



International Balzan Foundation

The Balzan Prizewinners' Research Projects: An Overview

Contents

The International Balzan Foundation	Pag.	7
--	------	---

The Balzan Prizewinners' Research Projects: An Overview

Introduction by the Chairman of the Balzan General Prize Committee

Salvatore Veca	»	11
----------------------	---	----

Literature, Moral Sciences, and the Arts

James Ackerman	»	17
Marc Fumaroli	»	20
Anthony Grafton	»	23
Dominique Schnapper.....	»	26
Eric Hobsbawm	»	30
Serge Moscovici	»	34
Nikki Keddie	»	36
Colin Renfrew	»	40
Peter Hall	»	44
Lothar Ledderose	»	47
Ludwig Finscher	»	50
Quentin Skinner	»	53
Rosalyn Higgins	»	56
Michel Zink.....	»	58
Maurizio Calvesi.....	»	62
Thomas Nagel.....	»	64
Terence Cave	»	67
Paolo Rossi Monti	»	70

Physical, Mathematical and Natural Sciences, and Medicine

Jean-Pierre Changeux	Pag.	75
Claude Loriau	»	80
Walter Gehring	»	86
Xavier Le Pichon	»	89
Reinhard Genzel	»	93
Wen-Hsiung Li	»	96
Pierre Deligne	»	98
Michael Marmot	»	106
Peter and Rosemary Grant	»	109
Russell Hemley and Ho-kwang Mao	»	113
Paolo de Bernardis and Andrew Lange	»	121
Elliot Meyerowitz and Christopher Somerville	»	125
Sumio Iijima	»	128
Jules Hoffmann and Bruce Beutler	»	129
Wallace Broecker	»	131
Ian Frazer	»	133
Michael Grätzel	»	135
Brenda Milner	»	137

Index

Institutions	»	141
People	»	147

Bodies of the International Balzan Foundation

Board of the International Balzan Foundation - “Prize”	»	157
General Prize Committee	»	157
Board of the International Balzan Foundation - “Fund”	»	158

Balzan Prizes (1961-2009)

Literature, Moral Sciences, and the Arts, for Physical, Mathematical and Natural Sciences, and Medicine	»	161
Peace, Humanity and Brotherhood among Peoples	»	167

International Balzan Foundation

The International Balzan Foundation was established in Lugano in 1956 thanks to the generosity of Lina Balzan who had come into a considerable inheritance on the death of her father, Eugenio. She destined this wealth to honour his memory. Eugenio Francesco Balzan was born in Badia Polesine, near Rovigo (Northern Italy), on 20 April 1874 to a family of landowners. He spent almost his entire working life at Milan's leading daily paper *Corriere della Sera*. After joining the paper in 1897, he worked his way up, from editorial assistant, to editor-in-chief and then special correspondent (*). In 1903 editor Luigi Albertini made him managing director of the paper's publishing company; he then became a partner and shareholder in the company. He was not only a clever and skilful manager but also a leading personality in Milan. In 1933 he left Italy due to opposition from certain milieus hostile to an independent *Corriere*. He then moved to Switzerland, living in Zurich and Lugano, where for years he had invested his fortune with success. He also continued his charitable activities in favour of institutions and individuals.

After returning to Italy in 1950, Eugenio Balzan died in Lugano, Switzerland, on 15 July 1953 (**).

Today, the Balzan Foundation, international in character and scope, acts jointly through two Foundations: one under Italian law and the other under Swiss law. In Milan, the *International E. Balzan Prize Foundation* – “Prize” has the aim to promote, throughout the world, culture, science, and the most meritorious initiatives in the cause of humanity, peace and brotherhood 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.

(*) Renata Brogginì (a cura di), *Eugenio Balzan. L'emigrazione in Canada nell'inchiesta del "Corriere". 1901*, Fondazione Corriere della Sera, Milano, 2009.

(**) Renata Brogginì, *Eugenio Balzan 1874-1953. Una vita per il "Corriere", un progetto per l'umanità*, RCS Libri, Milano, 2001.

Renata Brogginì, *Eugenio Balzan 1874-1953. A Biography*, Hoepli, Milano, 2007.

Nominations for the prizes in the natural sciences and humanities are received at the Foundation's request from the world's leading learned societies and other institutions or individuals. Candidates are selected by the *General Prize Committee*, composed of eminent European scholars. In 2001, the value of each prize was set at one million Swiss francs, half of which the prizewinner must use for research work, preferably involving young researchers.

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

In Zurich, the *International E. Balzan Prize Foundation – "Fund"* collects, protects and administers Eugenio Balzan's estate so as to place at the disposal of the International E. Balzan Prize Foundation – "Prize" the necessary financial means to realize its objective.

Introduction by the Chairman of the Balzan General Prize Committee

Salvatore Veca

Since 2001, each annual Balzan Prize has included a grant to support the laureate's research. The structure of each research project is determined by the prizewinner, and its management is the responsibility of an academic institution chosen by the winner. The projects should, preferably, involve young researchers. The Balzan General Prize Committee approves these projects, and one or more of its members advise and assist the prizewinners in their definition and implementation.

Prizewinners are asked to send in annual updates and a final report, and they are also asked to approve updated abstracts of their research projects, which are made available to the general public by the Balzan Foundation through its publications and website (www.balzan.org). Academic publications and other documents related to the results of these activities enrich the library of the Balzan Foundation "Prize" in Milan. This framework is consistent with the aims of the Balzan Foundation, which supports many different fields of research, including often new or emerging ones, by changing the subjects of the Balzan Prizes annually. The research support, comprising half of the Prize, has been much appreciated by the recipients. The following statements, made during past Balzan Awards Ceremonies, illustrate this:

Je vous suis très reconnaissant pour l'attribution de ce prix; bien sûr à titre personnel mais aussi au nom de mes collègues et des jeunes qui développeront ces recherches grâce à l'initiative de la Fondation de soutenir également des projets innovants impliquant de jeunes chercheurs. Claude Lorius (Berne, 11.11.2001)

The Foundation's generosity will enable me to continue my own studies in the best of conditions and to woo younger scholars to carry on this kind of research for another generation. Anthony Grafton (Rome, 13.11.2002)

The future thus appears bright. I hope that my colleagues and I can continue to play an active role in this adventure. The support of the Balzan Prize will be an important foundation and stimulus for our work. Reinhard Genzel (Berne, 07.11.2003)

I am grateful to Balzan for celebrating the values of scholarship. Grateful for recognising that different disciplines have their own way to the truth. And grateful for the opportunity the Prize gives to enjoy supporting the research leaders of the future. Michael Marmot (Rome, 18.11.2004)

Es ist eine sinnvolle Entscheidung, jedes Jahr vier neue Felder zu benennen, in denen die Preise verliehen werden. Das erlaubt es der Stiftung, Akzente zu setzen und vielversprechende Forschung zu fördern. Lothar Ledderose (Berne, 11.11.2005)

The Balzan Prize is the most prestigious international distinction a member of the humanities can achieve, and I hardly can find appropriate words to thank the Balzan Foundation for the great honour it has bestowed on me. It gives my scholarly work recognition on an international scale far beyond the field of musicology, and it enables me to carry on with new projects which have been on my mind for a long time but for which so far I have seen no chance of realization. Ludwig Finscher (Rome, 24.11.2006)

I think it is a marvellous thing that the Prize envisages engaging young scholars in challenging research. I am looking forward to working with a small group of selected young scholars on this great venture. Rosalyn Higgins (Berne, 23.11.2007)

Ho la buona sorte di poter contare ancora su molte energie lavorative, e questo premio, rendendomi anche più libero da eventuali occupazioni di sussistenza, interviene come una scossa salutare a stimolare vieppiù queste energie, offrendomi la speranza di portare a termine almeno alcuni dei lavori scientifici che avrei ancora in serbo, e anche di poter continuare a trovare un contatto con i giovani. Maurizio Calvesi (Rome, 21.11.2008)

I wish to thank the Balzan Foundation for the challenge they have set me in dedicating half of this Prize to new research, preferably involving young scientists. Not many people at this late stage in their careers are given such an opportunity to engage with the future, and I am grateful for it. In the coming months, with selected young colleagues, I plan to explore further the ways in which the left and right hemispheres of the human brain interact in response to varying cognitive demands or to brain disease. This is still a relatively uncharted field. Brenda Milner (Berne, 20.11.2009)

We are pleased that our prizewinners have welcomed this innovative characteristic of the prize. They all emphasize the opportunity the Balzan Foundation has given them to help a new generation of scholars and to open new avenues of research. Between 2001 to 2009, the Foundation awarded four prizes each year. The amount of each prize was one million Swiss francs, half of which had to be set aside for research projects. The total amount allocated to research was therefore eighteen million Swiss francs. Thirty-six research projects is a sufficient number to justify an overview, even though many projects are still being implemented and many publications are still undergoing peer review or in press. A significant number of academic institutions and individual researchers worldwide has been involved in the Balzan prizewinners' research projects.

The final section of this overview accounts for over fifty of those research institutions, representing many countries – Australia, Austria, Canada, France, Germany, Greece, Italy, Japan, Russia, Switzerland, The Netherlands, the UK and the USA – as well as over five hundred people who also represent other countries including China, Finland, India, Iran, Romania, Ukraine, and so on. Some researchers have already concluded their work. Others are still implementing, or just beginning to implement, their Balzan projects.

It is my pleasure here to acknowledge two former Colleagues of the General Prize Committee, Vittorio Mathieu and John Krebs, who provided invaluable help in reviewing this booklet.

I would also like to thank Francesco Ranci Ortigosa of the Balzan General Secretariat, who searched for and assembled the information to make this publication possible.

July 2010

Literature, Moral Sciences,
and the Arts

James Ackerman

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.

1. James Ackerman Award

Centro Internazionale di Studi di Architettura “Andrea Palladio”

2. Summer School in Applied Palaeography

American Academy in Rome

Adviser for the General Balzan Committee: Dmitry O. Shvidkovsky

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 Ackerman’s donation to the Centro Internazionale di Studi di Architettura Andrea Palladio. The James Ackerman Award is 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 Ackerman himself are published in a series created for this purpose. The first James Ackerman Award was awarded to Leo Schubert for his book *La villa Jeanneret-Perret di Le Corbusier, 1912. La prima opera autonoma*, which was published in May 2006. The 2006 award went to Valeria Cafà for her book *Palazzo Massimo alle Colonne di Baldassarre Peruzzi* which was published in May 2007. The winner of the 2007 award was Angela Dressen and her book, *Pavimenti decorati del Quattrocento in Italia*, was published in May 2008. In 2008, the Prize was awarded to Federica Rossi for her book *Palladio in Russia: Nikolaj L’vov, architetto e intellettuale russo al tramonto dei Lumi*, published in 2010.

Members of the selection board were 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 rest of the second half of the Balzan Prize awarded to James Ackerman was destined to the creation of a “Summer School in Applied Palaeography” at the American Academy in Rome. The program focused on the analysis of texts from Roman antiquity to the Renaissance in Europe, and was consistent with Ackerman way of studying Renaissance architecture “based on a systematic critical examination of written and visual sources”, as the motivation for the Balzan Prize reads. The courses were offered free of charge to graduates and scholars, 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: Sandra Chang, Walter Cupperi (today at Scuola Normale Superiore di Pisa), Federica Ciccolella (then earning her Ph.D. at Columbia University, today at Texas A&M University), Frederick Lauritzen (then earning his Ph.D. at Columbia University, today at Fondazione Scienze Religiose Giovanni XXIII, Bologna), Dana Munteanu (today at Ohio State University).

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 Jaxsens, Jennifer Knust, Christine Kralik, Manu Radhakrishnan, Sonia Sabnis, (2005). Maria Pia Blasi (Biblioteca Nazionale di Roma) and Don Faustino Avagliano (Abbazia di Montecassino) facilitated the scholars’ work on the ancient manuscripts.

Dedicated website: www.premioackerman.it

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.
- Dressen, A. *Pavimenti decorati del Quattrocento in Italia*, Marsilio, Vicenza-Venezia, 2008.
- 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.

**Statements by the Prizewinner, by Adele Chatifield Taylor, and by Carmela Vir-
cillo Franklin:**

The humanities have been losing the support of government and the interest of students in the last two decades, particularly in my country. Yet the importance of the critical understanding of human enterprises and creations that they inculcate is ever greater as much of the world descends into disorder and conflict. The commitment of the Balzan Foundation to the support of humanistic learning and teaching – and particularly to the encouragement of young scholars – helps immeasurably to reverse the decline. I thank the Foundation for this commitment, for the honor it confers upon us, and for its generosity. James Ackerman (Berne, 09.11.2001)

Over the course of these three years, Professor Celenza was able to train fifteen students from a cross section of disciplines in the art of Palaeography. The Summer Program, though finite in length, has helped to train an entire generation of American Scholars in the art of Palaeography, and through them, its effects will influence scholarship and culture for years to come. Adele Chatifield Taylor, President of the American Academy in Rome (2005)

The Latin Palaeography seminar at the AAR has served a most important function – that of training young scholars in the actual study of Latin manuscripts, books copied by hand before the invention of printing in the middle of the 16th century. One of the most wonderful and fruitful experiences for scholar of manuscripts is the actual study of these precious original remains. Few places can match Rome's rich collection of such documents, and the AAR Palaeography seminar students were able to apply the instruction received by Professor Celenza directly to their own projects with great benefit. We hope that we shall have the opportunity to offer such a seminar again in the near future. Carmela Vircillo Franklin, Director of the American Academy in Rome (2005)

Marc Fumaroli

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.

The Comte de Caylus (1692-1765) and his Milieu: The *Respublica Literaria* Institut de France

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

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 his milieu”. The funds were also used for an array of cultural initiatives which were instrumental to the realization of a more comprehensive plan, i.e., the foundation of an interdisciplinary research institute on the history of the Republic of Letters. The Institut européen d’histoire de la République des Lettres - *Respublica Literaria* was officially established in 2006, with support from the Ministère de l’Enseignement supérieur et de la Recherche as well as the Ministère de l’Éducation nationale, and is now based at the École normale supérieure de Paris. The administration of the Balzan funds was entrusted to the Institut de France.

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

The second half of Marc Fumaroli’s Balzan Prize has contributed to the conception and organization of many international symposia, including the following: *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-Institut für Kunstgeschichte, Polo Museale Romano, Queen's University, 2004); *Peiresc et l'Italie* (Naples, Istituto Italiano per gli Studi Filosofici, 2006).

A major work by Marc Fumaroli on Chateaubriand (Fumaroli, 2003), which not only comes to grips with the crisis which transformed the cultural landscape at the beginning of the eighteenth century ("La querelle des anciens et des modernes"), but also with the political crisis which led to the fall of the *Ancien Régime*, was finalized and published in 2003.

Marc Fumaroli is currently writing a study of Comte de Caylus in the eighteenth century in Paris.

