2013.

Michele Nicolaci *Paolo Guidotti il Cavalier Borghese (1560-1629)*.

Project C

Alberto Dambruoso

Catologo generale dell’opera di Umberto Boccioni
(forthcoming).

Terence Cave

Emeritus Professor of French Literature at the University of Oxford, Emeritus Research Fellow of St John's College Oxford and a 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 becomes 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, and will seek 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 the Diffidence 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 have been established. The Fellowships are tenable for 3 years. The Research Fellows will produce published work of the equivalent of a book-length study over the course of the Fellowship. They also assist in the arrangement of discussion groups, workshops and other collective events. They have not been permitted to take on duties external to the project (for example teaching duties) except with the agreement of the Director. The Research Fellowships are attached to the St John's College Research Centre in Oxford, where the Fellows have offices.

Five Balzan Research Lectureships have been 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 carry 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 are expected to participate as far as their other duties permit in the other collective activities of the project. The workshops are held in the lecturer's home institution; this arrangement helps to guarantee the wider diffusion of the project's aims and intellectual outcomes.

The project has also recruited a number of Associate Researchers. This group consists of individual researchers from various academic contexts whose work is closely related to the aims of the project. They have no specific duties but are 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) has been established in Oxford and meets 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 are sometimes invited to give presentations to the group. The two Balzan Postdoctoral Fellows will organize one-day workshops of their own in the final year of their tenure (2012-13). In addition, the project provides intellectual support and limited financial support for workshops on relevant topics organized by its Associate Researchers.

A programme of individual visits and exchange visits enables core project participants to establish appropriate contacts in other universities, with the possibility of reciprocation. In addition, the Director gives 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.

A Methodological Colloquium will be held in the later stages of the project with the aim of bringing the various participants together in order to discuss methodological points of convergence between the different disciplines involved. Particular methodological issues will be highlighted to give the discussion coherence, 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.

Researchers:

1. Balzan Research Fellows:

Karin Kukkonen
Olivia Smith

2. Balzan Research Lecturers:

Kathryn Banks
Timothy Chesters
James Helgeson
Raphael Lyne
Ita Mac Carthy

3. Associate Researchers:

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

Publications:

The publications that will arise directly from the work of the project and thus acknowledge the support of the Balzan Foundation are as follows:

- A book-length research monograph (or an equivalent body of work), produced by each of the Research Fellows;
- Five substantial article-length studies produced by the Research Lecturers;
- “Reading literature cognitively”: a commissioned special issue of the journal *Paragraph*, to be published in 2014, containing a planned set of essays by core members of the project, with an introduction by the Director and a concluding response by one of the Deputy Directors.
- *Thinking with Literature* (provisional title), a book-length presentation and defence of a broadly-based cognitive approach to literary study, with close readings of texts from two or more national literatures, written by Terence Cave.

All publications produced under the auspices of the project, whatever the source of the author’s funding, will acknowledge the support of the Balzan Foundation.

Link:

<http://www.sjc.ox.ac.uk/3122/The-Balzan-Project.html>

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 Raisoné 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 it 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 6 or 12 sonatas each were supposed to have been handed down. Composers were also very enthusiastic about it, and ambitiously used the trio sonata as a “calling card” to make a successful entrance in 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 Prof. Dr. Dr. h. c. mult. Ludwig Finscher together with Prof. Dr. 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 their doctoral studies and was working towards their 'Habilitation', the second for a doctoral candidate (Ph.D. 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 1st 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 Gabriella Freiburghaus. Ms. Freiburghaus completed her thesis in 2011 (dealing with the Trio Sonata in Britain between Purcell and Händel). So far (May 2011), about 1,350 editions with 3 to 12 sonatas have emerged from more than 2,000 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 which 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 is expected to appear in 2013. It is anticipated that the project will conclude with a two week workshop at the Zürcher Hochschule der Künste towards the end of 2012 presenting the new material discovered and posing conclusions. The workshop will also include the participation of musicians, which will allow some of the work found to actually be performed and thus permit a thorough appreciation of what has been discovered. This will be followed in 2013 with the launch of the catalogue at the Fonds national suisse de la recherche scientifique in Bern. 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, who 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 Spourmi and Nicolas Dôthel 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:

Supervisor: Prof. Dr. Laurenz Lütteken

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:

- Ludwig Finscher, *Was heißt und zu welchem Ende studiert man musikalische Gattungsgeschichte?* in Laurenz Lütteken and Hans-Joachim Hinrichsen (editors): *Passagen. IMS Kongress Zürich 2007. Five Keynote Speeches*. Kassel etc.: Bärenreiter 2008, pp. 21-37.
- Laurenz Lütteken, *Matthesons Orchesterschriften und der englische Sensualismus* in „Die Musikforschung“ 60, 2007, pp. 203-213.
- Laurenz Lütteken, *Christian Wolff und die Musikästhetik seiner Zeit* in Jürgen Stolzenberg and Oliver-Pierre Rudolph (editors): *Christian Wolff und die europäische Aufklärung. Akten des 1. Internationalen Christian-Wolff-Kongresses, Halle (Saale), 4-8th April 2004. Teil 4. Sektion 8: Mathematik und Naturwissenschaften. Sektion 9: Ästhetik und Poetik*. Hildesheim etc.: Olms 2008, pp. 213-227.
- Laurenz Lütteken, *Werk - Opus*. In “MGG, Supplement”, 2008, pp. 1102-114.
- Cristina Urchueguía, *Das Projekt Die Triosonate - Catalogue Raisonné. Ein Einblick in das Versuchslabor der Kammermusik*, “Sonus”, II, 2008.
- Cristina Urchueguía, *Die Triosonate - Catalogue Raisonné, Die Suche nach komplexen Antworten auf einfache Fragen* in *Kammermusik im Übergang vom Barock zur Klassik*, Christoph-Hellmut Mahling (editor), Mainz 2009 (Schloss Engers. Colloquia zur Kammermusik. Vol. 5).
- Cristina Urchueguía, *Die Triosonate - Catalogue Raisonné. Ein Katalogisierungsprojekt zur frühen Kammermusik*. In “Ensemble. Magazin für Kammermusik”, 1, 2010.

These are to be followed by the publication of *Die Trio Sonata - Catalogue Raisonné* in 2013.

Marc Fumaroli

Professor at the Collège de France, holder of the chair in “Rhétorique et société en Europe (XVIe-XVIIe siècles)” since 1986. He was elected to the Académie Française in 1995 and 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-Grimoard, 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 Institute de France.

Cordélia Hattori, Nicola Iodice and Xavier Dufestel worked on different aspects of comte de Caylus' life and work. He was a polyedric intellectual, almost forgotten today despite his fundamental contributions, alongside 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 neoclassical arts. 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:

- Les premiers siècles de la République des Lettres (Paris, Collège de France, Fondation Singer Polignac, 2001).
- 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: Bibliothèque nationale de France, 6th, 9th and 10th Feb. 2004
- *De Caylus à David. Les Lumières et le 'Retour à l'Antique'*.
Lecture given at: Cercle des Interalliées de Paris, Feb. 2005
- *Le comte de Caylus et les origines françaises du néo-classicisme*.
Lecture given at: Ecole française de Rome, March 2006
- *Le Comte de Caylus et les arts français du XVIIIe siècle*.
Lecture given at: Société des Amis des Musées, 4th May 2007
- *Le comte de Caylus et les origines françaises du goût néo-grec*.
Lecture given at: Fondation Calouste Gulbenkian, Lisbon, 28th April 2008
- *Le Mentor de Télémaque à l'Académie royale de peinture et sculpture: le comte de Caylus, biographe d'artistes (1747-1762)*.
Lecture given at: Louvre, 15th Feb. 2010

Researchers:

Xavier Dufestel
Cordélia Hattori
Nicola Iodice

Publications:

- Dufestel, X., « Le buste en terre cuite du comte de Caylus par Louis-Claude Vassé » in Irène Aghion (dir.) *Caylus, mécène du roi. Collectionner les antiquités*

- au XVIIIe siècle*, Cabinet des médailles de la Bibliothèque nationale de France, I.N.H.A., Paris, 2002.
- Dufestel, X., *Deux portraits inédits du Comte de Caylus (1692-1765): le tableau d'Alexandre Roslin et le médaillon en bronze de Louis-Claude Vassé*, « Storia dell'Arte », Anno XXXV, 104/105, Nuova Serie (4/5), January-August 2003.
 - Fumaroli, M., *Chateaubriand: Poésie et Terreur*, Éditions de Fallois, Paris, 2003.
 - Fumaroli, M., *Preface* in Irène Aghion (dir.) *Caylus, mécène du roi. Collectionner les antiquités au XVIIIe siècle*, Cabinet des médailles de la Bibliothèque nationale de France, I.N.H.A., Paris, 2002.
 - Fumaroli, M., « Le 'siècle' d'Urbain VIII », pp. 1-14. in Mochi Onori, L., Schütze, S., and Solinas, F., (eds.), *I Barberini e la cultura europea del Seicento*, Rome, 2007.
 - Hattori, C., *Le comte de Caylus d'après les archives: première partie*, « Les cahiers d'histoire de l'art », 5, 2007, pp. 54-70.
 - Fumaroli, M., « Le comte de Caylus et les origines françaises du Retour à l'antique européen » in *Roma triumphans? L'attualità dell'antico nella Francia del Settecento*, Letizia Norci Cagiano (ed.), Edizioni di storia e letteratura, Rome, 2007.
 - Fumaroli, M., « Le comte de Caylus et les origines françaises du néo-classicisme » in *De Rome à Paris: peinture et pouvoirs aux XVIIe et XVIIIe siècles*, Dijon, Faton, 2007, pp. 373-383.
 - Fumaroli, M., « Arnaldo Momigliano et la rehabilitation des 'antiquaires': le comte de Caylus et le 'retour à l'antique' au XVIIIe siècle » in *Momigliano and Antiquarianism: Foundations of the Modern Cultural Sciences*, P. N. Miller (ed.), University of Toronto Press. 2007, pp. 154-183.
 - Fumaroli, M., « Introduction » to the edition of *Lettres de Madame de Maintenon*, vol. 1 pp. 1650-1689, édition intégrale et critique, by H. Bots-Estourgie, Paris, Champion, 2009.
 - Fumaroli, M., « Retour à l'Antique : la guerre des goûts dans l'Europe des Lumières » *Preface* to *L'Antiquité rêvée. Innovations et résistances au XVIIIe siècle*, Paris. Louvre éditions/Gallimard 2010, pp. 23-56.
 - Solinas, F., ed. *Peiresc et L'Italie*, Paris, 2009.

Other works are in the course of preparation:

Le comte de Caylus, Mémoires et Carnets des voyages, édition intégrale, annotée et illustrée by Jacqueline Hellegouarch, Cordélia Hattori, Catherine Hémon-Fabre, un-

der 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 the monograph to be overseen by Marc Fumaroli 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 and former 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 where 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. It is envisaged that 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: *A New Science. The Discovery of Religion in the Age of Reason*, Guy Stroumsa, Harvard University Press, 2010; *Ancient History and the Antiquarian*, Arnaldo Momigliano, Journal of the Warburg and Courtauld Institute, 1950; *Prospettiva 1967 della storia greca*, Arnaldo Momigliano, Rivista Storica Italiana 80, 1969.

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.