Publications:

- Dufestel, X., *Le buste en terre cuite du comte de Caylus par Louis-Claude Vassé*, Irène Aghion (dir.) *Caylus, mécène du roi. Collectionner les antiquités au XVIII^e 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), Gennaio-Agosto 2003.
- Fumaroli, M., *Chateaubriand : Poésie et Terreur*, Éditions de Fallois, Paris, 2003.
- 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.
- Hattori, C., *Le comte de Caylus d'après les archives : première partie*, « Les cahiers d'histoire de l'art », 5, 2007, pp. 54-70.
- Lion-Violet, M. (ed.), *Les premiers siècles de la République des Lettres*, Paris, 2005.
- Mochi Onori, L., Schütze, S., and Solinas, F., (eds.), *I Barberini e la cultura europea del Seicento*, Rome, 2007.
- Solinas, F., *Peiresc et l'Italie*, Paris, 2009.
- The publication of the *Mémoires et Réflexions* and the *Voyages* of Comte de Caylus is in preparation.

Statements by the Prizewinner and by Cordélia Hattori:

Pour ma part, je ne me leurre pas, si je bénéficie d'une modeste notoriété dans mon pays, je le dois à une brochure polémique, et non pas aux livres érudits qui m'ont valu l'estime durable de mes pairs, français et étrangers. Aussi suis-je stupéfait et ravi

qu'une Fondation et un jury international aussi prestigieux que celui de la Fondation Balzan ait eu l'audace de m'attribuer, pour mon œuvre d'érudit, un prix considérable, qui donnera à réfléchir à tous les contempteurs de l'érudition et de la littérature, au sens étymologique qu'un Sainte-Beuve, un Larbaud, un Curtius, un Auerbach, avaient rendu à ce beau mot aujourd'hui dédaigné. Cette incroyable largesse, je la reçois comme un hommage rendu à toute l'érudition littéraire d'expression française, et je vous rends grâce d'autant plus volontiers que votre sage générosité va me donner la faculté de me montrer à mon tour mécène de jeunes érudits et de recherches que je devais me contenter jusqu'ici d'inspirer. Marc Fumaroli (Berne, 09.11.2001)

Nous avons été particulièrement heureux de pouvoir bénéficier de la bourse Balzan pendant deux années. Elle nous a donné la possibilité d'approfondir nos recherches et d'étudier de nombreuses personnalités du XVIII^e siècle, à travers le comte de Caylus. Cordélia Hattori (2004)

Je ne saurais vous dire à quel point les fonds Balzan ont été indispensables à l'éclosion de cet Institut, qui sans eux n'aurait pu voir le jour. Marc Fumaroli (2009)

Anthony Grafton

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.

Joseph Justus Scaliger (1540-1609). Edition of the Correspondence Warburg Institute, University of London

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

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 and intelligent 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 of “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 an important and innovative biography to Scaliger (*Joseph Scaliger. A Study in the History of Classical Scholarship I. Textual Criticism and Exegesis*, Oxford 1983; *Joseph Scaliger. A Study in the History of Classical Scholarship II. Historical Chronology*, Oxford 1993) that not only deals with the man, but also suggests a network of his contemporaries and 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 of Princeton University, 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 had been transcribed and collated with its extant sources; this text had been edited and provided with a full textual apparatus; every letter had been provided with textual and contextual headnotes; and every letter had been supplied with an English synopsis.

Efforts during the fifth year have focussed 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.

As part of their Fellowships, Dr. Botley and Dr. van Miert spent one day a week on their own research. Dr. Botley contributed to the teaching of the MA in *Cultural and Intellectual History, 1300-1650*, and taught Latin at the Institute and at Queen Mary, University of London. He is compiling an inventory of the correspondence of Isaac Casaubon (1559-1614) for which he received a small British Academy grant in January 2009, and preparing a monograph on the Anglo-Dutch scholar Richard Thomson (c.1570-1613). Dr. van Miert contributed to the teaching of the MA course *Aspects of Humanism* at the Institute, and taught two undergraduate courses in the History Department of the University of Amsterdam. He has been preparing for the press a number of articles and two conference volumes, has co-organized an international symposium in Leiden (autumn 2009), and has submitted to the Netherlands Organisation for Scientific Research a substantial research proposal entitled *The Philological Roots of Early Modern Science*. At the end of 2008, Dr. van Miert left the Project to take up a position as a postdoctoral fellow at the Huygens Institute of the Royal Dutch Academy of Arts and Sciences in The Hague. Dr. Botley remained to complete the six volumes of the letters. He will also compile the seventh volume, an essential companion to the text, containing undated letters, a number of textual and exegetical appendices, an extensive biographical glossary, and the indices.

Dedicated website: <http://warburg.sas.ac.uk/scaliger/indexjjsscaliger.htm>

Publications: The complete edition of Scaliger's Correspondence is to be published in seven volumes.

Publications by Dirk van Miert:

- *Anne Mercier: Xantippe of Tanaquil? Een herwaardering van een hoogleraar-vrouw 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.

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, 24 October 2008.
- 'Confessionalisering in de Republiek der Letteren', *History Department, University of Amsterdam*, 19 November 2008; 'Scaliger Scatalogus. Retorische en filosofische achtergronden van scheldkannonades in de brieven van Joseph Scaliger', *Classics Department, University of Amsterdam*, 3 December 2008.
- 'De Canon van Amsterdam: het Athenaeum Illustre', *Beliën & Van Tol Stadsverkenningen, Amsterdam Historical Museum*, 14 December 2008; 'De filoloog met de hamer. Radicale filologie in de briefwisseling van Joseph Scaliger', *History Department, University of Amsterdam*, 26 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, 25 February 2009.

Statement by the Prizewinner and other statements:

The Foundation's generosity will enable me to continue my own studies in the best of conditions and to woo younger scholars to carry on this kind of research for another generation. Anthony Grafton (Rome, 13.11.2002)

Professor Anthony Grafton (Princeton University) has established a research project at the Warburg Institute (London) with the proceeds from his Balzan Prize, for the preparation of a critical edition of the correspondence of Joseph Justus Scaliger (1540-1609). The Scaliger Institute of the University of Leiden acts as co-sponsor. (<http://warburg.sas.ac.uk/scaliger/indexjjscaliger.htm>)

Dominique Schnapper

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.

Social Integration in Modern Democratic Societies

Fondation Maison des Science de l'Homme

Advisers for the General Balzan Committee: Walter Rüegg and Hélène Carrère d'Encausse

Dominique Schnapper is using 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 is 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 goal: 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 Srasbourg), and 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 (Schnapper, Bordes-Benayoun, and Raphaël, 2009; a translation in English by Transactions Publishers is in press).

2. *Islam and Democracy*. Mahnaz Shirali (Maison des Sciences de l'Homme) addressed the issue of the compatibility between Islam and democracy with a thorough inquiry based on participant observation in three different suburban areas of Paris and 150 interviews to young muslims who live there. Focusing on multiple constructions of religiosity within young members of families who migrated to France from Maghreb, this work is concerned with the place of Islam within democracy. The inquiry gave rise to a book (Shirali, 2007) with a Preface by Dominique Schnapper.

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 familiarising the general public with these research activities was realized in 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 Schanpper allowed them to apply and receive 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 hybridisation) aimed at training of young researchers was submitted to the European Commission in December 2009, within the ITN (Marie Curie Initial Training Network) initiative. The project includes, besides Emmanuelle Santelli and Beate Collet, the German researchers who took part in the Balzan project together with new partners from Spain, Turkey and Greece. A comprehensive work on mixed couples and transcultural hybridization will be concluded within the year 2010 and published by Presses Universitaires de France (within the series "Le Lien Social").

4. *Social bond and citizenship in prison.* Is it possible to speak of citizenship in prison? Citizens are entitled by the law to a number of rights which are not granted to inmates. How can those temporarily excluded from the "community of citizens" exercise they citizen's rights and duties? These are the questions addressed by Corinne Rostaing and Caroline Tourat (Rostaing, 2007, 2008; Tourat, 2005). Corinne Rostaing is completing 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 the democratic principles, especially those concerning individual freedoms, respond to the needs of a democratic society?

Main presentations and publications:

- 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' AISLF en juillet 2004 à Tours (abstract available online at : http://w3.aislf.univ-tlse2.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 (IPC), Université de Frankfurt/Main, mai 2006.
- Collet, B., and L. Inowlocki, *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, juillet 2006 (www.sociology2006.org.za).
- 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.
- 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, novembre 2007, 139 p.
- 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, octobre 2006, 141 p.
- 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., Chantal Bordes-Benayoun and Freddy Raphaël, *La condition juive*

en France. La tentation de l'entre-soi, Puf - Presses Universitaires de France, 2009 (The English translation, by Transactions Publishers, is in press).

- 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).

Statement by the Prizewinner: *J'ai essayé de transmettre ma conception de la sociologie à mes étudiants. J'aime enseigner et former les jeunes esprits sans rien leur imposer mais, tout au contraire, en leur donnant les moyens d'élaborer leur propre projet intellectuel. C'est pourquoi je suis particulièrement reconnaissante à la Fondation Balzan de m'avoir donné les moyens de faire développer par d'anciens étudiants, devenus des jeunes chercheurs ou des jeunes enseignants, des travaux qui prolongent les miens, même si chacun d'entre eux garde évidemment une originalité que je respecte.* Dominique Schnapper (Rome, 13.11.2002)

Eric Hobsbawm

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.

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

School of History at Birkbeck College, University of London

Adviser for the General Balzan Committee: Keith Thomas

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 final 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. 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 final 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 Reconstructions*, was held on 28 October 2005. Participants: Nicolas Atkins (Reading), Zhanna Bogdanovich (Birkbeck), Martin Conway (Oxford), Ralph Desmarais (Imperial), 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 (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).

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 (LSHTM), Sanjoy Bhattacharya (Wellcome Trust), Richard Bessel (York), Daniel Cohen (Rice), Ralph Desmarais (Imperial), David Feldman (Birkbeck), Matthew Frank (Sheffield Hallam), Katerina Gardika (Athens), Peter Gatrell (Manchester), Christian Goeschel (Cambridge), Eric Hobsbawm (Birkbeck), Simon Kitson (Birmingham), Rowan MacAuslan (Birkbeck), Anthony McElligott (Limerick), Emily Mayhew (Imperial), Mark Mazower (Columbia), Christopher Read (Warwick), Jessica Reinisch (Birkbeck), Jan Rueger (Birkbeck), Silvia Salvatici (Teramo), Rainer Schulze (Essex), Ben Shephard (Oxford), Naoko Shimazu (Birkbeck), Iain Smith (Warwick), Frank Snowden (Yale), Johannes-Dieter Steinert (Wolverhampton), Penny Summerfield (Manchester), Pat Thane (SAS/ICBH), Flora Tsilaga (Kings), Paul Weindling (Oxford Brookes), Elizabeth White (Birkbeck), Waqar Zaidi (Imperial).

Displacement and Replacement in the Aftermath of War, 1944-1948, September 2006. Pamela Ballinger (Bowdoin College), Antony Beevor (Birkbeck), Richard Bessel (York), 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 (University of Missouri, St. Louis), Jacek Kochanowicz (Warsaw University), Katherine Lebow (University of Virginia), Mark Mazower (Columbia University), Alan Milward (LSE), Kiran Patel (Humboldt University), Waqar Zaidi (Imperial College London).

The final conference, dedicated to *Post-War Reconstruction in Europe* was held on 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 (University of Rome, Tor Vergata), Peter Romijn (Amsterdam), Remco Raben (Netherlands Institute for War Documentation), Jessica Reinisch (Birkbeck), Emma Rothschild (Harvard), Ben Shephard (Bristol/Oxford), Anders Stephanson (Columbia), Jakob Tanner (Zürich), Adam Tooze (Cambridge), Nick White (John Moores University, Liverpool).

Dedicated website: www.balzan.bbk.ac.uk

Publications:

- Feldman, D., M. Mazower, J. Reinisch (Editors), *The Reconstruction of Europe*, Oxford University Press, (forthcoming, 2011).
- Reinisch, J., *Public Health in Germany under Allied Occupation*, Rochester University Press, (forthcoming, 2010).
- Reinisch, J., *Comparing Europe's Post-war Reconstructions: First Balzan Workshop, Birkbeck College, London, 28 October 2005*, "History Workshop Journal", 61, 299-304, 2006.
- Tsilaga, F., *Relief and Rehabilitation in the Immediate Aftermath of War, Second Balzan Workshop, Birkbeck College, London, 16 June 2006*, "History Workshop Journal", 63, 371-374, 2007.
- White, E. and J. Reinisch (Editors), *The Disentanglement of Populations: Migration, Expulsion and Displacement in Postwar Europe*, Basingstoke: Palgrave Macmillan, (forthcoming, 2011).

- Zaidi, W., *Planning, Production and Reconstruction in Postwar Europe, Fourth Balzan Workshop, Birkbeck College, London, 26 June 2007*, "History Workshop Journal", 65, 279-284, 2008.

- *Journal of Contemporary History*, Vol. 43, No. 3, July 2008 (Special issue).

Statements by the Prizewinner and by David Feldman:

The Balzan Prize Committee has not merely been generous to me, but has given me the wonderful opportunity to be generous to my younger colleagues on a scale I could never have dreamed of. I understand this is a recent innovation in the Prize. I welcome it. It is surely in the spirit of Eugenio Balzan and I am deeply grateful for this entirely unexpected double generosity. "Bounty", that is to say generosity, said Dr. Samuel Johnson, the famous English eighteenth century scholar and critic, "always receives part of its value from the manner in which it is bestowed." Nobody could have bestowed it in a manner more welcome to scholars than the Balzan Foundation. I thank you, not only on my behalf, but in the name of those who will, I hope, be able to share through me in your benefaction. Eric Hobsbawm (Berne, 07.11.2003)

We feel the programme of research has been highly successful and will produce a lasting contribution to our understanding of this crucial period of European history. Everyone involved is very grateful to the Balzan Foundation and to Professor Hobsbawm for giving us the opportunity to carry out this work. David Feldman (2009)

Serge Moscovici

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.

An International Research Network for Social Psychology

Fondation Maison des Sciences de l'Homme

Adviser for the General Balzan Committee: Giovanni Busino

The research projects that Serge Moscovici is carrying out with the second half of the 2003 Prize Balzan for social psychology will have beneficial effects on social psychology at the international level. To carry them out, the Balzan Prizewinner brought together colleagues and young researchers of all the countries already associated with the Laboratoire européen de psychologie sociale, which headquarters in Paris. The Laboratoire européen de psychologie sociale, 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 deals with ensuring the 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 include the publication of articles and books dealing with various theoretical and social questions. In collaboration with Serge Moscovici, the researchers related to the Laboratoire européen de psychologie sociale continue and complete investigations temporarily set aside due to lack of financing.

Publications:

- De Rosa, A.S. and Bocci, E., *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, 28 August-1 September 2006).