Next Stage

A workshop will take place at the Scuola Normale, Pisa, in the Spring of 2013. The papers submitted by the participants will be circulated in advance. They will focus on *Cérémonies et coutûmes religieuses de tous les peuples du monde* (Amsterdam 1723 ff.): the multivolume, gigantic comparative effort which in recent years has been studied by a number of scholars (Lynn Hunt, Margaret Jacob and Wijnand Mijnhardt, *The Book that Changed Europe; Bernard Picart and the First Global Vision of Religion*, by various authors). The seminar will focus on the vocabulary used by Jean Frederic Bernard, the editor, in a series of unsigned contributions, as well as by the authors of some of the essays included in the *Cérémonies*. Crucial words like “religion”, “coutûme”, “rite”, “conformité” will be submitted to a close scrutiny, aiming to explore their consistency, nuances and historical implications. The workshop will analyze the long term impact of the *Cérémonies* vocabulary on the history of religions as a discipline.

Researchers:

Lucio Biasiori
Giovanni Tarantino

Publications:

- Carlo Ginzburg, ‘Machiavelli e gli antiquari’ in *L’Europa divisa e i nuovi mondi. Per Adriano Prosperi, Vol. II*, Pisa, Edizioni della Normale, 2011, pp. 3-8.
- Carlo Ginzburg, *Provincializing the World: Europeans, Indians, Jews (1704)* in “Postcolonial Studies”, Volume 14, Issue 2, 2011, pp. 135-150.

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 Polybius 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:

- ‘The Letters of Isaac Casaubon (1559-1614) and Richard Thomson (c. 1570-1613)’. *Cultures of Knowledge Project*, University of Oxford, 23rd June 2010.

Lectures by Dirk van Miert:

- ‘Humanism and Warfare: Philology and Military Engineering in the Decades around 1600’, *The Making of the Humanities. First International Conference on the History of the Humanities*, Amsterdam, 24th October 2008.
- ‘Confessionalisering in de Republiek der Letteren’, History Department, Universiteit van Amsterdam, 19th November 2008.
- ‘Scaliger Scatologus. Retorische en filosofische achtergronden van scheldkannonades in de brieven van Joseph Scaliger’, Classics Department, Universiteit van Amsterdam, 3rd December 2008.
- ‘De Canon van Amsterdam: het Athenaeum Illustre’, Beliën & Van Tol Stadsverkenningen, Amsterdams Historisch Museum, 14th December 2008.
- ‘De filoloog met de hamer. Radicale filologie in de briefwisseling van Joseph Scaliger’, History Department, Universiteit van Amsterdam, 26th May 2009.
- He was also a panel member, with Anthony Grafton and Marika Keblusek, for a public discussion on ‘The Republic of Letters’, Historisch Café, Amsterdam, 25th 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:

- *Latin Translation in the Renaissance: The Theory and Practice of Leonardo Bruni, Giannozzo Manetti, and Desiderius Erasmus*. Cambridge and New York: Cambridge University Press, 2004.
- *Learning Greek in Western Europe, 1396-1529: Grammars, Lexica, and Classroom Texts*. Philadelphia: American Philosophical Society, 2010.

Publications by Dirk van Miert:

- 'Anne Mercier: Xantippe of Tanaquil? Een herwaardering van een hoogleraarvrouw uit de Gouden Eeuw' in: Frans Blom et al. (eds), *De brede Gouden Eeuw. Opstellen voor Henk van Nierop bij zijn zestigste verjaardag*, Amsterdam, 2009, pp. 113-120.
- *Keuchenius, Robertus and Scaliger, Joseph* for the *On-line Bio-Bibliography of Dutch Humanists*, The Hague, (www.humbio.nl/biografieen_nederlands).
- *Neolatinisten Nieuwsbrief nr. 21* (co-edited, with H.J.M. Nellen and A. Wesseling), The Hague, September 2008.

Link:

<http://warburg.sas.ac.uk/scaliger/indexjjscaliger.htm>

Peter Hall

Professor of Planning and Regeneration at The Bartlett, University College London, and 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, 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. The 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, Ph.D. 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 Dutch telecommunications company Koninklijke KPN N.V.

3. *European Identity and Recent Immigrants into European Cities.*

Dr. Francesca Recchia, who completed her Ph.D. 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 Ph.D., 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:

- Calabrese, F., Reades, J. and Ratti, C., “Eigenplaces: segmenting space through digital signatures”, “IEEE Pervasive Computing”, 9.1 (2010): pp. 78-84.
- Andris, C., Biderman, A., Calabrese, F., Krings, G., Nabian, N., Ratti, C., Reades, J. and Rojas, F., *City Gravity*, “SEED Magazine”, February 2009.
- Calabrese, F., Reades, J. and Ratti, C., “Eigenplaces: analyzing cities using the space-time structure of the mobile phone network”, *Environment and Planning B: Planning & Design*, 2009 vol. 36 (5) pp. 824-36.
- 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 a book entitled *Tourist Mobility and Advanced Tracking Technologies* to be published by Routledge Geography].
- Recchia, F. (2008) ‘Immigration, Politics and Violence in Urban France: Between Fiction and Facts’. *Information, Society and Justice* ISSN 1756-1078 (Online) Vol. No. 1, December 2008.
- Hall, P., *London Voices, London Lives: Tales from a Working Capital*, Policy Press, London, 2007.
- *The Polycentric Metropolis: Learning from Mega-City Regions in Europe*, Earthscan Publications, London, 2006.

Rosalyn Higgins

Dame Rosalyn Higgins, DBE, QC is former President of the International Court of Justice in the Hague, Fellow of the British Academy and 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 International Organizations

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. 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 November 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.

This was always anticipated as a major and long-term project. Several hundred pages of research now exist and Dame Rosalyn remains deeply grateful to the Balzan Foundation.

Researchers:

- Dapo Akande is University Lecturer in 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.
- Sandesh Sivakumaran is Associate Professor and Reader at the School of Law, and Fellow of the Human Rights Law Centre of the University of Nottingham.
- James G. Sloan is 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, as of September 2012, Lecturer in Public International Law at King's College London.
- Ralph Wilde is Reader at the Faculty of Laws, University College London.

Publications:

Oppenheim's International Law. A New Volume on International Organizations is planned to be ready for publication in 2015.

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 originally 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, on *Comparing Europe's Post-war Reconstructions*, was held on 28th 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 (Wolverhampton), 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 (Columbia), Christopher Read (Warwick), Jessica Reinisch (Birkbeck), Jan Rueger (Birkbeck), Silvia Salvatici (Terra-mo), 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 scheduled conference, dedicated to *Post-War Reconstruction in Europe* was held in June 2008. Participants: Richard Bessel (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).

A further conference was also held 10th-11th Sept. 2010, *The Forty Years' Crisis: Refugees in Europe 1919-1959*, organized by Jessica Reinisch.

Researchers:

Jessica Reinisch
Elizabeth White

Publications:

- J. Reinisch, *Comparing Europe's Post-war Reconstructions: First Balzan Workshop, Birkbeck College, London, 28th October 2005*, "History Workshop Journal", 61, 299-304, 2006.
- F. Tsilaga, *Relief and Rehabilitation in the Immediate Aftermath of War, Second Balzan Workshop, Birkbeck College, London, 16th June 2006*, "History Workshop Journal", 63, 371-374, 2007.
- E. White, *After the War was Over: The Civilian Return to Leningrad*, "Europe-Asia Studies", Vol. 59, No. 7, 2007, pp. 1145-61.
- W. Zaidi, *Planning, Production and Reconstruction in Post-war Europe, Fourth Balzan Workshop, Birkbeck College, London, 26th June 2007*, "History Workshop Journal", 65, 279-284, 2008.
- J. Reinisch (ed.), "Journal of Contemporary History", Vol. 43. No. 3, July 2008 (special issue) - Jessica Reinisch, Introduction: *Relief in the Aftermath of War*.
 - Ben Shephard, *Becoming Planning Minded: The Theory and Practice of Relief 1940-1945*.
 - Johannes-Dieter Steinert, *British Humanitarian Assistance: Wartime Planning and Postwar Realities*.
 - G. Daniel Cohen, *Between Relief and Politics: Refugee Humanitarianism in Occupied Germany 1945-1946*.
 - Jessica Reinisch, *We Shall Rebuild Anew a Powerful Nation: UNRRA, Internationalism and National Reconstruction in Poland*.
 - Paul Weindling, *For the Love of Christ: Strategies of International Catholic Relief and the Allied Occupation of Germany, 1945-1948*.
 - Katerina Gardikas, *Relief Work and Malaria in Greece, 1943-1947*.
 - Frank Snowden, *Latina Province, 1944-1950*.
 - Flora Tsilaga, *The Mountain Laboured and Brought Forth a Mouse: UNRRA's Operations in the Cyclades Islands, c. 1945-46*.
- E. White and J. Reinisch (eds.), *The Disentanglement of Populations: Migration, Expulsion and Displacement in Post-war Europe*, Basingstoke, Palgrave Macmillan, 2011.
- M. Mazower, J. Reinisch and D. Feldman (eds.), *Post-war Reconstruction in Europe: international perspectives, 1945-49*, OUP, 2011.
- J. Reinisch, 'Survivors and Survival in Europe after the Second World War' in S. Bardgett, D. Cesarani, J. Reinisch and J. Steinert (eds.), *Justice, Politics and Memory in Europe after the Second World War, Landscapes after Battle*, Volume 2, Vallentine Mitchell, 2011, pp. 1-18.

- David Feldman (ed.) “Past and Present” Volume 210 suppl. 6, 201 1 *Post-War Reconstruction in Europe*
- 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 Eastern Germany*
- Pamela Ballinger, *At the Borders of Force: Violence, Refugees, and the Reconfiguration of the Yugoslav and Italian States*
- Pieter Lagrou, *Regaining the Monopoly of Force: Agents of the State Shooting Fugitives in and around Belgium, 1940-1950*
- Frederick Cooper, *Reconstructing Empire in British and French Africa*
- Nicholas J. White, *Reconstructing Europe through Rejuvenating Empire: the British, French, and Dutch Experiences Compared*
- Sunil Amrith, *Reconstructing the ‘Plural Society’: Asian Migration Between Empire and Nation, 1940–1948*
- Jessica Reinisch, *Internationalism in Relief: The Birth (and Death) of UNRRA*
- Harold James, *The Multiple Contexts of Bretton Woods*
- Waqar Zaidi, ‘A Blessing in Disguise’: *Reconstructing International Relations Through Atomic Energy, 1945–1948*
- Tara Zahra, ‘A Human Treasure’: *Europe’s Displaced Children between Nationalism and Internationalism*
- J. Reinisch, *Public Health in Occupied Germany* (forthcoming 2012).

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: H el ene Carr ere 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 Hourii 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 22nd 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:

- Julia Clancy-Smith on her *Mediterraneans: North Africa and Europe in an Age of Migration, c. 1800-1900*, University of California Press, 2011.
- 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.

Keddie/Balzan funds were also used to co-sponsor a 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:

- Afary, J., *Sexual Politics in Modern Iran*, Cambridge University Press, 2009.
- Amanat, M., *Set in Stone: Homeless Corpses and Desecrated Graves in Modern Iran*. (Regarding Bahai and Jewish issues) "International Journal of Middle East Studies" 44 (2012), 257-283.
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- Khazeni, A. and Amanat, A., "A Harbor for Slaves from All Lands: Central Asia in the Captivity Narrative of Mirza Mahmud Taqi" in *Globalizing Central Asia: The Writing of Travel at the Crossroads of Asia*, edited by Nile Green, Indiana University Press, (under contract).
- Keddie, N., *Innovative Women: Unsung Pioneers of Social Change*, "Journal of Middle East Women's Studies" (JMEWS), Vol. 4, n. 3, Fall 2008.
- Keddie, N., *Iranian women's status and struggles since 1979*, "Journal of International Affairs" Spring/Summer 2007, Volume 60, Issue 2, 2007.

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- Tohidi, N., "The Women's Movement and Feminism in Iran: A Glocal Perspective" in *Women's Movements in the Global Era*, edited by Amrita Basu (Boulder, CO: Westview Press, 2010), 359-396.
- Tohidi, N., "Women's Rights and Status in Iran" in *Women's Rights in the Middle East and North Africa*, Sanja Kelly & Julia Breslin, eds. (MD: Rowman & Littlefield and NY: Freedom House, 2010), 121-156. (Published in 3 languages: English, Arabic and Persian).
- Tohidi, N., "Ethnic and Religious Minority Politics in Contemporary Iran" in *Contemporary Iran*, edited by Ali Gheissari (London & NY: Oxford University Press, 2009), 299-323.

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.

Institutions Administering Research Funds:

- Ruprecht-Karls-Universität Heidelberg
- Heidelberger Akademie der Wissenschaften

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

1. Heidelberg Colloquies on 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 others' 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 14th-17th September 2006. Sixteen Ph.D. 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-Universität, Heidelberg); a-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); Rosina Buckland (New York University); Walter B. Davis (Ohio State University); Yu-chin Huang (SOAS, University of London) and Christof Büttner (Ruprecht-Karls-Universität, Heidelberg).

The Second Heidelberg International Colloquy on East Asian Art History took place from 10th-13th 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 14th-17th 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 (Ru -

precht-Karls-Universität, Heidelberg), Anne Hennings (Ruprecht-Karls-Universität, Heidelberg), Wang Xiang (Stanford University), Phillip Bloom (Harvard University), Wang Ching-Ling (Freie Universität zu Berlin), Wang Lianming (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 – HAW). 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:

Herz der Erleuchtung. Buddhistische Kunst in China 550-600 / The Heart of Enlightenment. Buddhist Art in China 550-600. Museum für Ostasiatische Kunst, Köln, 2009.

Researchers:

Paul Copp
Suey-Ling Tsai

Publications:

- Museum für Ostasiatische Kunst, Köln and the research project Buddhist Stone Inscriptions in China of the Heidelberger Akademie der Wissenschaften (eds.), *Herz*

- der Erleuchtung. Buddhistische Kunst in China 550-600 / The Heart of Enlightenment. Buddhist Art in China 550-600.* Museum für Ostasiatische Kunst, Köln, 2009.
- Hwang Yin, *The Age of Enlightenment: Global perspectives on the history of East Asian Art. An interview with Lothar Ledderose and Adele Schlombs*, "Orientations", Nov./Dec. 2009.

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

Links:

The First Heidelberg International Colloquy on East Asian Art History:

http://www.uni-heidelberg.de/imperia/md/content/fakultaeten/phil/zo/iko/konferenzen/20060915-17_prog_coll_balzan.pdf

The Second Heidelberg International Colloquy on East Asian Art History:

http://www.uni-heidelberg.de/imperia/md/content/fakultaeten/phil/zo/iko/konferenzen/20080710-13_prog_coll_balzan.pdf

The Third Heidelberg International Colloquy on East Asian Art History:

http://www.uni-heidelberg.de/md/zo/iko/media/events/2011/2011_0714-17_heidelberg_colloquies.pdf

http://iko.uni-hd.de/events/2011/2011_0714-17_heidelberg-colloquies.html

Exhibition:

http://www.museenkoeln.de/ausstellungen/mok_0910_100Jahre/Herz-der-erleuchtung_e.asp

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 setting 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 Sao 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 Ecole 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. This 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 “Foundation of Center of Social Representations Studies” (2005).

Serge Moscovici furthermore 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 or 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 Ph.D. fellowship awarded to Luciana Radut who prepared a social psychology doctoral thesis: “The representations of European construction. Between the Central Europe and Eastern Europe”.

Conferences:

- VIII International Conference on Social Representations (Rome, 28th August-1st September 2006).
- Giornata di Lotta allo stigma del disagio mentale (Viterbo, 19th April 2007).
- Troisièmes rencontres Internationales du Centre Collaborateur de l’Organisation Mondiale de la Santé pour la Recherche et la Formation en Santé Mentale (Nice, 12th -15th June 2007).
- V JIRS (Brasilia, 31st July-3rd August 2007).
- De Rosa, A.S., Imagerie collective et representations sociales de la folie dans les dessins d’enfants et l’histoire de l’Art. Troisièmes rencontres Internationales du Centre Collaborateur de l’Organisation Mondiale de la Santé pour la Recherche et la Formation en Santé Mentale (Nice, 12th-15th June 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:

- Campos, P.H.F. (2010), “Effets de contexte et adéquation normative dans le cas de la représentation sociale de l’indien au Brésil” in: *Abstracts of the 10th International Conference on Social Representations. Tunis*, Les Editions Apollonia. v. 1. p. 25.
- De Rosa, A.S. and Bocci, E. (2006), *The iconographic archaeology of madness: stability/changing of social representations more than 20 years after the “Basaglia law”*, VIII International Conference on Social Representations (Rome, 28th August-1st September 2006), Proceedings, p. 327.
- Galli, I. (2008), *Del potere e di altri demoni*, Edizioni Scientifiche Italiane, Napoli, 2008.
- Kalampalikis, N., and Moscovici, S.(2005),*Une approche pragmatique de l’analyse Alceste*, “Les Cahiers Internationaux de Psychologie Sociale”, 66, pp. 15-24.
- Marková, I., (2007)*Dialogicité et représentations sociales*, Puf, Paris, 2007 (French translation of *Dialogicity and Social Representations*, 2003).

- Moscovici, S. and Markovà, I. (2006), *The Making of Modern Social Psychology*, Cambridge, Polity Press.
- Moscovici, S. and Pérez, J.A. (2007), *A Study of Minorities as Victims*, “European Journal of Social Psychology”, 37, 725-746.
- Moscovici, S. (2009), *Os ciganos entre perseguição e emancipação (The gypsies between persecution and emancipation)*, “Sociedade e Estado, Brasília”, v. 24, n. 3 653-678.
- Moscovici, S. and Pérez, J.A. (2009), “A new representation of minorities as victims”, in Butera, Fabrizio and Levine, John M. (eds.), *Coping with minority status: Responses to exclusion and inclusion*, New York, NY, US: Cambridge University Press, pp. 82-103.
- Moscovici, S. (2011), *An essay on social representations and ethnic minorities*, “Social Science Information” 50, pp. 442-461.
- Moscovici, S. (2012), *Raison et cultures*, (Édition établie et présentée par N. Kalampalikis). Paris, Editions de l'EHESS (manuscript accepted for publication, collection “Audiographie”).
- Moscovici, S. (2013), *Le scandale de la pensée sociale*, (Textes fondamentaux et inédits sur les représentations sociales réunis et introduits par N. Kalampalikis). Paris, Editions de l'EHESS (manuscript accepted for publication, collection “Cas de figure”).
- Passini, S., Emiliani, F., Lumanaj, B. (2007), *I diritti e i doveri: rappresentazioni sociali di giovani italiani e albanesi*, Libreria Bonomo Editrice, Bologna.

Links:

http://www.leps.msh-paris.fr/eng/balzan_groups.htm

<http://www.centromoscovici.com.br/centromoscovici/>

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 will 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 support 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 on “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 the NYU/Columbia Graduate Student Philosophy Conference held 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).

Another NYU/Columbia Graduate Student Philosophy Conference was held in 2012, with the following papers: '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 (Montréal); 'Subjective Ought', Jennifer Carr (MIT); 'Quasi-Realism and the Problem of Unexplained Coincidence', James Dreier (Brown).

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 Hulton, 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 also 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, and 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 Chihyi Hung, National Yang Ming University in Taipei, focused on philosophy of mind, and took courses in Metaphysics, Philosophy of Biology, Philosophy of Creativity, and 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 București, 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.

2012-2013 will be the last year of the Graduate Fellowship program, probably with two full-year fellowships.

The research funds have been used almost exclusively to support graduate students in the middle of their studies, rather than post-doctoral researchers. As a result, there have been no published results so far. 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 is a Senior Fellow at the McDonald Institute for Archaeological Research University of Cambridge and formerly 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 Ar-

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 on 7th-9th 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 on 14th-17th September 2007. It was coorganized with Professor Colin Renfrew and Professor Chris Frith (Department of Cognitive Neuroscience, UCL). The papers presented in this symposium have been 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” (14th 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, 15th-17th 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 has been 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, 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, now in preparation.

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) and 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 "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
Ioanna Moutafi
Barry Molloy
Dimitris Tambakopoulos

Publications:

- Malafouris, L., *Before and Beyond representation: towards an enactive conception of the Palaeolithic image* in C. Renfrew and L. Morley (eds.), *Image and Imagination: a Global History of Figurative Representation*, Cambridge, McDonald Institute for Archaeological Research, 2007.

- Malafouris, L., *The Sacred Engagement: Outline of a hypothesis about the origin of human 'religious intelligence'* in D.A. Barrowclough and C. Malone (eds.), *Cult in Context, Reconsidering Ritual in Archaeology*, Oxford, Oxbow Books, 2007.
- Malafouris, L., *Is it 'me' or is it 'mine'? The Mycenaean sword as a body-part* in J. Robb and D. Boric (eds.), *Past Bodies*, Oxford, Oxbow Books, 2008.
- Knappett, C. and Malafouris, L. (eds.), *Material Agency: Towards a Non-Anthropocentric Approach*, New York, Springer, 2008.
- Knappett, C. and Malafouris, L., *Material and Non-Human Agency: An Introduction*; in *Material Agency*, 2008.
- Malafouris, L., *At the Potter's Wheel: An argument for Material Agency in Material Agency*, 2008.
- Malafouris, L. and Renfrew, C., *Steps to a 'Neuroarchaeology' of Mind*, Cambridge Archaeological Journal, 18(3), 2008.
- Malafouris, L., *Beads for a Plastic Mind: the 'Blind Man's Stick' (BMS) Hypothesis and the Active Nature of Material Culture*, Cambridge Archaeological Journal, 18(3), 2008.
- Renfrew, C., Frith, C., and Malafouris, L., *The Sapient Mind: Archaeology meets Neuroscience*, Philosophical Transactions of the Royal Society of London, Series B, 363, 2008. Paperback edition, Oxford, Oxford University Press, 2009.
- Renfrew, C., Frith, C., and Malafouris, L., *Introduction* in *The Sapient Mind*, 2008, 2009.
- Malafouris, L., *Between brains, bodies and things: tectonoetic awareness and the extended self* in *The Sapient Mind*, 2008, 2009.
- Malafouris, L., "Neuroarchaeology": *exploring the links between neural and cultural plasticity*, Progress in Brain Research, Vol. 178, 2009.
- Malafouris, L., and Renfrew, C. (eds.), *The Cognitive Life of Things: Recasting the Boundaries of the Mind*, Cambridge, McDonald Institute for Archaeological Research, 2010.
- Malafouris, L., *The Cognitive Life of Things: Archaeology, Material Engagement, and the Extended Mind* in *The Cognitive Life of Things*, 2010.
- Malafouris, L., *Engaging the 'missing mass'* in *The Cognitive Life of Things*, 2010.
- Malafouris, L., *Grasping the concept of number: How did the sapient mind move beyond approximation?* in *The Archaeology of Measurement*, 2010.
- Knappett, C., Malafouris, L. and Tomkins, P., *Ceramics (as Containers)* in D. Hicks and M.C. Beaudry (eds.) *The Oxford Handbook of Material Culture Studies*, Oxford, Oxford University Press, 2010.
- Malafouris, L., *Prosthetic Bodies and Material Signs: Connections across the skin barrier and the scales of time* in S. Jordan, J. Streeck, and Wachsmuth, I. (eds.), *The*