- De Rosa, A.S. and Bocci, E., *Archeologia iconografica della follia: stabilità/cambiamento delle Rappresentazioni Sociali a oltre venti anni della Legge Basaglia. Giornata di Lotta allo stigma del disagio mentale*, (Viterbo, 19 April 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, 12-15 June 2007).
- Galli, I., *Del potere e di altri demoni*, Edizioni Scientifiche Italiane, Napoli, 2008.
- Kalampalikis, N., and Moscovici, S., *Une approche pragmatique de l'analyse Alceste*, in « Les Cahiers Internationaux de Psychologie Sociale », 2005, 66, pp. 15-24.
- De Rosa, A.S., Pedreira, T. & Bocci, E. *Madness imaginary in cultural contexts: children's and adult's Social Representations of Madness in Brazil. V JIRS*, (Brasilia, 31 July-3 August 2007).
- Markova, I., *Dialogicité et représentations sociales*, Puf, Paris, 2007 (French translation of *Dialogicity and Social Representations*, 2003).
- Passini, S., Emiliani, F., Lumanaj, B., *I diritti e i doveri: rappresentazioni sociali di giovani italiani e albanesi*, Libreria Bonomo Editrice, Bologna, 2007.

Statement by the Prizewinner: *Etudiant, j'ai été attiré vers la psychologie sociale par cette atmosphère vivifiante de turbulence créatrice et la nouveauté des réponses qu'elle donnait aux questions que se posait notre génération. Tout mon travail de recherche depuis près d'un demi-siècle a eu pour but de fonder, sur le plan intellectuel comme sur le plan institutionnel, son autonomie scientifique et sa diffusion dans le monde. Je remercie très chaleureusement la Fondation et le Jury Balzan d'avoir distingué notre discipline et reconnu sa contribution aux sciences de l'homme. Serge Moscovici (Berne, 07.11.2003)*

Nikki Keddie

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.

Women, Gender, and the Family in the Muslim World University of California Los Angeles (UCLA)

Adviser for the General Balzan Committee: H el ene Carr ere d'Encausse

Professor Keddie's research project 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. Two one-quarter fellowships are currently being awarded. The invited fellows are both Pomona College assistant professors: Arash Kazemi in History, fall 2010, and Pardis Mahdavi in Women's Studies, fall 2011. They will teach one course each and do research at UCLA.

Publications:

- Afary, J., *Sexual Politics in Modern Iran*, Cambridge University Press, 2009.
- Amir-Ebrahimi, M., *Conquering enclosed public spaces*, "Cities", Volume 23, Issue 6, 2006.
- Amir-Ebrahim, M., *Blogging from Qom, behind Walls and Veils*, "Comparative Studies of South Asia, Africa and the Middle East", Volume 28, Issue 2, 2008.
- Berberian, H., *History, Memory, and Iranian-Armenian Memoirs of the Iranian Constitutional Revolution*, "Critique: Critical Middle Eastern Studies", Volume 17, Issue 3, 261-92, 2008.
- Berberian, H., *Connected Revolutions: Armenians and the Russian, Ottoman, and Iranian Revolution in the Early Twentieth Century*, in *Actes du Colloque l'Ivresse de la liberté : la révolution de 1908 dans l'Empire ottoman* (in press).
- Keddie, N., *Innovative Women: Unsung Pioneers of Social Change*, "Journal of Middle East Women's Studies" (JMEWS), Vol. 4, n. 3, Fall 2008.
- Amir-Ebrahim, M., *Transgression in Narration: The Lives of Iranian Women in Cyberspace*, "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.
- Rostam-Kolayi, J., *Origin of Iran's Modern Girl's Schools: From Private/National to Public/State*, "Journal of Middle East Women's Studies" (JMEWS), Vol. 4, n. 3, Fall 2008.
- Rostam-Kolayi, J., *From Evangelizing to Modernizing Iranians: The American Presbyterian Mission and its Iranian Students*, "Iranian Studies", Volume 41, Issue 2, 2008.
- Shisser, H., *Womanhood Is Not For Sale: Sabiha Zakeriya Sertel Against Prostitution and For Women's Employment*, "Journal of Middle East Women's Studies" (JMEWS), Vol. 4, n. 3, Fall 2008.
- Tohidi, N., *Revolution? What's in it for them? Globalized Iranian American women are nudging their homeland toward democracy*, "Los Angeles Times", July 31, 2005.
- Tohidi, N., *In Memoriam: On Parvin Paidar*, "Middle East Studies Association Bulletin", Volume 39, Issue 2, December 2005.
- Tohidi, N., *'Islamic Feminism': Women Negotiating Modernity and Patriarchy in Iran*, in *The Blackwell Companion of Contemporary Islamic Thought*, edited by Ibrahim Abu-Rabi, Oxford, UK: Blackwell Publishing, 2006.

Statements by the Prizewinner, and by Janet Afary, Jasamin Rostam-Kolayi, Houri Berberian, and Edward A. Alpers:

I salute the Balzan Foundation for its outstanding prize program, which both honors senior scholars and provides significant funds for upcoming younger scholars to help them in their research in their initial stages. Nikki Keddie (Rome, 18.11.2004)

I taught two courses at UCLA: An undergraduate lecture course on Modern Iran (Fall 2008) and a graduate seminar on Gender in Middle East History (Winter 2009). The class on Modern Iran had not been taught for many years at UCLA. In addition, in both classes I had a number of students with Middle Eastern backgrounds. My students in the graduate seminar on Middle East women were Iranian, Syrian, Pakistani, Palestinian, Egyptian, among others. In the graduate seminar students wrote three essays (10-12 pages) on the following subjects: Gender and Women's rights in early and medieval Islam; Women's rights in postcolonial North Africa; and a comparative study of Egyptian and Iranian feminists. In both classes students were enormously interested in the subject matters and fully participated. This year at UCLA was one of the best teaching experiences of my life. Janet Afary (2009)

*Although I held a tenure-track position as an Assistant Professor during the fellowship year, I applied for and was offered another tenure-track position in Spring 2007. Since Fall 2007, I have given conference presentations, developed and taught new courses in the field of modern Middle East history, performed service work for my new department, and applied for grants and fellowships for release time to finish my book project *Educating Modern Iranian Women, 1800s-1940s*. Jasamin Rostam-Kolayi (2009)*

*In February 2008, I presented on my current project on seventeenth and eighteenth-century Armenian women in New Julfa, Isfahan (Iran), at the *Journal of Middle East Women's Studies Roundtable* at UCLA. This project is itself part of a larger book project (co-authored with Sebouh Aslanian) that examines the Scerimans, a wealthy Iranian-Armenian merchant family, with origins in early seventeenth century New Julfa and branches as far west as Italy, especially Venice, and as far east as Madras (India) and Pegu (Burma) and as recent as the nineteenth century. As part of this project, in March, I presented "Cosmopolitanism and the Sceriman/Shahrimanian Family between Isfahan and Venice" at the Middle East & Middle Eastern American Center, the Graduate Center, City University of New York. An article version of this presentation is forthcoming in "Diaspora: A Journal of Transnational Studies". (...) Thank you once again for the wonderful opportunity the fellowship afforded me. Houri Berberian (2009)*

Since I have been Chair of our department since Professor Keddie received the Balzan Prize, I can bear witness to the very positive impact this support has had on the teaching of middle Eastern history at UCLA and, no less, to the inestimable support it has provided to the outstanding younger scholars Professor Keddie has supported through the munificence on the Balzan Prize. We have been honoured to have Professor Keddie receive this most distinguished international prize and to have benefited from its support. Edward A. Alpers, Professor and Chair of the Department of History at UCLA (2010)

Colin Renfrew

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 and has, 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.

Two Lines of Research in Prehistoric Archaeology

The McDonald Institute for Archaeological Research, Cambridge

Adviser for the General Balzan Committee: Paolo Matthiae

Colin Renfrew's project consists of two lines of research which he has actively been involved in. Both are in the field of prehistoric archaeology and involve young researchers in different ways.

The first line of research is 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 field-work 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"*. In April 2005, Dr. Lambros Malafouris was appointed Balzan Post-Doctoral Research Fellow in Cognitive Archaeology at the McDonald Institute for Archaeological Research in Cambridge to work on the first part of the project. 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 7-9 April 2006. The papers presented at this symposium, after peer review, were published as a McDonald Institute Monograph in 2010.

- The second symposium, “The Sapient Mind: Archaeology meets Neuroscience”, was held at the McDonald Institute on 14-17 September 2007. It was co-organized with Professor Colin Renfrew and Professor Chris Frith (Department of Cognitive Neuroscience, UCL). The papers presented in this symposium 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*. The publication of “The Sapient Mind” has also received extensive coverage in “New Scientist” (14 May 2008).

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

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 has been 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 Center for Interdisciplinary Research (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).

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 (*Keros, Dhaskalio Kavos: The Investigations of 1987-88*, 2007).

Thanks to the award of the second half of the Balzan Prize to Colin Renfrew, it has been possible to conduct the excavation of the site of Dhaskalio and Dhaskalio Kavos during the excavation seasons of 2006, 2007 and 2008. A preliminary report

on the 2006-2007 excavations has been published in “The Annual of the British School of Athens”, 102, 2007. A further preliminary report appears in volume 104. No more fieldwork is planned prior to the final publication of the 2006 to 2008 results. The excavations involved the participation of a number of young graduate archaeologists, a number of whom will be contributors to the final report, now in preparation.

Publications:

- Renfrew, C., Dumas, 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.
- Malafouris, L., *Before and beyond representation: towards an enactive conception of the Palaeolithic image*; in C. Renfrew and L. Modey (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 Sapiient 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.
- 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.
- 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 C. Renfrew and I. Morley (Eds.), *The Archaeology of Measurement. Comprehending Heaven, Earth and Time in Ancient Societies*, Cambridge, Cambridge University Press, 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 I. Wachsmuth (Eds.), *The Enculturated Body. Time Scales of Embodied Meaning in Communication*, Oxford, Oxford University Press, 2010.
- Malafouris L., *Sharing intentions with things and not simply about things: rethinking the “we” in “we” intentionality*; in N. Uomini and K. McDonald (Eds.), *Innovation and Evolution*, (forthcoming).
- 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, (forthcoming).

Statement by the Prizewinner: *It is a great encouragement to the study of Pre-historic Archaeology and so, I hope, to furthering our shared understanding of the human condition.* Colin Renfrew (Rome, 18.11.2004)

Peter Hall

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.

New Patterns of Urban Activity

Bartlett School of Planning at University College of London

Adviser for the General Balzan Committee: Keith Thomas

The following projects financed by Sir Peter Hall with the second part of his Balzan Prize are being carried out by the Bartlett School/Centre for Advanced Spatial Analysis at the University College of London. The projects stem from his studies and are 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 is working 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 continues to work on her specialist subject of housing, where she had worked with Professor Lawrence Vale at MIT. The outcome is an extremely ambitious attempt to marry two different research streams: labour market modelling and housing market modelling. She tries to understand 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 a research in a related field, published by the UK Government Office for Science as a jointly-authored publication in 2010: Government Office for Science (2010) *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, is working on innovative research strategies using mobile phone company data to analyse the geographical and temporal patterns of information flows in European cities. He has 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 on proposals that culminated in SENSEable's installation at the MoMA in New York and in a disaster-planning research project with KPN in Holland. As a result, his work is at the research frontier and he has already published significant papers (see Publications).

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, did her postdoctoral study on "European Identity" with Sir Peter Hall from October 2006 to October 2007. Her focus, stemming from her Ph.D., has been to study the problem through recent European literature by 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 (Recchia, 2008).

About a tenth of the research sum is given 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. 50 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.

Publications:

- 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: segmenting space through digital signatures*", "IEEE Pervasive Computing", 14 August 2009.
- Hall, P., *London Voices, London Lives: Tales from a Working Capital*, Policy Press, London, 2007.

- Reades, J., F. Calabrese and C. Ratti, *Eigenplaces: analyzing cities using the space-time structure of the mobile phone network*, "Environment & Planning B: Planning & Design", Vol. 36, No.5, September 2009.
- Reades, J., *Finite State Machines: Preserving Privacy When Data-Mining Cellular Phone Networks*, "Journal of Urban Technology", Vol. 17, Issue 1, April 2010.
- Reades, J., F. Calabrese, A. Sevtsuk and C. Ratti, *Cellular Census: Explorations in Urban Data Collection*, "Pervasive Computing", Vol. 6, No.3, IEEE, 2007.
- Recchia, F., *Immigration, Politics and Violence in Urban France: Between Fiction and Facts*, "Information, Society and Justice", Vol. No. 1, December 2008.

Statement by the Prizewinner: *I won't promise that I shall finally solve the mystery that has been worrying me these past four decades. But perhaps, through the generous award of this prize, you may help me get a little nearer to the answer. Thank you. Peter Hall (Berne, 11.11.2005)*

Lothar Ledderose

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.

1. Heidelberg Colloquies in East Asian Art History

Ruprecht-Karls-Universität Heidelberg

2. Buddhist Stone Inscriptions in China

Heidelberger Akademie der Wissenschaften

Adviser for the General Balzan Committee: Dmitry O. Shvidkovsky

With the second part of the Balzan Prize, Lothar Ledderose has financed two international colloquies for students who were writing their Ph.D. theses in the field of East Asian Art (Heidelberg Colloquies in East Asian Art History) as well as a research project on methods of digitizing and visualizing unique stone inscriptions (entitled Buddhist Stone Inscriptions in China).

1. *Heidelberg Colloquies in East Asian Art History*. 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 their speeches. 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 called *Heidelberg Colloquies in East Asian Art History*.

The First Heidelberg international Colloquy on East Asian Art History took place from September 14 to 17, 2006. 16 Ph.D. students from ten countries were selected from 53 applicants. The young researchers were: Xin Chen (University of Oxford); Youn-mi

Kim, (Harvard University); Anton Schweizer (Universität Heidelberg); Ya-Chen Ma (Stanford University); Pietro de Laurentis, (Università di Napoli L'Orientale); Li-Wei Chen (Columbia University); Pik Ki Peggy Ho (National Taiwan University); Massimo Carrante (Universität Heidelberg); Fei Bi (China Academy of Art, Hangzhou); Jong Phil Park (University of Michigan, Ann Arbor); Hui Guo (Leiden University); 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 (Universität Heidelberg).

The Second Heidelberg international Colloquy on East Asian Art History took place from July 10 to 13, 2008. Chairpersons: Professor Lothar Ledderose (Universität Heidelberg), 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 (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 (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 (Universität Heidelberg).

2. *Buddhist Stone Inscriptions in China*. 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 exhibit "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 of East Asian Art of Co-

logne (Germany). The catalogue contains a Preface by Adele Schlombs and essays by Lothar Ledderose, Claudia Wenzel and Suey-ling Tsai (Heidelberg Academy of Sciences and Humanities), Liqun He (Archaeological Institute of the Academy of Social Sciences in Beijing) and Petra Rösch (Museum of East Asian Art Cologne).

Publications:

- Museum of East Asian Art Cologne and the research project Buddhist Stone Inscriptions in China of the Heidelberg Academy of Sciences and Humanities (Editors), *Herz der Erleuchtung. Buddhistische Kunst in China 550-600 / The Heart of Enlightenment. Buddhist Art in China 550-600*. Museum of East Asian Art Cologne, 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.