- Enculturated Body. Time Scales of Embodied Meaning in Communication*, Oxford, Oxford University Press, 2010.
- Malafouris L., *Linear B as distributed cognition: Excavating a mind not limited by the skin* in M. Jessen, N. Johanssen and H. J. Jensen (eds.), *Excavating the Mind: Cross-sections Through Culture, Cognition and Materiality*, Aarhus, Aarhus University Press, 2011.
 - Renfrew C. and Morley, I., (eds.), *The Archaeology of Measurement. Comprehending Heaven, Earth and Time in Ancient Societies*, Cambridge, Cambridge University Press, 2010.
 - Renfrew, C., Doumas, C., Marangou, L. and Gavalas, G. (eds.), *Keros, Dhaskalio Kavos: The Investigations of 1987-88*, Cambridge, McDonald Institute for Archaeological Research, 2007.
 - Renfrew, C., Philaniotou, O., Brodie, N. and Gavalas, G., *Keros: Dhaskalio and Kavos, Early Cycladic Stronghold and Ritual Centre. Preliminary Report of 2006 and 2007 Seasons*, *The Annual of the British School of Athens*, 102, 2007.
 - Renfrew, C., Philaniotou, O., Brodie, N. and Gavalas, G., *The Early Cycladic Settlement at Dhaskalio, Keros: Preliminary Report of the 2008 Excavation Season*, *The Annual of the British School of Athens*, 104, 2009.
 - Renfrew, C., Boyd, M.J. and Bronk Ramsey, C., *The Oldest Maritime Sanctuary? Dating the Sanctuary at Keros and the Cycladic Early Bronze Age*, *Antiquity*, forthcoming.
 - Renfrew, C., Philaniotou, O., Brodie, N.J., Gavalas, G. and Boyd, M.J. (eds.) *The sanctuary at Keros and the origins of Aegean ritual practice: excavations at Dhaskalio and Dhaskalio Kavos, Keros 2006-2008*. Four volumes. Cambridge: McDonald Institute for Archaeological Research, forthcoming (3 vols. to be consigned to publisher in 2012).

Paolo Rossi Monti †

Emeritus Professor at the Università di Firenze and a Fellow of the Accademia Nazionale 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 followed personally 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 dedicated 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.

Academic Gatherings:

Matteo Borri

- *Arti della memoria nell'era delle neuroscienze* - Presentation of the 'Balzan Research Projects – An Overview' 2010 volume, Accademia Nazionale dei Lincei, Rome, 18th November 2010

Yamina Oudai Celso

- Conference talk "Nietzsche 'first psychologist' between positivist Science and dynamic Psychiatry" at international congress "Nietzsches Wissenschaftsphilosophie – Nietzsches Philosophy of Science", Technische Universität Berlin, held in Berlin from 18th to 21st July 2010.
- 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" coordonné par Brenno Boccadoro et Bernardino Fantini, Institut d'Histoire de la Médecine et de la Santé, Université de Genève, 6th December 2010).
- Conference talk "Freud e la biologia delle emozioni" at SISSA Conference: "Cervello, emozioni, morale", held in Trieste, 8th March 2011.
- Conference talk "Mantegazza *versus* Freud: affinità elettive e corrispondenze testuali per una psicofisiologia dell'eros" at "Giornata di Studio su Paolo Mantegazza", by ISITA (Istituto Italiano di Antropologia), held in Rome, Senato della Repubblica, Palazzo Giustiniani, Sala Zuccari, 11th March 2011.
- Workshop talk "Freud et la biologie des émotions" dans le cadre du "Journal Club" de l'Institut d'Histoire de la Médecine et de la Santé de l'Université de Genève, 6th April 2011.
- Conference talk "Freud e la filosofia antica" within the SFI (Società Filosofica Italiana) course of lectures, at Francavilla al Mare, 28th April 2011.
- Conference talk "Nietzsche 'first psychologist' and the Genealogy of *Ressentiment*" within the international congress "On Resentment. An Interdisciplinary Workshop on the History of Emotions" held in Geneva from 26th to 28th October 2011.
- Conference talk "L'interpretazione dei sogni (1900) di Sigmund Freud" within the course of lectures "Canone. Libri da leggere (possibilmente)", held at the Museo Archeologico Oliveriano in Pesaro, 6th May 2012.

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**Publications:**

- M. Borri, *Storia della Malattia di Alzheimer*, Il Mulino, Bologna, 2012.
- M. Borri, “Neuroetica: architetture del pensiero ed evoluzione”, with F. Rufo, in F. Rufo (under the direction of), *Il laboratorio della bioetica: le scelte morali tra scienza e società*, Ediesse, Rome 2011.
- M. Borri, “Dal laboratorio al fronte: gli studi di Alois Alzheimer sui traumi della guerra”, in *Florence Nightingale a cento anni dalla sua scomparsa (1910-2010) - Quaderni “Henry Dunant” n° 10*, Edizioni Tassinari, Florence, 2011, pp. 41-45.
- M. Borri, “Il giudizio morale da Piaget alla neuroetica: storia e evoluzione di un concetto”, in M. Amann Gainotti, J.-J. Ducret (eds.), *Jean Piaget psicologo epistemologo svizzero all’avanguardia*, proceedings of a workshop, Istituto Svizzero di Roma, AEMME Publishing, Rome, 2011, pp. 141-150.
- Y. Oudai Celso, *Istinti, pulsioni e cariche affettive: l’approccio freudiano all’emozionalità* in “L’Arco di Giano. Rivista di Medical Humanities”, Spring 2010/no. 63, pp. 83-101. [no. entitled “Le emozioni in medicina e la medicina delle emozioni”]
- Y. Oudai Celso, *Mantegazza versus Freud: affinità elettive e corrispondenze testuali per una psicofisiologia dell’eros* in “Medicina & Storia”, X, 2010, 19-20, n.s., pp. 165-186.
- Y. Oudai Celso, “Nietzsche ‘first psychologist’ and genealogist of *Ressentiment*”, contribution to the collection of essays *On Resentment*, edited by B. Fantini, D. M. Moruno, J. Moscoso, Cambridge Publishers [forthcoming].
- M. Matteoli, *Materia, minimo e misura: la genesi dell’atomismo ‘geometrico’ in Giordano Bruno*, “Rinascimento”, Vol. L (2010), pp. 425-449;
- M. Matteoli, *Dal macro al microcosmo: materia, spazio ed atomi in Giordano Bruno*, Atti del Convegno “Il concetto di ‘potenza’ nella cultura moderna”, Florence, 15th-17th December 2011 [forthcoming].

Dominique Schnapper

Director of Research at the École des Hautes Études en Sciences Sociales, Paris and 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 Sciences de l'Homme

Advisers 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, Bordes-Benayoun, and Raphaël, Presses Universitaires de France, 2009; a translation

in English *Jewish Citizenship in France: The Temptation of Being among One's Own* was published by Transactions Publishers in 2010.

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 with 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*, Mahnaz Shirali, with a Preface by Dominique Schnapper, Armand Colin, 2007.

3. *Mixed couples and immigrant's 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 for 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 (within the series “Le Lien Social”) in May 2012, *Couples d’ici, parents d’ailleurs, Parcours de descendants d’immigrés*, Collet and Santelli.

4. *Social bonds 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 in 2013 under the title *L’institution dégradante. Essai sociologique sur la prison*, Rostaing.

Main Presentations:

- Collet, B., *Constructions identitaires et dynamiques familiales mixtes. Etude comparative auprès de descendants d’immigrés en France et en Allemagne*, Communication au Comité de Recherche n° 1 : Identité, espace et politique, XVIIème congrès de l’ Association internationale des sociologues de langue française (AIS LF) in July 2004 in Tours (abstract available online at : http://w3.aislfr.univtlse2.fr/tours2004/tours2004_pages/tours2004_30.php).
- 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, Internationale Promotions-Colleg Gesellschaftswissenschaften (IPC), Goethe-Universität Frankfurt, May 2006.
- Collet, B., and Inowlocki, L., *Doing and Undoing “Being Ethnic”: Multiple Belongings and Partner Relations among the Adult Children of Labor Immigrants from Turkey to Germany*, Communication au XVI ISA World Congress of Sociology, Research Committee 38 ‘Biography and society’, Durban, South-Africa, July 2006 (www.sociology2006.org.za).
- Collet, B., “Marital Choice of Turkish Immigrant descent. Partnership patterns in Germany”, communication au 10^e congrès de l’European Sociological Association, Research Network 13 ‘Family and Intimate Life’, Genève, Septembre 2011.

Researchers:

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

Publications:

- Collet, B. and Santelli, E., *Couples d'ici, parents d'ailleurs, Parcours de descendants d'immigrés*, in Paris, Presses Universitaires de France, 2012.
- Collet, B. and Santelli, E., "La mixité au-delà des différences culturelles", in Beate Collet, Claudine Philippe, (eds.), *Mixité(s). Variations autour d'une notion transversale*, Paris, L'Harmattan, 2008, pp. 68-94.
- Gündüz, E. and Apitzsch, U., *Ethnicity and Belonging as Lived Dimensions in Mixed Marriages*, "Papers. Revista de sociologia", 1, n° 97, 2012, p. 79-92.
- Collet, B. and Santelli, E., *Couples d'ici, parents d'ailleurs: Parcours de descendants d'immigrés*, Presses Universitaires de France, Lien social 2012.
- Rostaing, C., *Processus de judiciarisation carcérale : le droit en prison, une ressource pour les acteurs?*, « Revue Droit et Société », 2007, n° 67, pp. 577-595.
- Rostaing, C., "L'expression des détenus : formes, marges de manoeuvre et limites", in Payet, J-P., Giuliani, F. and Laforgue, D. (eds.), *La voix des acteurs faibles. De l'indignité à la reconnaissance*, Rennes, Presses Universitaires de Rennes, Lien social, 2008, pp. 121-138.
- Santelli, E., Collet, B., with D. Boukacem and S. Ousmaal, *Les choix conjugaux des descendants d'immigrés maghrébins, turcs et africains francophones. Entre norme endogamique et transformations des réalités familiales en France*, Rapport de recherche remis à la Direction de la Population et des Migrations, November 2007, p. 139.
- Santelli, E., and Collet, B., *Les conjugalités mixtes des descendants d'immigrés en France et en Allemagne : Modes de formation conjugale et dynamiques familiale*, Rapport de recherche remis au conseil scientifique de l'Institut des Sciences de l'Homme, October 2006, p. 141.
- Shirali, M., *Entre islam et démocratie. Parcours de jeunes Français d'aujourd'hui*, Armand Colin, 2007.

- Schnapper, D., *Preface* to M. Shirali, *Entre islam et démocratie. Parcours de jeunes Français d'aujourd'hui*, Armand Colin, 2007.
- Schnapper, D., Bordes-Benayoun, C. and Raphaël, F., *La condition juive en France. La tentation de l'entre-soi*, Puf - Presses Universitaires de France, 2009, translated as *Jewish Citizenship in France: The Temptation of Being among One's Own*, Transactions Publishers, 2010.
- Touraut, C., *Étude dynamique des rapports à la citoyenneté d'acteurs incarcérés*, « Champ pénal / Penal Field (nouvelle revue internationale de criminologie) », 2005, vol II (available on line in French and English).

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

With the second part of the prize, Quentin Skinner initiated two programmes which were aimed at encouraging and involving younger researchers, and above all at ensuring the publication of new research that could not have been planned in the absence of the funds made available to Quentin Skinner by the Balzan Prize.

1. An annual Lecture, for a period of five 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 Ph.D.); 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 lectureship is equally open and hospitable to researchers working in all idioms and traditions of intellectual history.

The first two lectures and conferences have already been held. 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* will be delivered in October 2012 by Dr. Timothy Stanton of the University of York. Dr. Gabriel Pacquette, Assistant Professor of History at Johns Hopkins University, has been appointed as the fourth lecturer. 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.

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 furnishing superb facilities for the conferences and arranging 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)

- First Conference, 3rd-5th July 2008: *Religious Freedom and Civil Liberty*.
- Second Conference, 25th to 27th September 2008: *Liberty and Liberties in Legal and Constitutional Thought*.
- Third Conference, 2nd- 4th July 2009: *The Freedom of Individuals*.
- Fourth Conference, 24th-26th September, 2009: *European Freedom and its Boundaries*.

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

Hannah Dawson (2010)

Joel Isaac (2011)

Tim Stanton (2012)

Gabriel Paquette (2013)

EUI Conferences

The core group of researchers

Catherine Balleriaux, Theodor Christov, Rosanna Cox, Hannah Dawson, Serena Ferente, Felicity Green, Tomasz Gromelski, Polly Ha, Lena Halldenius, Susan Karr, Jaska Kainulainen, Lovro Kuncevic, Daniel Lee, Avi Lifschitz, Reidar Maliks, Sarah Mortimer, Eric Nelson, Alexander Schmitt, Freya Sierhius, Antti Tahvanainen, Huseyin Yilmaz and Márton Zászkaliczky

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 publication by the Press 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 book was re-submitted to the Press and was formally accepted for publication. The book went into production at the beginning of 2012, and publication is expected before the end of 2012.

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://www.eui.eu/Personal/VanGelderren/Abouttheproject.shtml>

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

Michel Zink

Professor of “Littératures de la France médiévale” at the 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 on 1st-3rd April 2009 at the Collège de France. Sixteen presentations were given by scholars from France, Germany, the U.S., 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 13th 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 10th and 11th May 2012. Speakers were (in order of their presentations): Michel Zink, Pascale Bourgain, Karlheinz Stierle, Jacques Le Rider, Odile Bombarde, Claudine Haroche, Marc Fu-maroli, 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. The delayed conference *St. Thomas Becket and the vernacular Medieval Literature*, organized with Professor Carla Rossi (Zürich) will be held at the Centro Stefano Franscini in May 2013.

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.

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 make 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 topped up. The *Chronique* attributed to Jean de Venette, the *Roman de Fauvel* and *Baudouin de Flandre* have already been published .

Researchers:

Fellowships Chiara Concina
 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.
- Ursula Bähler and Alain Corbellari (eds.), *Gaston Paris, Joseph Bédier. Correspondance*, Edition du Galluzzo pour la Fondation Ezio Franceschini, Florence, 2009.
- *Chronique dite de Jean Venette*, *Lettres gothiques*, Hachette, Paris, 2011.
- *Baudouin de Flandre*, *Lettres gothiques*, Hachette, Paris, 2011.
- *Le Roman de Fauvel*, *Lettres gothiques*, Hachette, Paris, 2012.

Links:

Conference, *D'autres langues que la mienne*
<http://calenda.revues.org/download.php?id=9728>

Conference, *St. Thomas Becket and the vernacular Medieval Literature*
<http://www.becketproject.ch/conference2011.html>

Physical, Mathematical and Natural
Sciences, and Medicine

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 de Biologie Moléculaire et Cellulaire, 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 uncon-

ventional 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 immune-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:

- Hidehiro Fukuyama, Sega Ndiaye, Jules Hoffmann, Jean Rossier, Sophie Liuu, Joëlle Vinh, Yann Verdier, *On-bead tryptic proteolysis: An attractive procedure for LC-MS/MS analysis of the Drosophila caspase 8 protein complex during immune response against bacteria* in “Journal of Proteomics” (2012), doi:10.1016/j.jprot.2012.03.003.
- Xi Liu, Teruyuki Sano, Yongsheng Guan, Shigekazu Nagata, Jules A. Hoffmann, Hidehiro Fukuyama, *Drosophila EYA regulates the immune response against DNA through an evolutionarily conserved threonine phosphatase motif* in “Journal PLoS One” (in peer review).

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 amount)

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 is 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 focus on data from different sources, including deep sea sediments and closed-lake basin size, cave deposits and ice core records. Wallace Broecker is supporting three postdoctoral fellows:

- Jimin Yu. As part of his Ph.D. 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 is using this method to reconstruct the evolution of deep ocean carbonate ion concentration from the glacial maximum (~25 kyrs ago) to the present. His goal is 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 Ph.D. 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 is continuing this research but is also diversifying his efforts by measuring the concentrations of 234U, 230Th, 231Pa and 10Be in sediments from the abyssal ocean. In so doing, he is following up on research done by Richard Ku in the 1970s with modern instrumentation.
- Irene Schimmelpfennig. She completed her Ph.D. in France on the production rate of 36Cl in separated minerals. On 6th April 2010, she joined 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:

- Schimmelpfennig, I., Schaefer, J., Akçar, N., Ivy-Ochs, S., Finkel, R. and Schlüchter C. (forthcoming), Glacier culminations in the Western Alps during the earliest and late Holocene link to the Greenland temperature record. *Geology*.
- Schimmelpfennig, I., Schaefer, J., Goehring, B., Lifton, N., Putnam, A. and Barrell, D.J.A. (forthcoming), Calibration of the in situ cosmogenic¹⁴C spallogenic production rate in New Zealand's Southern Alps. *Journal of Quaternary Science*.
- Cheng, H., Sinha, A., Wang, X., Cruz, F.W., and Edwards, R.L., 2012. The global paleomonsoon as seen through speleothem records from Asia and the Americas. *Climate Dynamics* (in revision).
- Osete, M., Martin-Chivelet, J., Rossi, C., Edwards, R.L., Egli, R., Munoz-Garcia, M.B., Wang, X., Pavon-Carrasco, F.J., and Heller, F., 2012. The Blake geomagnetic event recorded in an absolute-dated speleothem. *Earth and Planetary Science Letters* (in revision).

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- Jin Z.D., You, C.F., Yu, J., Wu L., Zhang F. and Liu H.C., Seasonal contributions of catchment weathering and eolian dust to river water chemistry, northeastern Tibetan Plateau: Chemical and Sr isotopic constraints, *Journal of Geophysical Research - Earth Surface*, doi:10.1029/2011JF002002.
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- Yu, J.M., Foster, G.L., Elderfield, H., Broecker, W.S. and Clark, E., An evaluation of benthic foraminiferal B/Ca and $\delta^{11}\text{B}$ for deep ocean carbonate ion and pH reconstructions. *Earth Planet. Sci. Lett.*, 293(1-2): 114-120.
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- Jin, Z.D., Yu, J.M., Wang, S.M., Zhang, F., Shi, Y.W. and You, C.F., Constraints on water chemistry by chemical weathering in the Lake Qinghai catchment, northeastern Tibetan Plateau (China): clues from Sr and its isotopic geochemistry. *Hydrogeology Journal*, 17: 2037-2048.

Jean-Pierre Changeux

Professor Emeritus at the Institut Pasteur and 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*, Editions Odile Jacob, Paris-New York, 2005) and in a recently published article by (Changeux, J.-P., *Nicotine addiction and nicotinic receptors: lessons from genetically modified mice*, "Nature Reviews Neuroscience", 11th 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
Stanislav Dehaene
Philippe Faure
Thomas Gisiger
Sylvie Granon
Zhi-Yan Han
Corentin Le Magueresse
Nicolas Le Novère
Jérôme Sallette

Main Publications:

- Jean-Pierre Changeux and Stuart J. Edelstein, *Nicotinic Acetylcholine Receptors: From Molecular Biology to Cognition*, Editions Odile Jacob, Paris-NewYork, 2005
- Changeux, J.-P., *Nicotine addiction and nicotinic receptors: lessons from genetically modified mice*, in “Nature Reviews Neuroscience”, 11th June 2010).

Other Publications (in chronological order):

- Le Novère, N., Grutter, T. and Changeux, J.-P., *Models of the extracellular domain of the nicotinic receptors and of agonist- and Ca²⁺ binding sites*, “Proceedings of the National Academy of Sciences”, 99(5), 2002.
- Champtiaux, N., Gotti, C., Cordero-Erausquin, M., David, D.J., Przybylski, C., Léna, C., Clementi, F., Moretti, M., Rossi, F., Le Novère, N., McIntosh, J.M., Gardier, A.M. and Changeux, J.-P., *Subunit Composition of Functional Nicotinic Receptors in Dopaminergic Neurons Investigated with Knock-Out Mice*, “The Journal of Neuroscience”, 23(21), 2003.
- Dehaene, S., Sergent, C., and Changeux, J.P., *A neuronal network model linking subjective reports and objective physiological data during conscious perception*, “Proceedings of the National Academy of Sciences”, 100(14), 2003.
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- Changeux J.-P., *Clarifying consciousness*, “Nature”, 428, 8th April 2004.

- Champiaux, N. and Changeux, J.-P., *Knockout and knockin mice to investigate the role of nicotinic receptors in the central nervous system*, "Progress in Brain Research", 145, 2004.
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- Cormier, A., Paas, Y., Zini, R., Tillement, J.-P., Lagrue, G., Changeux J.-P. and Grailhe, R., *Long-term exposure to nicotine modulates the level and activity of acetylcholine receptors in white blood cells of smokers and model mice*, "Molecular Pharmacology", 66(6), 2004.
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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 22nd 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].

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 is needed to qualify the method. Examples of technical publication analyzing possible systematic effects related to these measurements can be found in papers [3] and [4]; several more are in preparation. The first opportunity to test experimentally this idea will be with the forthcoming flight of the OLIMPO balloon-borne telescope (described in papers [5] and [6]). 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-bands photometer in a low-resolution spectrometer. Its performance and scientific potential has been analyzed in paper [1].

We have completed a full phase-A study of an innovative satellite mission, called SA-GACE, carried out by the “La Sapienza” group in the framework of the second project above. For a short description see [7]; 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, 10 m in diameter and cooled below 10K. The

ground-breaking 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 postdocs already trained on the BOOMERanG project, to support the collaboration with the Cardiff (Ade, Mautschopf) and Pasadena (Lange) groups for the development of subsystems, and the diffusion of cosmology results through the preparation of a book on observational cosmology [8]. In particular:

- 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.* [9]) and on the SAGACE study [7], have been assigned. One fellowship has been assigned to Dr. Gianluca Polenta. 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’ 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’ 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 Ph.D. thesis of Dr. Alessandro Schillaci “*Millimetric spectropolarimetry of cosmological signals*” discussed in Dec. 2009 at “La Sapienza”.
- Support the development of a new kind of mm-wave detectors, the microwave kinetic inductance detectors [10].
- 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 [11]. The second one, called COreE, 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 [12]. We are also actively studying the impact of systematic effects on the scientific exploitation of these measurements (see e.g. [13]).