Statements by the Prizewinner and by Adele Schlombs:

Die Balzan-Stiftung versteht es offensichtlich, gute Entscheidungen zu treffen. Es ist eine sinnvolle Entscheidung, jedes Jahr vier neue Felder zu benennen, in denen die Preise verliehen werden. Das erlaubt es der Stiftung, Akzente zu setzen und vielversprechende Forschung zu fördern. Lothar Ledderose (Berne, 11.11.2005)

The award of the International Balzan Prize allowed, from 2005, a more vigorous pursuit of the project, in which many young researchers are involved. Adele Schlombs (Foreword to *The Heart of Enlightenment*, 2009)

Ludwig Finscher

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.

History of the Trio Sonata - Catalogue Raisonné of the Tradition

University of Zurich

Adviser for the General Balzan Committee: Gottfried Scholz

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 the end of the first period of diffusion 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 found at the Institute of Musicology at the University of Zurich, 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. To date, there is only one monograph oriented towards the history of the genre that takes into account today’s methodological concerns. However, it only deals with early phenomena up to the appearance of the “classical” model of the genre. There is also an article in *Die Musik in Geschichte und Gegenwart*, but it gives only a very general overview of the genre. The remaining literature is quantitatively scarce and limited to studies of single works or composers,

but historical genre aspects rarely play an important role in them.

The project was set up by Ludwig Finscher together with Prof. Laurenz Lütteken, who is acting as project manager and in addition responsible for the administration. The project was set up with two 50% positions dealing with academic qualifications for young scholars. The first position needs a doctorate leading to a 'Habilitation', the second is reserved to a doctoral candidate (Ph.D. student). Dr. Cristina Urchueguía held the first position until February 2010. She has completed her Habilitation in autumn 2009 and got an appointment as assistant professor of musicology at the University of Berne in February 2010. Her successor at the project is Dr. Nicola Schneider who has completed his dissertation in March 2010. Dr. Schneider has started on April 1st. The position of the doctoral candidate was first held by Elisabeth Wanzentried. She left the project for personal reasons and was replaced by Gabriela Freiburghaus. She will complete her thesis in 2011 (dealing with the Trio Sonata in Britain between Purcell and Händel).

During 2007, 2008, and 2009, about 1,200 editions with 3 to 12 sonatas (more than 11,000 pieces overall), emerged from over more than 2,000 sources. A lot more than it was expected. A distinction has thus been drawn between printed editions and manuscript, giving priority to the former. A specific data base was developed for organizing the materials. The result should be a printed catalogue which will appear in Henle Verlag who is interested in the project.

The first trio sonatas were composed during the early Baroque, while the last came out during the early classic period. The vast majority of works (sonate, suonate, balletti, sinfonie, trii, divertimenti and concerti) is written for two high instruments – violins, flutes, oboes – and a bass fundament, "basso continuo" – cellos, bass-viols, harpsichords, organs and theorbos. Until 1700 most of the publishers are Italians, 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 Von Leclerc and Gallo, Giuseppe Fernando Brivio della Tromba, Johann Schwanenberger, André Joseph Exaudet, Melchiorre Chiesa and Karl Wilhelm Glösch are now made available to the general public. A fruitful contact with musical practice has been established with the help of a specialized ensemble housed at the Zurich *Hochschule der Künste* and lead by the baroque violinist Prof. Monika Baer.

Publications:

- Ludwig Finscher, *Was heißt und zu welchem Ende studiert man musikalische Gattungsgeschichte?*. In Laurenz Lütteken and Hans-Joachim Hinrichsen (Editors): Pas-

sagen. IMS Kongress Zürich 2007. Five Keynote Speeches. Kassel etc.: Bärenreiter 2008, S. 21-37.

- Laurenz Lütteken, *Matthesons Orchesterschriften und der englische Sensualismus*. In „Die Musikforschung“ 60, 2007, S. 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.-8. April 2004. Teil 4. Sektion 8: Mathematik und Naturwissenschaften. Sektion 9: Ästhetik und Poetik. Hildesheim etc.: Olms 2008, S. 213-227.

- Laurenz Lütteken, *Werk – Opus*. In “MGG, Supplement”, 2008, Sp. 1102-1114.

- 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), in print.

- Cristina Urchueguía, *Die Triosonate - Catalogue Raisonné. Ein Katalogisierungsprojekt zur frühen Kammermusik*. In “Ensemble. Magazin für Kammermusik”, 1, 2010, in print.

Statements by the Prizewinner:

The Balzan Prize is the most prestigious international distinction a member of the humanities can achieve, and I hardly can find appropriate words to thank the Balzan Foundation for the great honour it has bestowed on me. It gives my scholarly work recognition on an international scale far beyond the field of musicology, and it enables me to carry on with new projects which have been on my mind for a long time but for which so far I have seen no chance of realization. Ludwig Finscher (Rome, 24.11.2006)

“The idea of publishing an overview of the Research Projects is surely a very good one, and I am convinced that the publication will also enhance the prestige of the Prizewinners”. Ludwig Finscher (2010)

Quentin Skinner

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.

Balzan-Skinner Lectures and International Conferences University of Cambridge

Adviser for the General Balzan Committee: Salvatore Veca

With the second part of the prize, Quentin Skinner initiated two programmes which are 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.* The Lectures will be 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 further agreed that the successful candidate will be made a Fellow at CRASSH during the academic Term in which the Lecture is to be delivered, 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 each Lecture will be delivered on a topic in Modern Intellectual History (1500 to the present day); that the Lectureship will be restricted to younger researchers in the field (Lecturers must be no further advanced in their careers than 10 years since the completion of their Ph.D.); and that a one-day Conference will be associated with each Lecture, to which other younger researchers in the relevant field will be invited. The Appointments Committee will ensure that the Lectureship is equally open and hospitable to researchers working in all idioms and traditions of intellectual history.

The main outcome will be a series of published lectures. The editorial Board of *The Historical Journal*, which is arguably the leading Anglophone journal with a special commitment to publishing research in modern intellectual history, has agreed that

it will publish each of the Lectures 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.

The first two Lecturers have already been appointed. The first, Dr. Hannah Dawson of the University of Edinburgh, will deliver her Lecture on 9th September 2010, with the accompanying Conference on the 10th September. The second Lecturer, Dr. Joel Isaac of the University of London, will deliver his Lecture on 5th May 2011, with the accompanying Conference on the 6th May. The Prizewinner, Quentin Skinner, has been invited by CRASSH to attend both these occasions, and plans to be present.

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 at the Conference Centre of the European University Institute (EUI) at San Domenico di Fiesole (Florence). Very grateful thanks are owed to the President of the Institute at the time, Professeur Yves Mény, who offered warm hospitality to the younger researchers involved, as well as furnishing superb facilities for the conferences and arranging for help to be given with the administration of the events.

The core group of young researchers: 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, the following twenty-two names were selected: Catherine Balleriaux; Theodor Christov; Rosanna Cox; Hannah Dawson; Serena Ferente; Felicity Green; Thomasz 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; Marton Zaskalczy.

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) and Professor Philip Pettit (Princeton); at the fourth they were Professor Lars Magnusson (Uppsala); Professor Fonna Forman-Barzilai (California); Professor Martina Reuter (Helsinki); Professor Michael Cook (Princeton); Dr. Noel Malcolm (Oxford) and Professor James Tully (Victoria, Canada).

The topics of the individual conferences: The general topic, 'Freedom and the Construction of Europe', was divided into four parts with the following titles.

- First Conference, 3rd to 5th July 2008: *Religious Freedom and Civil Liberty*. The papers focused on the emergence of ideas about freedom of conscience and religious liberty in the era of the Protestant Reformation.

- Second Conference, 25th to 27th September 2008: *Liberty and Liberties in Legal and Constitutional Thought*. The papers focused on the various rights and liberties guaranteed under different European constitutions, including those of England, Hungary, the Italian city-states, Poland and the Holy Roman Empire.

- Third Conference, 2nd to 4th July 2009: *The Freedom of Individuals*. The papers focused on the evolution of, and the debates about, different understandings of the ideal of individual freedom in various European countries, including England, France, Germany, Italy, and the Netherlands.

- Fourth Conference, 24th to 26th September, 2009: *European Freedom and its Boundaries*. A more wide-ranging and summarising meeting, in which the idea of the bounded character of freedom was treated in metaphorical as well as in physical terms. The exclusion of various groups as well as geographical areas was examined, as well as the emergence of ideas about freedom of trade.

Publication plans: Before the conferences were held, a steering committee was formed to work out the topics to be covered at each individual conference, and at the same time to make plans for the eventual publication of the conference proceedings in the form of 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, the 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. There he made it clear in a closing speech that the Press would be willing to consider the publication of the conference proceedings in the form of a two-volume book to be jointly edited by Martin van Gelderen and Quentin Skinner. Mr. Fisher set a deadline of 30th June 2010 for the receipt of all chapters, which will then be submitted to the usual refereeing procedures employed by the Press. If the reports are favourable, it is hoped that the proceedings of the conferences will thus give rise to a major publication by the Press.

Statement by the Prizewinner: *When I thank the Foundation for supporting this kind of research, I am saluting its willingness to encourage the kind of humanistic studies that seek not merely to understand but if possible to change the world.* Quentin Skinner (Rome, 24.11.2006)

Rosalyn Higgins

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.

Oppenheim's International Law. A New Volume on International Organizations

Adviser for the General Balzan Committee: Luzius Wildhaber

Rosalyn Higgins' Balzan research project will focus on a comprehensive study of the main intergovernmental organizations, with the United Nations at the centre of the work. Directed by Dame Rosalyn, a group of young scholars (Dapo Akande, Sandesh Sivakumaran, James G. Sloan, Philippa Webb, and Ralph Wilde) will do the research work necessary to the realization of a new Oppenheim's International Law volume (namely, Oppenheim on International Organizations). Philippa Webb will also act as Project Manager.

The Balzan Oppenheim Project team had its first meeting in February 2008 in The Hague, The Netherlands. At this all-day 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 over two days in November 2008 in The Hague during which first 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 over two days 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 work plan for 2010 was formulated.

The team had a fourth meeting in London in March 2010. At this one-day meeting the first drafts on UN immunities and legal personality were discussed in detail.

A fifth meeting is scheduled for November 2010 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 Secretariat, immunities and legal personality.

- Dapo Akande is University Lecturer in Public International Law & Yamani Fellow at St. Peter's College, University of Oxford, and Visiting Professor at the University of Miami School of Law.

- Sandesh Sivakumaran is Lecturer 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 University of Glasgow, School of Law, since January 2000.

- Philippa Webb is former Special Assistant and Legal Officer to President Rosalyn Higgins at the International Court of Justice in The Hague and current Visiting Assistant Professor at Leiden University.

- Ralph Wilde is Vice Dean for research and a Reader at the Faculty of Laws, University College London, University of London, which he joined in 2002. He is also Adjunct Professor at Georgetown University Law Centre.

Publication Plans: *Oppenheim's International Law. A New Volume on International Organizations* is planned to be ready for publication in 2013.

Statement by the Prizewinner: *I think it is a marvellous thing that the prize envisages engaging young scholars in challenging research. I am looking forward to working with a small group of selected young scholars on this great venture.* Rosalyn Higgins (Berne, 23.11.2007)

Michel Zink

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.

Four Objectives in the Studies of Medieval Literary Texts Institut de France

Adviser for the General Balzan Committee: Karlheinz Stierle

The part of Michel Zink's Balzan Prize to be dedicated to research has been divided among four main objectives. The management of the funds is entrusted to the Institut de France:

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 1-3 April 2009 at the Collège de France. The last session took place on Friday 3 April at the Académie des inscriptions et belles-lettres. A preliminary organizational meeting was held in May 2008. Sixteen presentations were given by scholars from France, Germany, the U.S., Italy, and Switzerland. Among them were four professors from the Collège de France (Yves Bonnefoy, Antoine Compagnon, Harald Weinrich, Michel Zink), other important scholars (Daniel Heller-Roazen, Karlheinz Stierle) and many young researchers. The book resulting from this conference will be published by Odile Jacob in June 2010, with the title *Livres anciens, lectures nouvelles. Ce qui passe et ce qui demeure.*

The second conference will be on the topic *Ecrire dans la langue de l'autre*. A preliminary one-day workshop will be hosted, like the first one, in Villa Lagarina (TN), Italy, by la marquise Guerrieri Gonzaga. Furthermore, a conference on *L'exégèse en anglo-normand*, organized with Dr. Anthony Hunt (St. Peter's College, Oxford) and Dr. Jean-Pascal Pouzet (University of Limoges), will be held at Merton College, Oxford, from 9 to 11 September 2010.

Two other conferences focusing more on literary history are in preparation. The first, *Saint Thomas Becket et la littérature vernaculaire médiévale*, organized with Dr. Car-

la Rossi (Lugano), was planned for October 2010 at the Centro Stefano Franscini (Ascona, Switzerland) of the Swiss Federal Institute of Technology Zurich, but had to be postponed for practical reasons. The second (*Le français contre la France*), dedicated to French anti-monarchy literature at the end of the eighteenth century, will be organized in Paris during the 2011-2012 academic year, together with professor John Baldwin (Johns Hopkins University, Académie des inscriptions et belles-lettres).

2. *Fellowships for young researchers (Prix de recherche en philologie romane)*. A fellowship program will make 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 professor Giovanna Angeli (University of Florence), Karlheinz Stierle (University of Constance), and Michel Zink. The program is advertised on the websites of the Collège de France and Institut de France.

In 2009, the first fellowship was awarded to Chiara Concina (Milan). The second will be awarded in June 2010.

3. *Support to 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” and reprint a revised version of the Dictionary of French Medieval Literature (“Dictionnaire des Lettres françaises – Le Moyen Âge”).

- A research group is working with the prizewinner on a project called *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 published in Florence by Edizioni del Galluzzo (Fondazione Ezio Franceschini). The first part (Gaston Paris – Joseph Bédier) appeared in 2009 thanks to a grant from the Fonds national suisse de la recherche scientifique. The Balzan research funds will contribute to the publication of the following volumes (Karl Bartsch – Gaston Paris in 2010, Gaston Paris – Pio Rajna in 2011, Pio Rajna – Francesco D'Ovidio, Joseph Bédier and his correspondents besides Gaston Paris, Gaston Paris – Paul Meyer, Alfred Morel-Fatio, etc.).

- The research funds from the Balzan prize will also make it possible to for the collection *Lettres gothiques* (Le Livre de Poche, Hachette) to include two important works from the beginning of the fourteenth century. It would have been difficult to publish them without the Balzan Foundation's help, especially because in order to pass them on, it is necessary to reproduce at least a part of the miniatures that accompany the manuscripts: the *Roman de Fauvel* by Gervais du Bus and the *Pèlerinage de vie hu-*

maine by Guillaume de Digulleville. The first in the series will come out in January 2011, and the second at the end of the same year.

- The project of reprinting a revised version of the Dictionary of French Medieval Literature (*Dictionnaire des Lettres françaises – Le Moyen Âge*), edited by Michel Zink et al. and published in 1992 is under negotiation with the publisher.

4. The institution, on the property of the Collège de France at La Borie (Haute Vienne), of a *Balzan Room, equipped with extensive reference material to be used by groups of scholars*. This project is currently under negotiations involving the Collège the France and local authorities.

Publications:

- *Gaston Paris – Joseph Bédier. Correspondance*. Editée par Ursula Bähler et Alain Corbellari, Florence, Edizioni del Galluzzo, « L'Europe des philologues. Correspondances – L'Europa dei filologi. Epistolari », sous la direction de Michel Zink. Préface de Michel Zink, 2009, XIX-183 p.

- *Moyen Âge et Renaissance au Collège de France. Leçons inaugurales*. Textes rassemblés par Pierre Toubert et Michel Zink (introduction, p. 7-18), avec la collaboration d'Odile Bombarde, Paris, Fayard, 2009, 665 p.

- *Livres anciens, lectures nouvelles. Ce qui passe et ce qui demeure*. Sous la direction de Michel Zink, Paris, Editions Odile Jacob, parution juin 2010.

- « Auteur et autorité au Moyen Âge », dans *De l'autorité. Colloque annuel 2007 du Collège de France*, sous la direction d'Antoine Compagnon, Paris, Odile Jacob, 2008, p. 143-158.

- « François Villon, Jean de Meun et la mort », dans *Autour du XV^e siècle. Journées d'étude en l'honneur d'Alberto Varvaro*, éd. Paola Moreno et Giovanni Palumbo, Bibliothèque de la Faculté de Philosophie et Lettres de l'Université de Liège – Fascicule CCXCII, Diffusion Genève, Droz, 2008, p. 265-272.

- « Observations sur la situation et l'évolution de la philologie romane en France », dans *Romanische Philologie als Herausforderung. Les défis des études romanes*, Bonn University Press, Deutschland und Frankreich im wissenschaftlichen Dialog 1, 2009, p. 41-44.

- « Les Razos et l'idée de la poésie », dans *Poetry, Knowledge and Community in Late Medieval France*, éd. Rebecca Dixon et Finn E. Sinclair, Cambridge, D.S. Brewer, 2008, p. 85-97.

- *René d'Anjou. Le Mortifiement de Vaine Plaisance*. Préface de Michel Zink (p. 9-45), Traduction de Isabelle Fabre, Paris, PUF, 2009, Collection Sources.

- « Le remploi, marque du temps perdu et du temps retrouvé », dans *Remploi, citation, plagiat (Xe-XIIIe siècle)*. Etudes réunies par Pierre Toubert et Pierre Moret, Madrid, Casa de Velázquez, 2009, p. 1-8.

- « Troubadours en chemin » et « Mot de clôture », dans *Espaces et mondes au Moyen Âge*. Actes du colloque international tenu à Bucarest les 17-18 octobre 2008, Editions de l'université de Bucarest 2009, p. 17-23 et p. 468-470.

Statement by the Prizewinner: *Grâce à la Fondation Balzan, j'espère enfin pouvoir développer un nouveau projet, en liaison avec deux programmes auxquels je participe, le programme « Transmédié » du Centre d'Études Supérieures de Civilisation Médiévale de Poitiers sur les traductions vers le français au Moyen Âge et le programme de l'Institut d'études littéraires du Collège de France sur la traduction littéraire. Le projet est d'étudier la signification et le rôle de la confrontation des langues, du changement de langue et du mélange des langues, qu'il s'agisse du latin ou des langues vernaculaires de l'Europe, dans l'élaboration d'une conscience de la littérature au Moyen Âge et dans la définition de foyers et de milieux littéraires qui n'ont pas toujours été clairement identifiés. Mais il analysera aussi la perception du vieillissement de la langue et les adaptations littéraires d'un état ancien à un état actuel de la langue, des derniers siècles du Moyen Âge à nos jours. Michel Zink (Berne, 23.11.2007)*

Maurizio Calvesi

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.

Three Research Projects on the History of the Visual Arts in Italy

Fondazione Albizzini. Collezione Burri

Adviser for the General Balzan Committee: Dmitry O. Shvidkovsky

Maurizio Calvesi has set aside the second half of the 2008 Balzan Prize for the Visual Arts since 1700 for three research projects involving five young scholars whom he will personally supervise.

1. *Antiquarian Culture in Rome from Biondo Flavio to Piranesi.* This project deals with a line of research which has already been taken up by scholars, but has not been explored in enough depth. From the works of the fifteenth century “antiquarians” to the problem of Polifilo, to Cartari, Pignoria and Cassiano, and from Pozzo to Kircher, Venuti and Piranesi, to mention only a few of the names that emerge, 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 will be carried out over three years and will be done by three scholars: Stefano Colonna (in charge of the research), Camilla Fiore and Jacopo Curziotti. It will be followed by Professor Maurizio Calvesi, who has already produced various studies on these subjects.

2. *Critical edition of the sources and documents related to Caravaggesque painters and research to find new documents on them.* Professor Stefania Macioce, who will follow 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), and a new expanded version of this book in 2010 (under the patronage of the Committee in charge of the celebrations for the 4th Centennial of Caravaggio’s Death).

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 and to produce an edition of new monographic volumes on some of the most important followers of Caravaggio. In the course of the research, 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.

3. *Complete catalogue of the works of Umberto Boccioni.* There is already a catalogue of Boccioni's works, compiled by Ester Coen with the assistance of Maurizio Calvesi, who signed the introductory essay (published in 1982). Several imprecise matters in this catalogue, the new documentary evidence that has emerged on the painter, and above all the great number of unpublished works made known during the past twenty-six years, make a new catalogue of the works necessary. The complete catalogue will be edited by Alberto D'Ambruoso under the supervision of Maurizio Calvesi.

Statement by the Prizewinner: *Ho la buona sorte di poter contare ancora su molte energie lavorative, e questo premio, rendendomi anche più libero da eventuali occupazioni di sussistenza, interviene come una scossa salutare a stimolare vieppiù queste energie, offrendomi la speranza di portare a termine almeno alcuni dei lavori scientifici che avrei ancora in serbo, e anche di poter continuare a trovare un contatto con i giovani.* Maurizio Calvesi (Rome, 21.11.2008)

Thomas Nagel

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 centered 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.

Philosophical Aspects of Global Order

New York University

Adviser for the General Balzan Committee: Salvatore Veca

To show the complexity of ethics and politics: thanks to the second half of the Balzan Prize to Thomas Nagel, New York University will be able to offer graduates from other countries the possibility of participating in the activities of the Institute of Philosophy – which promotes groups that do research on themes of public interest characterized by philosophical aspects on a global level – as well as in the seminar on law, philosophy and social theory held by Thomas Nagel and Ronald Dworkin at the Law School.

Part 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. They describe their project as follows: “In this seminar we will examine recent philosophical work concerning the relevance of evolutionary biology to ethics. Questions to be addressed include: 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? We will begin with some background in the relevant biology and ethics, and then focus our attention on the work of the following authors, each of whom will be visiting 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 are funded with the second half of the 2008 Balzan Prize for Moral Philosophy.

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 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 three years of the project, several Balzan Fellowships will be allocated each year to students coming to the Philosophy Department, either to do an M.A. or 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.

The program of visiting Balzan Fellowships to New York University for graduate students from abroad was set up in the fall of 2008. A Committee in the Philosophy Department sent out requests to a number of philosophers in different countries, asking for nominations of suitable candidates. The nominees were asked to submit CVs, statements of research interests, and samples of written work. A good number of promising applications were received and the following three fellowships for the 2009-2010 academic year have been awarded:

- Camil Golub, a Ph.D. candidate at the University of Bucharest. He is working 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.

- Ana Hulton, a Ph.D. candidate at the University of Buenos Aires. She is working 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 works in the philosophy of mind and the philosophy of cognitive science.

- Stefan Ionescu, a Ph.D. candidate at the Central European University in Budapest. He is working in the philosophy of science, with special reference to the analysis of causation and explanation.

Each of the Balzan Fellows is taking two graduate seminars per semester for credit in the department, and is also participating in the various colloquia and conferences sponsored by the Institute of Philosophy, the Philosophy Department, and the School of Law.

Any publication in scholarly journals resulting from this program will acknowledge the support of the Balzan Foundation through its 2008 Prize in Moral Philosophy awarded to Thomas Nagel.

Statement by the Prizewinner: *Every effort will be made to identify students with the appropriate interests and abilities for whom such a visit would be an opportunity greatly to expand their intellectual horizons.* Thomas Nagel (Rome, 24.11.2006)

Terence Cave

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.

The Balzan Interdisciplinary Seminar: Literature as an Object of Knowledge St John's College, Oxford

Adviser for the General Balzan Committee: Karheinz Stierle

Terence Cave will use 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 will be run 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 will lie 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.

There will be two principal sub-themes: (i) historical approaches to literature as an object, vehicle and instrument of knowledge (with particular reference to the early modern period); (ii) cognitive approaches to literature.

The project will seek to encourage specialised individual research programmes that fall within this perspective, in particular research that illuminates or foregrounds the place of literary study in the interdisciplinary spectrum. It will also organise workshops and discussion groups in which those interdisciplinary issues will be collectively explored and debated with the cooperation of colleagues from non-literary disciplines. The twin themes of knowledge and cognition will provide a focus for discussions. Individual research programmes will be respected, but will also be used as test-cases or illustrations of the broader interdisciplinary issues raised by the project.

The programme will establish a core team of individuals who are committed in the longer term. These will in their turn seek to involve others working in suitable interdisciplinary fields for attendance at workshops and discussion groups, under the general guidance of Terence Cave, who will act as Director. It is anticipated that the project will comprise a Senior Advisory Panel, two Balzan Postdoctoral Research Fellowships, four short-term Balzan Research Lectureships, and a number of discussion groups.

The function of the *Senior Advisory Panel*, which will have an interdisciplinary char-

acter, will be to provide advice on the development of the project and on locating suitable candidates for the various positions it offers and suitable participants in the group activities. Members of the panel will also be invited to participate actively in the project, whether by attending events or delivering an individual Balzan Lecture.

Two postdoctoral *Balzan Postdoctoral Research Fellowships* will be advertised for open competition. The Fellowships will be tenable for 3 years. The Research Fellows will be expected to produce published work of the equivalent of a book-length study over the course of the Fellowship, or (in the case of a monograph) within a period of at most two years after the completion of the project. They will also be expected to assist in the arrangement of discussion groups, workshops and the interdisciplinary colloquium. They will not be permitted to take on duties external to the project (for example teaching duties) except with the agreement of the Director. The Research Fellowships will be held at the St John's College Research Centre in Oxford.

Four *Balzan Research Lectureships* will be offered to younger colleagues holding permanent or semi-permanent academic positions, each to last for up to one semester on a "buy-out" basis at a time that best suits the needs of the post-holder, although it is envisaged that such appointments will be made relatively early in the project's lifetime in order to bind those individuals into its developing activities. The positions will 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 one-day workshop at the end of the period of leave structured around the Lecturer's work. The Research Lecturers will be expected to participate as far as their other duties permit in the other collective activities of the project, in particular the methodological colloquium. The Research Lectureships will normally be held in the Lecturer's home institution.

The Research Lecturers will be expected to use the workshop associated with their period of tenure to build up a *Discussion Group* that will continue to meet occasionally for the remainder of the project period. The Director will also actively seek to locate other suitable younger colleagues, in literary studies or another discipline, who are able and willing to organise further discussion groups; he will provide these with support from the Balzan funds. It is not excluded that some individuals will belong to more than one group.

A *Methodological Colloquium* will be held in the later stages of the project period with the aim of bringing the various participants together in order to discuss methodological points of convergence or bridges between the different disciplines involved. Particular methodological issues will be highlighted to give the discussion coherence, e.g. the constitution of an archive, the relation between empirical and theoretical per-

spectives, the logic and rhetoric that are particular to a given discipline, the limits of transitivity between disciplines. Participation will be limited to those who have already established an active and lasting connection with the project's aims. There will also be a programme of *individual visits and exchange visits*. These will enable younger colleagues to establish appropriate contacts in other universities, with the possibility of reciprocation.

Statement by the Prizewinner: *Literature, I hope you will agree, is not merely a pleasure to be indulged in when one has nothing better to do. Because it embodies the most complex and imaginative uses of human language, it is an indispensable instrument of thought; it provides us with alternative ways of understanding the world and ourselves. I have begun in recent years to explore that cognitive dimension of literature with the help of colleagues in other disciplines – historians of ideas, linguists, philosophers, psychologists, social scientists, also musicologists – and this cluster of concerns will form the basis for the project I intend to launch with the funding the Balzan Foundation has so generously provided. It is a great delight to me that another of this year's prizewinners is one of the world's most distinguished cognitive neuroscientists, a founder of the scientific methodology which is progressively transforming whole swathes of the research landscape, including my own. I therefore have the greatest pleasure in accepting the prize. I hope that, in the implementation of my Balzan research project, I shall be able to justify the trust the Foundation has placed in me.* Terence Cave (Berne, 20.11.2009)

Paolo Rossi Monti

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.

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

Istituto Nazionale di Studi sul Rinascimento, Firenze

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

Paolo Rossi Monti has set aside half of the Balzan Prize for research that will involve seven young scholars who, after writing brilliant theses, have shown their ability to work well and with continuity thanks to fellowships awarded by Italian academic institutions. Paolo Rossi Monti, who will personally follow their research, has contacted each of the young people and their professors, convincing them that, by offering them the possibility of prolonging the period of their research, they will be able to make significant contributions to Italian and international culture.

Professor Paolo Rossi Monti will be 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 University of Geneva, will follow the research on the subject of memory and emotions. We estimate that the Balzan research project will conclude in 2011, with a conference to be held at the Accademia dei Lincei, which will also serve as the place to monitor the projects and let “external” scholars offer an opinion on work in progress. The administration of the fund will be entrusted to the Istituto Nazionale di Studi sul Rinascimento, with headquarters in Florence.

The subject cosmology and physics in the sixteenth and seventeenth centuries will be investigated in greater depth with the following pre-established themes: Olivia Catanorchi (Cosmology and Medicine in the High and Late Renaissance) will study the interrelations between astronomy, cosmology and medicine, and she will dedicate special attention to the work of Cornelio Gemma, who was known by Campanella and Kepler. The research of Francesca Dell’Omodarme (Aspects of Aristotelian Physics in the Paduan Lessons of Pietro Pomponazzi) intends to study Pomponaz-

zi's comments and observations on the argumentation on physics and cosmology in Aristotle's works. Marco Matteoli (On the Mathematical Foundation of Giordano Bruno's Natural Atomism) intends to translate 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. Chiara Petrolini (Science, Philosophy and Politics in the Venice of Paolo Sarpi) plans to study 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 will be related to the cultural background of De la Pirotechnia by Vannuccio Biringuccio. The research of Natacha Fabbri (The Moon in *Fabula, Istoria* and Utopia) intends to identify the main sources (pre-Galileo) defining the Moon as another Earth (Proclus, Macrobius, Simplicius, Plutarch) and to delineate the ways it was articulated by Bruno, Patrizi, Kepler and Wilkins.