Researchers:

Martino Calvo
Luca Lamagna
Silvia Masi
Gianluca Polenta
Alessandro Schillaci

Publications:

- [1] P. de Bernardis *et al.*, *Low-resolution spectroscopy of the Sunyaev-Zeldovich effect and estimates of cluster parameters*, “Astronomy & Astrophysics”, 538, A86 (2012).
- [2] S. Colafrancesco *et al.*, *Direct probes of Dark Matter in the cluster IES0657-556 through microwave observations*, “Astronomy & Astrophysics”, 467, 1 (2007).
- [3] A. Schillaci, P. de Bernardis, *On the effect of tilted roof reflectors in Martin-Puplett spectrometers*, “Infrared Physics”, 55, 40-44, (2011).
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- [7] P. de Bernardis *et al.*, *SAGACE: the Spectroscopic Active Galaxies and Clusters Explorer*, proc. of the 12th Marcel Grossmann Meeting on General Relativity Paris 12th-18th July 2009; Thibault Damour, Robert T. Jantzen, Remo Ruffini eds., pp. 21-33, (2012), World Scientific, Singapore, ISBN-13 978-981-4374-51-4; astro-ph/1002.0867.
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- [13] L. Pagano *et al.*, *CMB Polarization Systematics, Cosmological Birefringence and the Gravitational Waves Background*, “Physical Review” D80, 043522 (2009).

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 a '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 BICEP1 [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 micro-fabricated 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 BICEP1. The team has two seasons of high-quality CMB polarization data in hand, with excellent calibration measurements [8], and 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 in early 2013. 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. Randall Aikin is a graduate student on BICEP2, who 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 in 2013 to what will surely be a promising scientific career. Dr. Roger O'Brient 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.

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 thanks to the support of the Balzan Foundation.

Researchers:

Randol Aikin
James Bock
John Kovac
Roger O'Brient
Tom Soifer

Publications:

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- [2] H.T. Nguyen *et al.*, 2008, "BICEP2/SPUD: Searching for Inflation with Degree Scale Polarimetry from the South Pole," SPIE 7020, 36N.
- [3] K.W. Yoon *et al.*, 2006, "The Robinson Gravitational Wave Background Telescope (BICEP): A Bolometric Large Angular Scale CMB Polarimeter," SPIE 6275, 51Y.
- [4] H.C. Chiang *et al.*, 2010, "Measurement of CMB Polarization Power Spectra from Two Years of BICEP Data", ApJ 711, 1123.
- [5] Y.D. Takahashi *et al.*, 2010, "Characterization of the BICEP Telescope for High-Precision Cosmic Microwave Background Polarimetry", ApJ 711, 1141.
- [6] J.A. Brevik *et al.*, 2010, "Initial Performance of the BICEP2 Antenna-Coupled Superconducting Bolometers at the South Pole", SPIE 7741, 41B.
- [7] A. Orlando *et al.*, 2010, "Antenna-Coupled TES Bolometer Arrays for BICEP2/Keck and SPIDER", SPIE 7741, 12O.
- [8] R.W. Aikin *et al.*, 2010, "Optical Performance of the BICEP2 Telescope at the South Pole", SPIE 7741, 23A.
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- [12] C.J. MacTavish *et al.*, 2008, "Spider Optimization: Probing the Systematics of a Large Scale B-Mode Experiment", ApJ 689, 655.
- [13] J.E. Gudmundsson *et al.*, 2010, "Thermal Architecture of the SPIDER Flight Cryostat", SPIE 7741, 45G.

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 (incl. 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 of 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 has a Ph.D. in mathematics and lives 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-Chairman), Mikhail Agranovich, Valery Beloshapka, Victor Buchstaber,

Alexander Bulinskiy, Yurii Burman (scientific secretary), Alexey Gorodentsev, Sabir Gussein-Zade, Vadim Kaloshin, Alexander Khelemskiy, Askold Khovanski, Valeriy Kozlov, Sergey Lando, Segrey Matveev, Sergey Natanzon, Leonid Pastur, Alexander Razborov, Armen Sergeev, Alexander Shen (scientific secretary), Leonid Shilnikov, Albert Shiryaev, Iskander Taimanov, Dmitry Treshchev, Michail Tsfasman, Anatoly Vershik, Ernest Vinberg and Mikhail Zelikin.

Balzan funds were used to finance seventeen three-year research grants: five in December 2005; five in 2006; five in 2007; and two in 2008. Since the grants are for three years, those awarded in 2008 continued until the end of 2011. After the 2008 the funds were exhausted. However, Pierre Deligne decided to prolong the contest 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), and 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), and 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), and Ilya Shkredov (Moscow State University).

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

2009 Winners: S.V. Oblezin (Moscow), and 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:

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- *Universally defined representations of conformal Lie superalgebras*, Journal of Symbolic Computation 43 (2008), no. 6-7, 406-421.
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Link:

http://www.mccme.ru/pdc/rules_e.html

Ian Frazer

Research Director of the Translational Research Institute, Brisbane and 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 is using the funds available from his 2008 Balzan Prize to support two fellowships. The two fellows are based with Frazer's group at the University of Queensland in Brisbane, and are working 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 have been 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 investigates how pathogens are recognised by the immune system, how appropriate inflammatory responses are initiated and regulated, and how this instructs T cell responses that are critical to control chronic infections. Together with Professor Frazer she directs research that aims to understand mechanisms of immune suppression and cancer development in the skin and cervix. The fellowship also supports the establishment of her own research program that includes investigations into how a novel class of immune molecules, the family of Wnt proteins, shapes innate immune responses and regulates T cell functions. Her work addresses an important knowledge gap regarding the functions of Wnt proteins as novel regulators of the nature and strength of immune responses. These highly innovative research fields

are likely to pioneer new concepts of mechanisms of immune regulation and hold the potential for the identification of novel therapeutic targets.

Supported by the fellowship, Dr. Blumenthal is establishing an independent research group and is currently supervising four Ph.D. students, a Research Assistant and undergraduate students. Since her relocation to Australia, she has already attracted more than \$220,000 of additional research support. Dr. Blumenthal has established strong collaborative ties within Professor Frazer's group, the UQ Diamantina Institute and within the University of Queensland. Her growing reputation in immune responses to infection is further evidenced by her strong network of international and national collaborators, invitations to speak internationally and nationally at conferences and institute seminars, peer-review invitations for international journals, and the extent to which her publications have been cited.

Dr. Steven Mattarollo

Dr. Mattarollo has experience in the cellular mediators of innate immunity in cancer. He has been 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 the first two years as a Balzan Fellow he has 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.

Lectures/Presentations:

Antje Blumenthal:

- | | |
|------|---|
| 2012 | TLROz, Melbourne, Australia – Invited Speaker |
| 2012 | University of Melbourne, Institute Seminar Speaker |
| 2012 | 2 nd Lorne Infection and Immunity Conference, Victoria, Australia – Selected Speaker |
| 2011 | ComBIO, Cairns, Australia – Invited Speaker |
| 2011 | 1 st Lorne Infection and Immunity Conference, Victoria, Australia – Selected Speaker |

- 2011 Ludwig Institute, Melbourne, Institute Seminar Speaker
- 2011 14th Australian Autoimmunity Workshop – Session Chair
- 2011 Australasian Society for Immunology Annual Meeting – poster presentations (4)
- 2010 Australasian Society for Immunology Annual Meeting – Selected Speaker (speaker award)
- 2010 Institute for Molecular Bioscience, University of Queensland, Institute Seminar Speaker
- 2010 Brisbane Immunology Group Annual Conference – Invited Speaker

Researchers:

Antje Blumenthal
Steven Mattarollo

Publications:

Journal Articles Arising from the research

- Paget C., Chow M.T., Duret H., Mattarollo S.R., Smyth M.J. *Role of $\gamma\delta$ T Cells in α -Galactosylceramide-Mediated Immunity*. J. Immunol. March 12 (2012).
- Rahimpour A., Mattarollo S.R., Yong M., Leggatt G.R., Steptoe R.J. and Frazer I.H. *$\gamma\delta$ T Cells Augment Rejection of Skin Grafts by Enhancing Cross-Priming of CD8 T Cells to Skin-Derived Antigen*. J. Invest Dermatol. Feb. 23 doi: 10.1038/jid.2012.16 (2012).
- Nicol A.J., Tokuyama H., Mattarollo S.R., Hagi T., Suzuki K., Yokokawa K. and Nieda M. *Clinical evaluation of autologous gamma/delta T cell-based immunotherapy for metastatic solid tumors*. Brit J. Cancer Sep. 6; 105(6): 778-86. (2011).
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Review Articles, Commentaries and Letters to the Editor

- Mattarollo S.R. and Frazer I.H. *Response to Comment on “Invariant NKT cells in hyperplastic skin induced a local immune suppressive environment by IFN- production”*. Letter to the Editor, J. Immunol. Feb. 1;188(3):931-2 (2012).
- Mattarollo S.R. and Smyth M.J. *Therapeutic Approaches Utilising NKT Cells*. Book Chapter in *Natural Killer T Cells: Setting the Balance in the Regulation of Tumor Immunity*. *Cancer Drug Discovery and Development*. Editors: Terabe M and Berzofsky J. Publisher: Springer New York. pp. 111-128. DOI: 10.1007/978-1-4614-0613-6_7 (2012).
- Frazer I.H., Leggatt G.R. and Mattarollo S.R. *Prevention and treatment of papillomavirus related cancers through immunization*. Annu. Rev. Immunol. Apr 23;29:111-38. (2011).
- Bhat P., Mattarollo S.R., Gosmann C., Frazer I.H. and Leggatt G.R. *Regulation of immune responses to HPV infection and during HPV directed immunotherapy*. Immunol. Rev. 239(1):85-98 (2011).
- Mattarollo S.R. and Smyth M.J. *A novel axis of innate immunity in cancer*. Nature Immunol. 11(11):981-921 (2010).

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:

- Cottet, S., Michaut, L., Boisset, G., Schlecht, U., Gehring, W.J. and Schorderet D.F., *Biological characterization of gene response in Rpe65^{-/-} mouse model of Leber's congenital amaurosis during progression of the disease*. "The FASEB Journal", 20, 2036-2049, 2006.
- Kobayashi, M., Michaut, L., Ino, A., Honjo K., Nakajima, T., Maruyama, Y., Mochizuki, H., Ando, M., Ghangrekar, I., Takahashi, K., Saigo, K., Ueda, R., Gehring, W.J. and Furukubo-Tokunaga, K., *Differential microarray analysis of Drosophila mushroom body transcripts using chemical ablation*, "Proceedings of the National Academy of Science", 103, 14417-14422, 2006.
- Michaut, L., Flister, S., Neeb, M., White, K., Certa, U. and Gehring, W.J., *Analysis of the eye developmental pathway in Drosophila using DNA microarrays*. "Proceedings of the National Academy of Science", 100, 4024-4029, 2003.

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 local 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 nearinfrared 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 ground-breaking 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 prestigious 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:

- Bouché, N. *et al.*, *The Impact of cold gas accretion above a mass floor on galaxy scaling relations*, “The Astrophysical Journal” 718, 1001-1018, 2010.
- Bouché, N. *et al.*, *Dynamical properties of $z \sim 2$ star-forming galaxies and a universal star formation relation*, “The Astrophysical Journal”, 671, 303-309, 2007.
- Cresci, G., *The SINS Survey: Modeling the Dynamics of $z \sim 2$ Galaxies and the High- z Tully-Fisher Relation*, “The Astrophysical Journal”, 697, 115-132, 2009.
- Förster-Schreiber, N.M. *et al.*, *SINFONI integral field spectroscopy of $z \sim 2$ UV selected galaxies: rotation curves and dynamical evolution*, “The Astrophysical Journal”, 645, 1062-1075, 2006.
- Förster-Schreiber, N.M. *et al.*, *The SINS Survey: SINFONI integral field spectroscopy of $z \sim 2$ star-forming galaxies*, “The Astrophysical Journal”, 706, 1364-1428, 2009.
- Genzel, R. *et al.*, *The rapid formation of a large rotating disk galaxy three billion years after the Big Bang*, “Nature”, 442, 786-789, 2006.
- Genzel, R. *et al.*, *From rings to bulges: Evidence for rapid secular galaxy evolution at $z \sim 2$ from integral field spectroscopy in the SINS Survey*, “The Astrophysical Journal”, 2008.
- Genzel, R., *Astrophysics: Galaxies in from the cold*, “Nature”, 457, 388-389, 2009.
- Nesvadba, N.P.H. *et al.*, *Lyman break galaxies under a microscope: the small-scale dynamics and mass of an arc in the Cluster 1E 0657-56*, “The Astrophysical Journal”, 650, 661-668, 2006.