On memory and emotions, the following research projects will be dealt with in greater depth, with pre-established themes: Matteo Borri (Arts of Memory in the Age of the Neurosciences) follows 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. Finally, Yamina Oudai Celso is investigating the backgrounds of Freud's theory of emotions (Psychiatry, Anthropology, and Scientific Psychology from Descartes to French Enlightenment: Textual Heritage and Theoretical Influx on Freud's Theory of Emotions).

Statement by the Prizewinner: *All'inizio del secolo scorso i nomi di due italiani, il matematico Federico Enriques e il filosofo Giovanni Vailati, erano noti a tutti coloro che, in Europa e in America, si occupavano di storia della scienza. Ma durante tutta la prima metà del Novecento la storia della scienza – in particolare dopo la diffusione in Italia delle filosofie di Benedetto Croce e di Giovanni Gentile (che si richiamavano ad Hegel e alla tradizione dell'idealismo) – ha avuto nel mio paese una vita stentata e difficile. Nel dopoguerra la situazione si è andata modificando. Oggi sono presenti molti studiosi che hanno scritto saggi e libri importanti e ben noti nel resto del mondo. Alla storia delle scienze si dedicano molti giovani ed esistono istituzioni, come l'Istituto e Museo di Storia della Scienza di Firenze, diretto da Paolo Galluzzi, che sono al centro di molte e importanti iniziative internazionali.* Paolo Rossi Monti (Berne, 20.11.2009)

Physical, Mathematical and Natural
Sciences, and Medicine

Jean-Pierre Changeux

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 stabilisation 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.

Neuronal Organization of the Brain and Cognitive Functions

Institut Pasteur

Adviser for the General Balzan Committee: Nicole Le Douarin

In his research, 2001 Balzan Prizewinner in Cognitive Neurosciences Jean-Pierre Changeux is 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 in a book (Jean-Pierre Changeux and Stuart J. Edelman, *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", 11, June 2010). In this article, 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.

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.

- Han, Z.-Y., Zoli, M., Cardona, A., Bourgeois, J.-P., Changeux, J.-P., and Le Novère, N., *Localization of [3H]-nicotine, [3H]-cytisine, [3H]-epibatidine and [125I]-α-bungarotoxin binding sites in the brain of Macaca Mulatta*, "Journal of Comparative Neurology", 461(1), 2003.

- Maggi, L., Le Magueresse, C., Changeux, J.-P., and Cherubini, E., *Nicotine activates immature "silent" connections in the developing hippocampus*, "Proceedings of the National Academy of Sciences", 100(4), 2003.

- Changeux J.-P., *Clarifying consciousness*, "Nature", 428, 8 April 2004.

- Champtiaux, 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.

- Cordero-Erausquin, M., Pons, S., Faure, P., and Changeux, J.-P., *Nicotine differentially activates inhibitory and excitatory neurons in the dorsal spinal cord*, "Pain", 109:308-318, 2004.

- Cormier, A., Paas, Y., Zini, R., Tillement, J.-P., Lagrue, G., Changeux J.-P., 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.

- Dager, S., Durand, E., Cohen, G., Lagercrantz, H., Changeux, J.-P., Gaultier, C., Gallego, J., *Control of breathing in newborn mice lacking the beta-2 nAChR subunit*, "Acta Physiologica Scandinavica", 182(2), 2004.

- Dehaene, S. and Changeux, J.-P., *Neural mechanisms for access to consciousness*. In *The Cognitive Neurosciences III*, Michael Gazzaniga (ed.), 3rd edition, MIT Press, 2004.

- Grutter, T., Le Novère, N. and Changeux, J.-P., *Rational understanding of nicotinic receptors drug binding*, "Current Topics in Medicinal Chemistry", 4(6), 2004.

- Lèna, C., Popa, D., Grailhe, R., Escourrou, P., Changeux, J.-P., Adrien, J., *Beta2-containing nicotinic receptors contribute to the organization of sleep and regulate putative micro-arousals in mice*, "The Journal of Neuroscience", 24(25), 2004.

- Maggi, L., Sola, E., Minneci, F., Le Magueresse, C., Changeux, J.-P., Cherubini, E., *Persistent decrease in synaptic efficacy induced by nicotine at Schaffer collateral-*

- CA, synapses in the immature rat hippocampus*, “The Journal of Physiology”, 559(3), 2004.
- Mechawar, N., Saghatelhyan, A., Grailhe, R., Scoriels, L., Gheusi, G., Gabellec, M. M., Lledo, P. M. Changeux, J.-P., *Nicotinic receptors regulate the survival of newborn neurons in the adult olfactory bulbo*, “Proceedings of the National Academy of Sciences”, 101(26), 2004.
 - Sallette, J., Bohler, S., Benoit, P., Soudant, M., Pons, S., Le Novère., N., Changeux, J.P., and Corringer, P.J., *An Extracellular Protein Microdomain Controls Up-regulation of Neuronal Nicotinic Acetylcholine Receptors by Nicotine*, “Journal of Biological Chemistry”, Vol. 279, No. 18, 2004.
 - Salmon, A.M., Evrard, A. Damaj, I., Changeux, J.-P., *Reduction of withdrawal signs after chronic nicotine exposure of alpha-calcitonin gene-related peptide knock-out mice*, “Neuroscience Letters”, 360(1-2), 2004.
 - Schütz, B., Mauer, D., Salmon, A.-M., Changeux, J.-P., Zimmer, A., *Analysis of the cellular expression pattern of beta-CGRP in alpha-CGR-deficient mice*, “Journal of Comparative Neurology”, 476(1), 2004.
 - Strohlic, L., Cartaud, A., Mejat, A., Grailhe, R., Schaeffer, L., Changeux, J.-P., Cartaud, J., *14-3-3 γ associates with muscle specific kinase and regulates synaptic gene transcription at vertebrate neuromuscular synapse*, “Proceedings of the National Academy of Sciences”, 101(52), 2004.
 - Changeux, J.-P., *Genes, Brains and Culture from Monkey to Human*; in *From Monkey Brain to Human Brain: A Fyssen Foundation Symposium*, Stanislas Dehaene and Jean-Rene Duhamel (eds.), Bradford Book, 2005.
 - Changeux, J.-P., Edelstein, S.J., *Allosteric Mechanisms of Signal Transduction*, “Science”, Vol. 308, No. 5727, 2005.
 - Cohen, G., Roux, I.-C., Grailhe, R., Malcolm, G., Changeux, J.-P., Lagercrantz, H., *Perinatal exposure to nicotine causes deficits associated with a loss of nicotinic receptor function*, “Proceedings of the National Academy of Sciences”, 102(10), 2005.
 - Dehaene, S. and Changeux, J.-P., *Ongoing Spontaneous Activity Controls Access to Consciousness: a Neuronal Model for Inattentive Blindness*. “PLoS Biology”, Vol. 3, Issue 5, 2005.
 - Gisiger, T., Kerszberg, M., Changeux, J.-P., *Acquisition and Performance of Delayed-response Tasks: a Neural Network Model*, “Cerebral Cortex”, 15(5), 2005.
 - Gotti, C., Moretti, M., Zanardi, A., Gaimarri, A., Champtiaux, N., Changeux, J.-P., Whitaker, P., Clementi, F., Zoli M., *Heterogeneity and Selective Targeting of Neuronal Nicotinic Acetylcholine Receptor (nAChR) Subtypes Expressed on Retinal Afferents of the Superior Colliculus and Lateral Geniculate Nucleus: Identification of a New*

Native nAChR Subtype $\alpha 3\beta 2$ ($\alpha 5$ or $\beta 3$) Enriched in Retinocollicular Afferents, “Molecular Pharmacology”, 68;1162-1171, 2005.

- Grutter, T., Prado de Carvalho, L., Dufresne, V., Taly, A., Fischer, M., Changeux, J.-P., *A chimera encoding the fusion of an acetylcholine-binding protein to an ion channel is stabilized in a state close to the desensitized form of ligand-gated ion channels*, “Comptes Rendu Biologie”, Vol. 328, Issue 3, 2005.

- Mrsic-Flogel, T.D., Hofer, S.B., Creutzfeldt, C., Cloëz-Tayarani, I., Changeux, J.-P., Bonhoeffer, T., Hübener, M., *Altered map of visual space in the superior colliculus of mice lacking early retinal waves*, “The Journal of Neuroscience”, 25(29), 2005.

- Paas, Y., Gibor, G., Grailhe, R., Savatier-Duclert, N., Dufresne, V., Prado de Carvalho, L., Changeux, J.-P., Attali, B., *Pore conformations and gating mechanism of a Cys-loop receptor*, “Proceedings of the National Academy of Sciences”, 102 (44), 2005.

- Sallette, J., Pons, S., Devillers-Thierry, A., Soudant, M., Prado de Carvalho, L., Changeux, J.-P., Corringer, P.-J., *Nicotine Upregulates its Own Receptors Through Enhanced Intracellular Maturation*, “Neuron”, 46:595-607, 2005.

- Skok, M., Grailhe, R., Changeux, J.-P., *Nicotinic receptors regulate B lymphocyte activation and immune response*, “European Journal of Pharmacology”, 517(3), 2005.

- Taly, A., Delarue, M., Grutter, T., Nilges, M., Le Novère, N., Corringer, P.-J., Changeux, J.-P., *Normal mode analysis suggest a quaternary twist model for the nicotinic receptor gating mechanism*, “Biophysical Journal”, 88(6), 2005.

- Gutkin, R., Dehaene, S., Changeux, J.-P., *A neuro-computational hypothesis for nicotine dependence*, “Proceedings of the National Academy of Sciences”, 103(4), 2006.

- Maskos, U., Molles, B.E., Pons, S., Besson, M., Guiard, B.P., Guilloux, J.-P., Evrard, A., Cazala, P., Cormier, A., Mameli-Engvall, M., Dufour, N., Cloëz-Tarayani, I., Bemelmans, A.-P., Mallet, J., Gardier, A.-M., David, V., Faure, P., Granon, S., Changeux, J.-P., *Nicotine reinforcement and cognition restored by targeted expression of nicotinic receptors*, “Nature”, 436(7047), 2005.

- Taly, A., Corringer, J.-P., Grutter, T., Prado de Carvalho, L., Karplus, M., and Changeux, J.-P., *Implications of the quaternary twist allosteric model for the physiology and pathology of nicotinic acetylcholine receptors*, “Proceedings of the National Academy of Sciences”, 103(45), 2006.

- Changeux, J.-P., and Michel, C., *Mechanisms of Neural Integration at the Brain-scale Level*; in *Microcircuits: the interface between Neurons and Global Brain Function*, Sten Grillner and Ann M. Graybiel (eds.), MIT Press, 2006.

- Mameli Engvall, M., Evrard, A., Pons, S., Maskos, U., Svensson, T.H., Changeux, J.-P., Faure, P., *Hierarchical control of dopamine neuron-firing patterns by nicotinic receptors*, “Neuron”, Vol. 50, Issue 6, 2006.

Statement by the Prizewinner: *J'aimerais souligner, pour conclure, qu'une recherche aussi difficile et contraignante ne peut être le fait d'un homme seul. Ma gratitude est immense pour l'Institut Pasteur, le Collège de France, le CNRS, l'Association Française contre la myopathie, pour tous ceux dont le soutien matériel a, tout simplement, permis à ce travail d'être accompli. Mais, la recherche est d'abord une aventure humaine, une œuvre collective. Je ne puis mentionner ici tous les étudiants, postdoctorants, collègues qui ont participé au travail pour lequel je reçois ce Prix. Qu'ils sachent que c'est aussi à eux que je le dois. Je suis particulièrement reconnaissant à la Fondation Balzan d'avoir reconnu ce rôle en aidant ces jeunes dans la recherche future. L'avenir leur appartient. Le champ de la neuroscience cognitive est immense, comme notre volonté de progresser dans sa compréhension. Jean Pierre Changeux (Berne, 09.11.2001)*

Claude Lorius

2001 Balzan Prize for Climatology

For his outstanding activities and innovative results in the field of polar paleoclimatology.

Research on the Mechanisms Governing the Climate System

CNRS Grenoble

Adviser for the General Balzan Committee: Enric Banda

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 climate by analyzing polar ice, but also that of the composition of the atmosphere, starting from the analyses of the 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.

Publications (in chronological order):

- N. Caillon, J. Jouzel, J. P. Severinghaus, J. Chappellaz, and T. Blunier, *A novel method to study the phase relationship between Antarctic and Greenland climate*, “Geophysical Research Letters”, vol. 30 (17), 1899, 2003.
- N. Caillon, J. P. Severinghaus, J. Jouzel, J.-M. Barnola, J. Kang, V.Y. Lipenkov, *Timing of Atmospheric CO₂ and Antarctic Temperature Changes Across Termination III*, “Science”, 299, 2003.
- A. Landais, J. Chappellaz, M. Delmotte, J. Jouzel, C. Bourg, T. Blunier, N. Caillon, S. Cherrier, B. Malaizé, V. Masson-Delmotte, D. Raynaud, and J.P. Steffensen, *A tentative reconstruction of the last interglacial and glacial inception based on new gas measurements in the Greenland Ice Core Project (GRIP) ice core*. “Journal of Geophysical Research”, Vol. 108, No. D18, 4563, 2003.
- B. Stenni, J. Jouzel, V. Masson-Delmotte, E. Castellano, O. Cattani, S. Falourd, S.J. Johnsen, A. Longinelli, R. Röthlisberger, J.P. Sachs, E. Selmo, R. Souchez, J.P. Steffensen and R. Udisti, *A high resolution site and source late glacial temperature record derived from the EPICA Dome C isotope record*. “Earth and Planetary Science Letters”, 217, 183-195, 2003.
- Raynaud, D., et al., *Marine Isotope Stage (MIS) 11 in the Vostok ice core: CO₂ Forcing and Stability of East Antarctica*, in *Earth’s Climate and Orbital Eccentricity: The*

Marine Isotope Stage 11 Question, edited by A. W. Droxler, et al., pp. 27-40, American Geophysical Union, 2003.