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 pigmentation

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 of the Galápagos 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 Céline 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 5th-6th 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 (Pontificia Universidad Católica del Ecuador), Uli Reyer (Universität Zürich), Robert Ricklefs (University of Missouri, St Louis), Michael R yan (University of Texas at Austin), Pablo Sanchez (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:

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- Hoeck, P. E. A., Bollmer, J. L., Parker, P. G. and Keller, L. F., *Differentiation with drift: a spatio-temporal analysis of Galapagos mockingbird populations (Mimus spp.)*, "Philosophical Transactions of the Royal Society B", 365: 1127-1138, 2010.
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- P. R. Grant and B.R. Grant. 2008. *How and Why Species Multiply. The Radiation of Darwin's Finches*, Princeton University Press, Princeton, NJ.
- P. R. Grant and B.R. Grant (eds.), 2010. *In Search of the Causes of Evolution. From Field Observations to Mechanisms*. Princeton University Press, Princeton, NJ.
- Grant, P. and R., *The First Annual Balzan Lecture: The Evolution of Darwin's Finches, Mockingbirds and Flies*, Leo S. Olschki, Florence, 2010.

Michael Grätzel

Professor at the Ecole 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:

Ecole 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 Laboratoire de photonique et interfaces at the Ecole 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 on its own the electron-hole recombination. 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, Professor 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 who had 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

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 multidisciplinary 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 Ecole Normale Supérieure 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 Ph.D. 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 nano effects 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 1st September to 31st December 2008. Mr. Zeng was a pre-doctoral fellow from Zhejiang University,

China, who 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, published in PNAS as “Novel Substitutional Alloy of Ce and Al” was selected “In This Issue” section highlights particularly interesting articles published in the print issue of PNAS, 24th February 2009.

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

- Mr. Andrew Kung was a high school student who received Balzan Prize support to develop a high-pressure project studying the pressure, temperature, and temporal effects on a newly discovered $\text{O}_2\text{-H}_2$ alloy. This alloy was synthesized by compressing water into high-pressure phase ice VII and irradiated by x-rays, splitting the H_2O molecules into O_2 and H_2 . At ordinary pressure, O_2 reacts explosively with H_2 to form H_2O , 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 was a high school student who 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 was a high school student who 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_2O .

- Ms. Claire Barkett was a high school student at Good Counsel High School in Olney, MD and was at Carnegie during the 2008-2009 school year. Ms. Barkett received Balzan Prize support as she followed up on the earlier work of Jaqueline Rivera by synthesizing several solid solutions in the $Fe_2O_3-Al_2O_3$ system very close to the 1:1 $FeAlO_3$ composition. Because $FeAlO_3$ has a completely different structure to the rest of the $Fe_2O_3-Al_2O_3$ join, which have a rhombohedral corundum structure, which is isostructural to the end members, it is of interest to know the precise range of compositions where the $FeAlO_3$ 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 the role of magnetic interactions between ferric ions in stabilizing the $FeAlO_3$ structure.
- Ms. Maura James received Balzan Prize support in the summer of 2008. Ms. James was a high school student from the Convent of the Sacred Heart in Greenwich, CT. She investigated high pressure clathrate formation in the $H_2O-NH_3-H_2$ 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- H_2 mixture separates into two phases, a water-rich phase and an ammonia-rich phase that appears to 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. Ms. Madurri received Balzan Prize support in the summer of 2008 for her study of 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 was a high school student from the 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 Fe_2O_3 - Al_2O_3 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:

- Beck, P., A. F. Goncharov, V. Struzhkin, B. Militzer and R. J. Hemley, *Measurements of thermal diffusivities under planetary interiors pressure temperature conditions*, 2007 Stewardship Science Academic Alliances Program Symposium (Washington, DC, 5th-7th February 2007).
- Somayazulu, M., A. Levedahl, S. Scott, S. Gramsch, H. K. Mao and R. J. Hemley, *High pressure-temperature Raman spectroscopy of H_2 - H_2O clathrate*. Geophysical Laboratory, Carnegie Institution of Washington, March Meeting of the American Physical Society, Denver, CO, March 2007. Link: <http://meetings.aps.org/link/BAPS.2007.MAR.D23.6>
- Liang, Q., C. S. Yan, Y. Meng, J. Lai, S. Krasnicki, T. Yu, H. Shu, H. K. Mao, and R. J. Hemley, *Ultratough single crystal diamonds by MPCVD*, Intertech 2008 (Orlando, FL, 5th-7th May 2008).
- Liang, Q., C. S. Yan, Y. F. Meng, J. Lai, S. Krasnicki, T. Yu, H. Shu, H. K. Mao, and R. J. Hemley, *Recent progress in fabrication of high quality single crystal diamond at high growth rates*, Lithosphere petrology and origin of diamond International Symposium (Novosibirsk, Russia, 5th-7th June 2008).
- Meng, Y. F., C. S. Yan, J. Lai, S. Krasnicki, H. Y. Shu, T. Yu, Q. Liang, H. K. Mao and R. J. Hemley, *High-temperature/low-pressure annealing of SC-CVD diamond*, 2nd International Conference on New Diamond and Nano Carbons (NDNC2008) (Taiwan, 26th-29th May 2008).

Researchers:

Pierre Beck post-doctoral associate
Lin Wang post-doctoral associate

Charles Qiaoshi Zeng pre-doctoral fellow

Claire Barkett high school student
Daniel Cohen high school student
Maura James high school student
Andrew Kung high school student
Alexander Levedahl high school student
Manchali Madurri high school student
Jaqueline Rivera high school student

Publications (in chronological order):

- Beck, P., A. F. Goncharov, and R. J. Hemley, *High-pressure high temperature Raman spectroscopy of San Carlos olivine*, Eos Trans. AGU Fall Meet., Suppl., 87, 2006.
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- Goncharov, A. F., B. Haugen, V. V. Struzhkin, P. Beck, and S. D. Jacobsen, *Radiative conductivity and oxidation state of iron in the Earth's lower mantle*, Nature, 456, 231-234, 2008.
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- Goncharov, A. F., P. Beck, V. V. Struzhkin, R. J. Hemley, and J. C. Crowhurst, *Laser heating diamond anvil cell studies of simple molecular systems at high pressures and temperatures*, J. Phys. Chem. Solids, 69, 2217-2222, 2008.
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- Sun, L., W. Yi, L. Wang, J. Shu, S. Sinogeikin, Y. Meng, G. Shen, L. Bai, Y. Li, H.-K. Mao, and W. L. Mao, *X-ray diffraction studies and equation of state of methane at 200 GPa*, Chem. Phys. Lett., 473, 72-74, 2009.
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- Liang, Q., C. S. Yan, Y. F. Meng, J. Lai, S. Krasnicki, H.-K. Mao, and R. J. Hemley, *Enhancing the mechanical properties of CVD single-crystal diamond*, “Journal of Physics: Condensed Matter”, Issue 36, 9th September 2009.
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- Zha, C. S., S. Krasnicki, Y. F. Meng, C. S. Yan, J. Lai, Q. Liang, H.-K. Mao, and R. J. Hemley, *Composite chemical vapor deposition diamond anvils for highpressure/high-temperature experiments*, “High Pressure Research”, Volume 29, Issue 2, June 2009.
- Liang, Q., C. S. Yan, Y. F. Meng, J. Lai, T. Yu, H. Shu, S. Krasnicki, H.-K. Mao, and R. J. Hemley, *Evidence for ultratough single crystal CVD diamond*, Phys. Stat. Sol. (forthcoming).
- Liang, Q., C. S. Yan, Y. Meng, J. Lai, S. Krasnicki, T. Yu, H. Shu, H.-K. Mao and R. J. Hemley, *Ultratough boron-doped CVD single-crystal diamond*, Adv. Mat. (submitted).
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- Somayazulu, M., Levedahl, A., Scott, S., Gramsch, S., H.-K. Mao and R. J. Hemley *High pressure-High temperature Raman spectroscopy of C2 clathrate of H₂-H₂O* (to be communicated).
- Beck, P., A. F. Goncharov, H.-K. Mao, and R. J. Hemley, *High pressure and temperature Raman spectroscopy of olivine*, Geophys. Res. Lett. (in preparation).

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, and 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 is composed of two parts:

1. The first part is 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 to understand their physical properties and growth behaviors where the atomic defects are believed to play an important role.
2. The second part deals 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 has been conducted at Meijo University, Nagoya, Balzan Prizewinner 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 Research Fellowship (Post Doc)

Link: <http://www.nec.co.jp/press/en/0711/2301.html>

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 will support young researchers at the postdoctoral and graduate student levels. Two experienced postdoctoral researchers will be employed through Imperial College London, Silwood Park Campus, modeling the joint evolution of mating systems, flowering phenology, and inbreeding depression in plants. Both will 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.

In addition, Russell Lande, together with his Norwegian colleagues Steinar Engen and Bernt-Erik Sæther, conducted in April 2012 a one-week workshop on stochastic demography in Norway for about 35 graduate students and postdocs from around the world. A major component of the workshop consisted of lectures by Professors Lande, Engen and Sæther on theory and applications of stochastic demography and stochastic population dynamics in basic ecology and applied conservation.

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 doc 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. It 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 (in chronological order):

- Le Pichon, X., Chamot-Rooke, N., Rangin, C., and Sengor , A.M.C., *The North Anatolian Fault in the Sea of Marmara*, “Journal of Geophysical Research”, 108, B42179, 2003.
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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 are any higher organisms.

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

Elizabeth Marland

Anuphap Prachumwat

H.-M. Sung

Publications (and major results):

1. Marland, E., A. Prachumwat, N. Maltsev, Z. Gu and W.-H. Li. (2004) *Higher gene duplicabilities for metabolic proteins than for non-metabolic proteins in yeast and E. coli*. J. Mol. Evol. 59:806-814.

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.

2. Prachumwat, A. and W.-H. Li. (2006) *Protein Function, Connectivity, and Duplicability in Yeast*. Mol. Biol. Evol. 23:30-39.

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.

3. Chang, Y.-W., F.-G. R. Liu, N. Yu, H.-M. Sung, P. Yang, D. Wang, C.-J. Huang, M.-C. Shih, and W.-H. Li (2008) *Roles of cis- and trans-changes in the regulatory evolution of genes in the gluconeogenic pathway in yeast*. Mol. Biol. Evol. 25: 1863-1875.

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 and paper was published in "Genome Research", the leading journal in genomics:

Prachumwat, A. and W.-H. Li. (2008) *Gene number expansion and contraction in vertebrate genomes with respect to invertebrate genomes*, "Genome Research" 18: 221-232.

Where did vertebrate genes come from? This question was addressed 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 in vertebrates, 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 postdoc, has later become 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 a postdoctoral fellow, has become an assistant professor at National Central University, Taiwan. Finally, Dr. H.-M. Sung, who was a postdoctoral fellow, 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 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

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 during the last hundreds of thousand years. Their researches allowed them to establish the causal relationships between climate and content of greenhouse gases in the atmosphere.