- North Greenland Ice-core project (NorthGRIP), K.K.Andersen, J.-M.Barnola, M.Bigler, P.Biscaye, N.Caillon, J.Chappellaz, H.B.Clausen, D.Dahl-Jensen, H.Fischer, J.Flückiger, Y.Fujii, K.Grønvold, N.S.Gundestrup, M.Hansson, C.Huber, C.S.Hvidberg, S.J.Johnsen, U.Johnson, J.Jouzel, S.Kipfstuhl, A.Landais, M.Leuenberger, R.Lorrain, V.Masson-Delmotte, H.Miller, T.Popp, D.Raynaud, R.Rothlisberger, U.Ruth, D.Samyn, J.Schwander, H.Shoji, M.-L.Siggard-Andersen, J.P.Steffensen, T.Stocker, A.E.Sveinbjörnsdóttir, A.Svensson, J.-L.Tison, Th.Thorsteinsso, O.Watanabe, F.Wilhelms and J.White, *High resolution climate record of the Northern Hemisphere reaching into the last Interglacial period*. "Nature", 431, 147-151, 2004.
- A. Landais, N. Caillon, J.P. Severinghaus, J.M. Barnola, C. Goujon, J. Jouzel and V. Masson-Delmotte. *Analyse isotopique à haute précision de l'air piégé dans la glace pour quantifier les variations de température*, «C.R.A.S Géosciences », 336, 963-970, 2004.
- A. Landais, N. Caillon, C. Goujon, A. Grachev, J.M. Barnola, J. Chappellaz, J. Jouzel, V. Masson-Delmotte and M. Leuenberger, *Quantification of rapid temperature change during DO event 12 and phasing with methane inferred from air isotopic measurements*. "Earth and Planetary Science Letters", 225, 221-232, 2004.
- A. Landais, J.-M. Barnola, V. Masson-Delmotte, J. Jouzel, J. Chappellaz, N. Caillon, C. Huber, M. Leuenberger and S. Johnsen, *A continuous record of temperature evolution over a whole sequence of Dansgaard-Oeschger during Marine Isotopic Stage 4 (76 to 62 kyr BP)*, "Geophysical Research Letters", 31, 2004.
- A. Landais, J.P. Steffensen, N. Caillon, J. Jouzel and V. Masson-Delmotte, *Evidence for stratigraphic distortion in the Greenland Ice Core Project (GRIP) ice core during Event 5e1 (120 kyr BP) from gas isotopes*, "Geophysical Research Letters", 109, D06103, 2004.
- Bulat, S., Alekhina, I.A, Blot, M., Petit, J.R. de Angelis, M., Wagenbach, D, Lipenkov, V.Y. Vasilyeva, L. Wloch, D., Raynaud D. Lukin, V.V., *DNA signature of thermophilic bacteria from the aged accretion ice of Lake Vostok: implications for searching life in extreme icy environments*, "Int. J. of Astrobiology", 3, 1, 1-12, 2004.
- De Angelis M., Petit J.-R., Savarino J., Souchez R., and Thiemens M.H, *Contribution of an ancient evaporitic-type reservoir to lake Vostok chemistry*, "Earth Planet. Science Lett", 222, 751-765, 2004.
- Delmonte, B., I. Basile-Doelsch, J.R. Petit, V. Maggi, -R.M. Revel, A. Michard, E. Jagoutz, and F.E. Grousset, *Comparing the Epica and Vostok dust records during the*

- last 220,000 years: stratigraphical correlation and provenance in glacial periods*, “Earth Science Reviews”, 66, 63-87, 2004.
- Delmonte, B., Petit, J.R., Andersen K.K., Basile-Doelsch, I., Maggi, Lipenkov, V.Ya, *Opposite regional atmospheric circulation changes over east Antarctica during the last climatic transition evidenced by dust size distributions changes*, “Climate Dynamics”, 23:427-438, 2004.
 - Delmonte, B., J.R. Petit, I. Basile-Doelsch, V. Ya, Lipenkov, V. Maggi, *First characterization and dating of East Antarctic bedrock inclusions from subglacial Lake Vostok accreted ice*, “Environmental Chemistry”, 1, 90-94, 2004.
 - Delmonte, B., I. Basile-Doelsch, J.R. Petit, V. Maggi, R.M. Revel, A. Michard, E. Jagoutz, and F.E. Grousset, *Comparing the Epica and Vostok dust records during the last 220,000 years: stratigraphical correlation and origin in glacial periods*, “Earth Science Reviews”, 66, 63-87, 2004.
 - EPICA Community Members: *Eight Glacial cycles from an Antarctic ice core*, “Nature”, 429, 623-628, 2004.
 - Petit J.R., *Geophysical, geochemical, glaciological and energy balance model constraints to the Lake Vostok*, “Mater. Glyatsiol. Issled.”, 97, 91-100, 2004.
-
- A. Landais, J. Jouzel, V. Masson-Delmotte and N. Caillon, *The temperature evolution over rapid climatic events in Greenland: a method based on air isotopic measurements*, “CRAS”, 377, 947 - 956, 2005.
 - V. Masson-Delmotte, J. Jouzel, A. Landais, M. Stiévenard, S. J. Johnsen, J. W. C. White, M. Werner, A. Sveinbjornsdottir, K. Fuhrer, *GRIP deuterium excess reveals rapid and orbital changes of Greenland moisture origin*, “Science”, 309, 118-121, 2005.
 - Alekhina I.A., J.R. Petit, V.V. Lukin, N.I. Vasiliev, and S.A. Bulat, *Estimate for bacterial contents of 5G-1 borehole drilling fluid, Vostok station, Antarctica*. “Mater. Glyatsiol. Issled”. [Data Glaciol. Stud.] 98: 109-117, 2005.
 - Delmonte, B, Petit, J.R., Krinner, G., Maggi, V., Jouzel, J. and Udisti R., *Ice core evidence for secular variability and 200-year dipolar oscillations in atmospheric circulation over East Antarctica during the Holocene*, “Climate Dynamics”, 2005.
 - Gabrielli, P., Planchon, F.A.M., Hong,S., Lee, K.H., Barbante, C., Ferrari, C.P., Petit J.R., Lipenkov,V., Cescon, P., Boutron, C.F., *Trace elements in Vostok Antarctic ice during the last four climate cycles*, “Earth and Planetary Science Letters”, 234, 249-259, 2005.
 - Hong S., Boutron C.F., Barbante C., Do Hur S., Lee K., Gabrielli P., Capodaglio G., Ferrari C.P., Turetta C., Petit J.R., Lipenkov V.Y., *Glacial-interglacial changes in*

the occurrence of Pb, Cd, Cu and Zn in Vostok Antarctic ice from 240,000 to 410,000 years BP, "J. Environ Monit.", Dec. 7 (12):1326-31, 2005.

- Raynaud, D., Barnola, J.-M., Souchez, R., Lorrain, R., Petit, J.-R., Duval, P. and Lipenkov, V., *The record for marine isotopic stage 11*, "Nature", 436, 39-40, 2005.

- Siegenthaler, U., Stocker, T. F., Monnin, E., Lüthi, D., Schwander, J., Stauffer, B., Raynaud, D., Barnola, J.-M., Fischer, H., Masson-Delmotte, V., and Jouzel, J., *Stable Carbon Cycle-Climate Relationship During the Late Pleistocene*, "Science", 310, 1313-1317, 2005.

- C. Huber, M. Leuenberger, R. Spahni, J. Flückiger, J. Schwander, T.F. Stocker, S. Johnsen, A. Landais and J. Jouzel, *Isotope Calibrated Greenland Temperature Record over Marine Isotope Stage 3 and its Relation to CH₄*, "Earth and Planetary Science Letters", 243 (3-4): 504-519, 2006.

- Landais A, Masson-Delmotte V, Jouzel J, et al., *The glacial inception as recorded in the NorthGRIP Greenland ice core: timing, structure and associated abrupt temperature changes*, "Climate Dynamics", 2, 26 (2-3): 273-284, 2006.

- A. Landais, J.M. Barnola, K. Kawamura, N. Caillon, M. Delmotte, G. Dreyfus, J. Jouzel, V. Masson-Delmotte, B. Minster, J. Freitag, M. Leuenberger, C. Huber, J. Schwander, D. Etheridge, V. Morgan and T. Van Ommen, *Air ¹⁵N in modern firns and glacial-interglacial ice: a model-data mismatch during glacial periods in Antarctica?* "Quat.Sci.Rev.", 25 (1-2): 49-62, 2006.

- Morin, S., and J. Savarino, *Une nouvelle application des isotopes stables de l'oxygène*, « L'actualité chimique », 303, 14-18, 2006.

- EPICA Community Members, *One-to-one coupling of polar climate variability*, "Nature", 444, 195-198, 2006.

- Gaspari V., C. Barbante, G. Cozzi, P. Cescon, C.F. Boutron, P. Gabrielli, G. Capodaglio, C. Ferrari, J.R. Petit and B. Delmonte, *Atmospheric iron fluxes over the last deglaciation: climatic implications*, "Geophysical Research Letters", 33, 2006.

- Lavire, C., P. Normand, I. Alekhina, S. Bulat, D. Prieur, J.L. Birrien, P. Fournier, C. Hänni, and Petit, J.R., *Presence of Hydrogenophylus thermoluteolus DNA in accretion ice in the subglacial Lake Vostok, Antarctica, assessed using rrs, cbb and hox*, "Environmental Microbiology", 8 (12), 2106-2114, 2006.

- Baroni, M., M. H. Thiemens, R. J. Delmas, and J. Savarino, *Mass-independent sulfur isotopic compositions in stratospheric volcanic eruptions*, "Science", 315, 84-87, 2007.

- Morin, S., J. Savarino, S. Bekki, A. Cavender, P. B. Shepson, and J. W. Bottenheim, *Major influence of BrO on the NO_x and nitrate budgets in the Arctic spring, inferred from $\Delta 17O(NO_3^-)$ measurements during ozone depletion events*, “*Environ. Chem.*”, 4, 238-241, 2007.
- Morin, S., J. Savarino, S. Bekki, S. Gong, and J. W. Bottenheim, *Signature of Arctic surface ozone depletion events in the isotope anomaly ($\Delta 17O$) of atmospheric nitrate*, “*Atmospheric Chemistry and Physics*”, 7, 1451-1469, 2007.
- Savarino, J., J. Kaiser, S. Morin, D. M. Sigman, and M. H. Thiemens, *Nitrogen and oxygen isotopic constraints on the origin of atmospheric nitrate in coastal Antarctica*, “*Atmospheric Chemistry and Physics*”, 7, 1925-1945, 2007.
- G. Dreyfus, F. Parrenin, B. Lemieux-Dudon, G. Durand, V. Masson-Delmotte, J. Jouzel, J.M. Barnola, L. Panno, R. Spahni, A. Tisserand, U. Siegenthaler, M. Leuenberger, *Anomalous flow below 2700 m in the EPICA Dome C ice core detected using $d18O$ of atmospheric oxygen measurements*, « *Climate of the Past* », Special issue (EPICA ice cores age scales), 3, 341-353, 2007.
- F. Parrenin, J.M. Barnola, J. Beer, T. Blunier, E. Castellano, J. Chappellaz, G. Dreyfus, H. Fischer, S. Fujita, J. Jouzel, K. Kawamura, B. Lemieux-Dudon, L. Loulergue, V. Masson-Delmotte, B. Narcisi, J.R. Petit, G. Raisbeck, D. Raynaud, U. Ruth, J. Schwander, *The EDC3 chronology of the EPICA Dome C ice core*, « *Climate of the Past* », Special issue (EPICA ice cores age scales), 3, 485-497, 2007.
- Landais A., Masson-Delmotte V., Nebout N.C., et al., *Millennial scale variations of the isotopic composition of atmospheric oxygen over Marine Isotopic Stage 4*, “*Earth and Planetary Science Letters*”, 258 (1-2): 101-113, 2007.
- J. Jouzel, V. Masson-Delmotte, O. Cattani, G. Dreyfus, S. Falourd, G. Hoffmann, B. Minster, J. Nouet, J. M. Barnola, J. Chappellaz, H. Fischer, J. C. Gallet, S. Johnsen, M. Leuenberger, L. Loulergue, D. Luethi, H. Oerter, F. Parrenin, G. Raisbeck, D. Raynaud, A. Schilt, J. Schwander, E. Selmo, R. Souchez, R. Spahni, B. Stauffer, J. P. Steffensen, B. Stenni, T. F. Stocker, J. L. Tison, M. Werner, E. W. Wolff, *Orbital and Millennial Antarctic Climate Variability over the Past 800,000 Years*, “*Science*”, 317, 2007.
- Baroni, M., M. H. Thiemens, R. J. Delmas, and J. Savarino, *Mass-independent sulfur isotopic compositions in stratospheric volcanic eruptions*, “*Science*”, 315, 2007.
- J. Jouzel, V. Masson-Delmotte, O. Cattani, G. Dreyfus, S. Falourd, G. Hoffmann, J. Nouet, S. J. Johnsen, M. Leuenberger, H. Oerter, F. Parrenin, G. Raisbeck, J. Schwander, R. Souchez, E. Selmo, B. Stenni, T. Stocker, M. Werner, *Orbital and millennial antarctic climate variability over the last 800,000 years*, “*Science*”, 317, 793-796, 2007.

- Alekhina, I., D. Marie, J.R. Petit, V.V. Lukin, V.N. Zubkov, and S. Bulat, *Molecular analysis of bacterial diversity in kerosene-based drilling fluid from the deep ice borehole at Vostok, East Antarctica*, "FEMS Microbiol. Ecol.", 59, 289-299, 2007.
- Xu, J., S. Hou, J. Ren, and J.R., *Petit Insoluble dust in a new core from Dome Argus, central Antarctica*, "J. Glaciol.", 53 (180), 154-155, 2007.
- Delmonte B., P.S. Andersson, M. Hansson, H. Schöberg, J.R. Petit, I. Basile-Doelsch, V. Maggi, *Aeolian dust in East Antarctica (EPICA-Dome C and Vostok): provenance during glacial ages over the last 800 kyr*, "Geophys. Res. Lett", 2008.
- Lambert F., B. Delmonte, J. R. Petit, M. Bigler, P. R. Kaufmann, M. A. Hutterli, T. F. Stocker, U. Ruth, J. P. Steffensen, V. Maggi, *Dust-climate couplings over the past 800,000 years from the EPICA Dome C ice core*, "Nature", 2008.
- Laurantou, A., J.V. Lavric, P. Köhler, J.-M. Barnola, D. Paillard, E. Michel, D. Raynaud, and J. Chappellaz, *Constraint of the CO₂ rise by new atmospheric carbon isotopic measurements during the last deglaciation*, "Global Biogeochemical Cycles", 2010, in press.
- Delmonte B., R.J. Delmas, J-R. Petit, *Comments to "Dust Provenance in Antarctic Ice during Glacial Periods: from where in Southern South America?" by D.M. Gaiero and implication on the origin of dust in East Antarctica during recent interglacial periods*, "Geophys. Res. Lett", in press.

Statement by the Prizewinner: *Je vous suis très reconnaissant pour l'attribution de ce prix; bien sûr à titre personnel mais aussi au nom de mes collègues et des jeunes qui développeront ces recherches grâce à l'initiative de la Fondation de soutenir également des projets innovants impliquant de jeunes chercheurs. Et puis, à travers cet honneur dont le label est climatologie, vous témoignez de votre sensibilité au comportement de l'Homme par rapport à son environnement. Chacun sait que le nécessaire développement économique s'accompagne d'une dégradation de cet environnement. C'est ce lien qu'il faut briser et, si vous me permettez « une timide suggestion », la Fondation Balzan pourrait s'intéresser à un thème tel que « Environnement et développement durable » . Ce thème répondrait sans doute au vœu d'Eugenio Balzan d'avoir un projet pour l'humanité. Claude Lorius (Berne, 09.11.2001)*

Walter Gehring

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.