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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 and 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 Research 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 Na

tional Medical Journal of India” entitled *The Commission on Social Determinants of Health: Mainstreaming Social Inequalities in Public Health Education in India*. They presented a version of this paper at a UCL conference “The World Health Organization and the Social Determinants of Health: Assessing Theory, Policy and Practice” in November 2008.

- 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 Pajak, 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 on 10th-15th August 2009 in Cuernavaca, Mexico, with over 40 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 12 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 Ph.D. 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 Ph.D. 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 in the institute. Working on the cross cultural consistency of associations between positive affect 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 (Jawaharlal Nehru University, Delhi, India)
Sergio Luiz Bassanesi (Universidade Federal do Rio Grande do Sul – UFRGS, Brazil)
Eleonor Fransson (Högskolan i Jönköping, Sweden)
Alex Gaina (University of Toyama, Japan)
Philippa Howden-Chapman (University of Otago, Wellington, New Zealand)
Krisztina László (Semmelweis Egyetem, Budapest, Hungary)
Gyöngyvér Salavecz (Semmelweis Egyetem, Budapest, Hungary)
Nelly Salgado (Instituto Nacional de Salud Publica, Cuernavaca, Mexico)
Kavita Sivaramakrishnan (Public Health Foundation of India)
Adrienne Stauder (Semmelweis Egyetem, Budapest, Hungary)

Publications:

- László, K.D., Pikhart, H., Kopp M.S., Bobak, M., Pajak, A., Malyutina, S., Salavecz, G. and Marmot, M., *Job insecurity and health: A study of 16 European countries*, “Soc Sci Med.” 2010 Mar; 70(6): 867-74.
- Salavecz, G., Chandola, T., Pikhart, H., Dragano, N., Siegrist, J., Jockel, K.H., Erbel, R., Malyutina, S., Pajak, A., Kubinova, R., Marmot, M., Bobak, M. and Kopp, M., *Work Stress and Health in Western European and in Post-communist countries: an East-West Comparison Study*, “Journal of Epidemiology and Community Health” 2010; 64:57-62.
- Gaina, A., Sekine, M., Chandola, T., Marmot, M. and Kagamimori, S., *Mother employment status and nutritional patterns in Japanese junior high schoolchildren*, “International Journal of Obesity” 2009; 33(7): 753-7.
- Baru, R. V. and Sivaramakrishnan, K., *The Commission on Social Determinants of Health: Mainstreaming Social Inequalities in Public Health Education in India*, “The National Medical Journal of India”, 2007; 22 (1): 33-4.

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 genomereadout (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 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 have 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 are carrying 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.

Professor Somerville has involved two post-doctorate students in studies concerning the molecular mechanisms associated with the synthesis 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. 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 CSII, and discovered that the protein is associated with the cellulose synthase complex using live cell imaging 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. Adisorn is examining the role of two laccase enzymes in lignin biosynthesis and Brad 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:

Adisorn Chaibang
Seth DeBolt
Brad Dotson
Ying Gu

Publications:

- Li, S., Lei, L., Somerville, C.R. and Gu, Y., *Cellulose synthase interactive protein 1 (CSII) links microtubules and cellulose synthase complexes*, "Proceedings of the National Academy of Science", 109 (1) pp. 185-190, 3rd January 2012.
- DeBolt, S., Scheible, W.R., Schrick, K., Auer, M., Beisson, F., Bischoff, V., Bouvier-Navé, P., Carroll, A., Hematy, K., Li, Y., Milne, J., Nair, M., Schaller, H., Zemla, M. and Somerville, C.R., *Mutations in UDP-glucose: sterol glucosyltransferase in Arabidopsis cause transparent testa phenotype and suberization defect in seeds*, "Plant Physiology", 151, pp. 78-87, 2009.
- Gu, Y., Deng, Z., Paredez, A.R., DeBolt, S., Wang, Z., and Somerville, C., *Prefoldin j6 is required for normal microtubule dynamics and organization in Arabidopsis*, "Proceedings of the National Academy of Science", 105 (46) 18064-18069, 11th November 2008.
- Hamant, O., Heisler, M.G., Jönsson, H., Krupinski, P., Uyttewaal, M., Bokov, P., Corson, F., Sahlin, P., Boudaoud, A., Meyerowitz, E.M., Couder, Y., and Traas, J., *Developmental Patterning by Mechanical Signals in Arabidopsis*, "Science", Vol. 322 no. 5908 pp. 1650-1655, 12th December 2008.

Brenda Milner

Dorothy J. Killam Professor of Psychology in the Montreal Neurological Institute and 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 (MNI) at McGill University

Adviser for the Balzan General Prize Committee: John Krebs

Hemispheric Interaction in Cognitive Processes

Brenda Milner has set aside the second part of the 2009 Balzan Prize for Cognitive Neurosciences to recruit two post-doctoral fellows from well-established neuroimaging labs. One of these young researchers is now working under Dr . Milner's supervision at the Montreal Neurological Institute at McGill University , using functional imaging to explore the issue of hemispheric interaction in cognitive processes; the second research fellow will join her here in the fall. A recent study from Marcus Raichle's lab (Johnston J.M. *et al.*, *Loss of resting interhemispheric functional connectivity after complete section of the corpus callosum*, "Journal of Cognitive Neuroscience", 28:6453–645, 2008), Washington University in St. Louis, School of Medicine, uses functional magnetic resonance imaging to explore changes in resting interhemispheric connectivity after complete section of the corpus callosum in a 6-year old child, thus suggesting a powerful methodological approach. Subsequently, functional imaging studies have shown, for example: increasing bilaterality of involvement in normal healthy subjects as they grow older and increasing involvement of the right hemisphere, as verbal tasks become more demanding. The aim of the research project funded with the second part of her Balzan Prize is to gain a better understanding of the significance of such "recruitment". In this connection, a recent study from Marcus Raichle's lab at Washington University, using functional magnetic resonance imaging to explore changes in resting interhemispheric con-

nectivity after complete section of the corpus callosum in a 6-year old child, suggests a potential methodological approach to this issue.

Two workshops have been held at the Montreal Neurological Institute (MNI) to explore how best to proceed with the project and to develop appropriate experimental paradigms. The first took place on 12th April 2010. It was attended by Joelle Crane (MNI), Simon Eickhoff (Universitätsklinikum Aachen, Germany), Alan Evans (MNI), Denise Klein (MNI), Stefan Köhler (University of Western Ontario), Hesheng Liu (Massachusetts General Hospital and Harvard Medical School), Brenda Milner (MNI), Morris Moscovitch (University of Toronto), Kate Watkins (Oxford University) and Robert Zatorre (MNI). Following from this first brainstorming session, a second workshop was held on 22nd February 2011, devoted to fleshing out the specifics of the experiments proposed. The meeting was attended by Randy Buckner (Massachusetts General Hospital, Harvard Medical School and Howard Hughes Medical Institute), Joelle Crane (MNI), Alan Evans (MNI), Denise Klein (MNI), Stefan Köhler (University of Western Ontario), Hesheng Liu (Massachusetts General Hospital and Harvard Medical School) and Brenda Milner (MNI). At this second workshop, a McGill-Harvard collaboration was instituted, planning to combine the expertise of the neuropsychology team at the MNI with the expertise in Magnetic Resonance Imaging (MRI) paradigms of the Harvard Group.

During these meetings, it was decided that the question of hemispheric interaction could best be addressed by combining fine-grained behavioural paradigms with conventional functional MRI experiments and also with newly emerging tools in MRI, such as resting-state fMRI paradigms. More specifically the study involves testing 100 neurologically normal right-handed volunteers, using both behavioural tests and neuroimaging techniques. Participants will undergo structural magnetic resonance imaging and diffusion tensor imaging (DTI) scans for precise anatomical localization. They will also have a functional-imaging session that will involve a blocked-design activation study, a continuous-task scan (using resting-state parameters) and a more conventional resting-state scan. The activation tasks will be chosen based on a survey of the extensive databases derived from the neuroimaging literature, specifically looking for a task that reliably activates medial temporal regions unilaterally and another that activates them bilaterally. The continuous-task protocol will involve two six-minute scans, during which subjects will view a long series of dually encodable objects, making a “living” versus “non-living” judgment for each. Recognition for these objects will be tested once the entire scanning session is finished, so that activity during

encoding can be examined with a subsequent memory paradigm. The continuous-task scans will also be contrasted with the resting-state scans, in order to examine how co-occurring activation patterns differ in the resting versus the engaged brain. Dr. Buckner has kindly agreed to pilot this procedure at Harvard to assess its feasibility. Finally, a three-hour battery of neuropsychological tests will be administered, from which individual behavioural measures can then be extracted and correlated with the neuroimaging results.

Researchers:

Two Post-doctoral fellowships

Ami Tsuchida, Ph.D. McGill University 2012

Meera Paleja, Ph.D. Ryerson University, Toronto 2012

15 Volunteers

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' 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.

The Research Project will take place in 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 will take place, two of them at IMPA and one at the Institut Henri Poincaré in Paris, in subsequent years. 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, June 25th-29th, 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 - Universidad de 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*.

Researchers

Supervisor

Jean-Christophe Yoccoz, IMPA

There will be a number of fellowships (3-12 months).

Links:

http://www.impa.br/opencms/pt/eventos/store/evento_1203

<http://video.impa.br/index.php?page=first-palis-balzan-symposium-on-dynamical-systems>

Joseph Ivor Silk

Professor of Physics at the Institut d'Astronomie, Université Pierre et Marie Curie, Paris, Homewood Professor in the Department of Physics and Astronomy, Johns Hopkins University, Baltimore, and 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 will designate 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'Astronomie 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 institutions. Young research visitors at partner institutions will be invited to give an interdisciplinary talk, aimed at a broad audience, as well as a departmental seminar on their research.

The Centre will focus on five areas which are at the forefront of current research, and where New College, Oxford University and the other partner institutions have particular research interests and strengths:

- (1) Issues of measure, and beyond: to understand the requirements and possibilities for a probability ‘measure’ of the observed universe in some space of possibilities, including potential uses of anthropic reasoning.
- (2) Cosmogony: to better understand how the universe began and evolved.
- (3) The dark energy and dark matter problems: to understand the origin and value of the cosmological constant that appears to be responsible for the observed acceleration of the universe, and of the dark matter that constitutes the bulk of the matter in the universe.
- (4) Entropy, time and complexity: to deepen our understanding of gravitational entropy and information in the universe, the various arrows of time, and the growth and measures of complexity in cosmology.
- (5) Data science: to understand and develop new techniques for cosmology with the largest of data sets.

The project will initially have a 5-10 year lifetime.

Shinya Yamanaka

Director of the Center for iPS Cell Research and Application (CiRA) at Kyoto University, Professor at the Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University, Senior Investigator at the Gladstone Institute of Cardiovascular Disease in San Francisco and 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 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, lasting 5-6 years. 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, 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 1st 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 understand and control cells through the process of ‘artificially creating’ biomolecules and biological systems. Creating artificial biomolecules 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 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.

Researcher:

Hirohide Saito, Associate Professor CiRA

Publications:

* corresponding author

- James A. Stapleton, Kei Endo, Yoshihiko Fujita, Karin Hayashi, Masahiro Takinoue, Hirohide Saito*, and Tan Inoue*, *Feedback Control of Protein Expression in Mammalian Cells by Tunable Synthetic Translational Inhibition*, “ACS Synthetic Biology”, 1: 83-88, 2012.

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