Genomic Analysis of Eye Development

Biozentrum, Universität Basel

Adviser for the General Balzan Committee: Nicole Le Douarin

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, 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 the 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 Institute of Ophthalmologic Research, in Sion, she has also 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), thereby fulfilling the main aim of the International Balzan Prize Foundation – to promote science and culture around the world.

Dedicated website: <http://eyes-on-chips.webiro.ch>

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., 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.

Statements by the Prizewinner and by Lydia Michaut:

I would like to use the funds of the Prize to carry out an ambitious project to apply our knowledge obtained in basic science to the prevention of retinal degeneration in elderly people. Walter Gehring (Rome, 13.11.2002)

The financial support of the Balzan Prize to Walter Gehring and Lydia Michaut is acknowledged on the Eyebase (<http://eyes-on-chips.webiro.ch/>), which also provides a direct link to the International Balzan Foundation internet site, hence promoting awareness of the Balzan Prize among the scientific community. In summary, the Balzan Prize has been invested successfully in a promising young investigator to enter an academic career in biomedical research. Her scientific progress has been quite substantial and she has also contributed to the fruitful collaboration between basic biologists and clinical ophthalmologists. Walter Gehring (2007)

During the larval stage, 25 percent of the genes activated for eye development are used to regulate other genes. You could say that they initiate the next stage in eye development. During the pupal stage, most of the genes are used to control the creation of the eye structure and, when the insect is fully grown, gene activity is very definitely geared towards receiving and transmitting light stimuli. Lydia Michaut (2008)

Xavier Le Pichon

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.

A Geodynamic Research Team in Aix-en-Provence

Collège de France

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

The research team of Le Pichon moved to the University Paul Cézanne of Aix-en-Provence to install a new arm of 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. Young researchers who benefited in part from the Balzan financing have been especially active in some of the projects. 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 concerns *the tectonics of the Western Gulf of Mexico* and is 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”, co-published with the American Association of Petroleum Geology (*Bulletin de la Société Géologique de France*, 179, 2, 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 concerns *the geodynamics of the Provence basin*. It will also be published as a special issue of the Bulletin de la Société Géologique de France in 2010. It is 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 are 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 there 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.

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.
- Nouze, H., P. Henry, M. Noble, V. Martin, and G. Pascal, *Large gas hydrate accumulations on the eastern Nankai Trough inferred from new high-resolution 2-D seismic data*, “Geophysical Research Letters”, 31, L13308, 2004.
- Kreemer, C. and Chamot-Rooke, N., *Contemporary kinematics of the southern Aegean and the Mediterranean Ridge*, “Geophysical Journal International”, 157, 1377-1392, 2004.
- Kreemer C., Chamot-Rooke N., and Le Pichon X, *Constraints on the evolution and vertical coherency of deformation in the Northern Aegean from a comparison of geodetic, geologic, and seismologic data*, “Earth and Planetary Science Letters”, 225, 329-346, 2004.
- Loevenbruck, A., Cattin, R., Le Pichon, X., Dominguez, S. and Michel, R., *Co-seismic slip resolution and post-seismic relaxation time of the 1999 Chi-Chi earthquake as constrained by geological observations, geodetic measurements and seismicity*, “Geophysical Journal International”, 158, 310-326, 2004.
- Nielsen, C., Chamot-Rooke, N., Rangin, C., and The ANDAMAN Cruise Team, *From partial to full strain partitioning along the Indo-Burmese hyper-oblique subduction*, “Marine Geology”, 209, 1-4, 303-327, 2004.
- Rangin, C., Le Pichon, X., Demirbag, E. and Imren, C., *Strain localisation in the sea of Marmara. Propagation of the North Anatolian Fault in a narrow inactive pull-apart*, “Tectonics” 23(2), TC2014, 2004.
- Le Pichon, X., Kreemer, C., and Chamot-Rooke, N., *Asymmetry in elastic properties and the evolution of large continental strike-slip faults*, “Journal of Geophysical Research”, 110, B03405, 2005.
- Sengor, C., Tuyusuz, O., Imren, C., Sakin, M., Eyidogan, H., Gorur, N., Le Pichon, X., and Rangin, C., *The North Anatolian Fault: A new look*, “Annual Review of Earth and Planetary Sciences”, Volume 33, 37-112, 2005.
- Bousquet, R., Goffé, R., Le Pichon, X., de Capitani, C., Chopin, C. and Henry, P., *Comment of “Subduction Factory: 1. Theoretical mineralogy, densities, seismic wave speeds, and H₂O contents” by Bradley R. Hacker, Geoffrey A. Abers, and Simon M. Peacock*, “Journal of Geophysical Research”, 110, B02206, 2005.

- Pubellier, M., Rangin, C., Le Pichon, X. and Dotsea Working Group, *DOTSEA. Deep offshore tectonics in South East Asia*, « Mémoire de la Société Géologique de France », n°176, 2005.
- Chamot-Rooke, N., Rangin, C., Le Pichon, X. and Dotmed working group, *DOTMED. A synthesis of deep marine data in the Eastern Mediterranean*, Société Géologique de France et American Association of Petroleum Geologists, « Mémoire de la Société Géologique de France », n°177, 2005.
- Le Pichon, X., *Active margins*, in *The establishment of the outer limits of the continental shelf beyond 200 nautical miles. Its international circumstances and its scientific aspects*, Ocean Policy Research Foundation (Editor), pp. 153-165, Tokyo, Japan, 2007.
- Sibuet, J.-C., Rangin, C., Le Pichon, X., Singh, S., Cattaneo, A., Graindorge, D., Klingelhoefer, F., Lin, J.-Y., Malod, J., Maury, T., Schneider, J.-L., Sultan, N., Umler, M., Yamaguchi, H., and the Sumatra Aftershocks Team, *26th December 2004 Great Sumatra-Andaman Earthquake: co-seismic and post-seismic motions in northern Sumatra*. "Earth Planetary Science Letters", 263, 88-103, 2007.
- Special Issue of the « Bulletin de la Société Géologique de France », 179, 2, 2008 : Rangin, C., Le Pichon, X., Martinez-Reyes, J., Aranda-Garcia, M., *Gravity Tectonics and Plate Motions: The western margin of the Gulf of Mexico, Introduction*; Flotté, N., Martinez-Reyes, J., Rangin, C., Le Pichon, X., Husson, L. and Tardy, M., *The Rio Bravo Fault, a major late Oligocene left-lateral shear zone*; Husson, L., Henry, P. and Le Pichon, X., *Thermal regime of the NW shelf of the Gulf of Mexico. Part A: Thermal and pressure fields*; Husson, L., Le Pichon, X., Henry, P., Flotté, N., and Rangin, C., *Thermal regime of the NW shelf of the Gulf of Mexico. Part B: Heat Flow*; Rangin, C., Le Pichon, X., Flotté, N. and Husson, L., *Cenozoic gravity tectonics in the northern Gulf of Mexico induced by crustal extension: a new interpretation of multichannel seismic data*; Le Roy, C., Rangin, C., Le Pichon, X., Nguyen Thi Ngoc, H., Andréani, L., and Aranda-Garcia, M., *Neogene crustal shear zone along the western Gulf of Mexico margin and its implications for gravity sliding processes: Evidences from 2D and 3D multichannel seismic data*; Andréani, L., Rangin, C., Martinez-Reyes, J., Le Roy, C., Aranda-Garcia, M., Le Pichon, X., and Peterson-Rodriguez, R., *The Neogene Veracruz Fault: evidences for left-lateral slip along the Southern Mexico Block*; Andréani, L., Le Pichon, X., Rangin, C., and Martinez-Reyes, J., *The Southern Mexico Block: Main boundaries and new estimation for its Quaternary motion*. Volume 6 of the « Bulletin de la Société Géologique de France », in press, 2010; Le Pichon, X., and Rangin, C. *The Southeast Basin and the geodynamic evolution of South-East France: importance of gravity tectonics*; Rangin, C., Le Pichon, X., Hamon, Y., and

Loget, N., *Gravity tectonics in the Southeast Provence basin: a field work approach*; Lin, J.Y., Le Pichon, X., Rangin, C., and Amon, Y., *3-D microseismicity relocalisation from the IRSN seismic network in the Moyenne Durance region*; Andréani, L., Loget, N., Rangin, C., and Le Pichon, X., *Structural Constraints on the Southern Provence Thrust Belt (France): Evidences for a Late Eocene Shortening Linked to the Corsica-Sardinia Subduction*.

Statements by the Prizewinner:

Une caractéristique remarquable du Prix Balzan est l'encouragement financier donné aux jeunes chercheurs. Mon souci est de laisser la possibilité d'aller plus loin à ceux qui font équipe avec moi dans notre laboratoire. Grâce au Prix Balzan, cela pourra se faire. Mesdames, Messieurs les membres du jury, je vous en remercie tout spécialement, en leur nom comme au mien. Xavier Le Pichon (Rome, 13.11.2002)

The team of my laboratory moved to the University Paul Cézanne of Aix-en-Provence to install a new antenna of Collège de France there in 2003. Thus the money coming from Balzan Prize came at a critical time for us and was of great help. The second part of the Prize was used in part to finance new scientific equipment (a system to visualize the seismic reflection data, a system to process images, a SIG and a rapid computer system). In addition, it was used to complement post doc's salaries and to finance geological field work. Xavier Le Pichon (2008)

Reinhard Genzel

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.

Cosmic Formation, Evolution of Galaxies and Massive Black Holes

Max-Planck-Institut für extraterrestrische Physik (MPE)

University of California Berkeley

Adviser for the General Balzan Committee: Per Olof Lindblad

The detailed study of stars' motion by Genzel's group shows that the Milky Way, our galactic centre, contains a central black hole which is a few million times as massive as the Sun. This is arguably the best evidence for the existence of black holes. It has also recently become clear that most massive black holes have formed early in the evolution of the universe, and that their evolution was intimately related to that of the galaxies in which they are embedded. Genzel's project supported by Balzan funds was in fact aimed at exploring how this connection came about, what physical processes were involved, when the black hole/galaxy mass relationship was established.

The main highlight of the research supported in part by the Balzan funds has been a new major effort, using the MPE-developed SINFONI near-infrared integral field spectrometer at the ESO-VLT (Very Large Telescope of the European Southern Observatory in Chile) for the first-ever survey of the kinematics of massive star-forming galaxies at redshift ~ 2 , approximately 3 billion years after the Big Bang. This groundbreaking survey, called SINS (Spectroscopic Imaging survey in the Near-infrared with SINFONI), has been highly successful and has given key insights into the evolution of star-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 collaborators in Israel and California, have 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.

The Balzan funds have 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 become the leading scientist of the SINS survey. Her outstanding work has attracted world-wide attention. She 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 Prof. Amiel Sternberg has also started active work on this project. The seed funding by Balzan led to the award of prestigious DIP funding (German-Israeli Project) by the German Science Foundation. The DIP funding allows MPE-Israel collaboration to include the theoretical group of Prof. Avishai Dekel at Hebrew University (Jerusalem). Balzan funding also supports 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 spends part of her time at Berkeley, and part at MPE.

Publications:

- Bouché, N. , et al., *The Impact of cold gas accretion above a mass floor on galaxy scaling relations*, “The Astrophysical Journal” (submitted).
- 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.

- Shapiro, K.L., et al., *Kinometry of SINS high-redshift star-forming galaxies: Distinguishing rotating disks from major mergers*, "The Astrophysical Journal", 682, 231-, 2008.
- Shapiro, K.L., et al., *The SINS Survey: Broad emission lines in high-redshift star-forming galaxies*, "The Astrophysical Journal", 701, 955-963, 2009.

Statements by the Prizewinner and by Natascha Förster Schreiber:

The future thus appears bright. I hope that my colleagues and I can continue to play an active role in this adventure. The support of the Balzan Prize will be an important foundation and stimulus for our work. Reinhard Genzel (Berne, 07.11.2003)

We have been able, for the first time, to obtain well resolved, two dimensional images of the gas motions in distant star-forming galaxies, whose light has travelled more than 11 billion years to the Earth. Reinhard Genzel (2006)

This very ambitious and unique survey 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; Bouché et al., 2007, 2009). Reinhard Genzel (2009)

Our results showed convincingly for the first time that very large and massive rotating disk galaxies like the Milky Way did exist as early as 3 billion years after the Big Bang. The key implication is that these galaxies must have formed very rapidly and mostly through fairly smooth accretion mechanisms. This was an unexpected discovery and represented a major breakthrough in the field of galaxy evolution. Natascha Förster Schreiber (2009)

Wen-Hsiung Li

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.

Evolution of Gene Regulation and Regulatory Modules in Yeast The University of Chicago

Adviser for the General Balzan Committee: John Krebs

The purpose of Li's project is to study how the regulation of yeast genes has evolved over time. However, instead of looking at one gene at one time, Li's group has looked at a group of genes, or regulatory module, that are subject to the same or similar regulation at the same time. The fruit of this research is the following two publications:

- A. Prachumwat and W.-H. Li. (2006) *Protein Function, Connectivity, and Duplicability in Yeast*. *Mol. Biol. Evol.*, 23:30-39. Summary: 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, we first examined whether there is a correlation between the age and connectivity of yeast proteins. A steady increase in connectivity with protein age is observed for yeast proteins except for those that can be traced back to bacteria. Second, we investigated whether protein connectivity and duplicability vary with gene function. We found 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, we found a negative correlation between protein connectivity and duplicability.

- 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. Summary: Gene duplication produces an extra copy that, free to evolve in function, is the primary source of genetic novelties. The re-

searchers involved found strong support for the view 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.

An on-going project on Evolution of Yeast Non-Fermentative Regulatory Network has also been started in order to (1) identify the major genes that control the transition from fermentative to non-fermentative growth (i.e., key regulators) and also their downstream genes, and (2) study how these genes and their regulatory pathways have evolved.

Further publication:

- Li Wen-Hsiung, Chang Ya-Wen, Liu Fu-Guo Robert, Yu Ning, Sung Huang-Mo, Yang Peggy Wang Daryi, Huang Chih-Jen, Shih Ming-Che (2008), *Roles of cis- and trans-changes in the regulatory evolution of genes in the gluconeogenic pathway in yeast*, Mol. Biol. Evol. 25(9).

Statement by the Prizewinner: *I tremendously enjoy doing science and find it a fulfilling life. The Balzan Prize gives me great encouragement and financial support for pursuing my interests further.* Wen-Hsiung Li (Berne, 07.11.2003)

Pierre Deligne

2004 Balzan Prize for Mathematics

For major contributions to several important domains of mathematics (like algebraic geometry, algebraic and for analytic number theory, group theory, topology, 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).

Pierre Deligne Contest

Independent University Moscow

Adviser for the General Balzan Committee: Jacques Tits

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

Among the rules governing the contest, the following can be mentioned:

- Any person 35 or under who has a Ph.D. in mathematics and lives in Russia, Ukraine or Belarus is eligible for the competition.
- Competitors must provide a research statement, and grant recipients must present an annual report with a summary of the current year's achievements and their plans for the forthcoming year.
- All papers submitted by grant recipients during the grant period should mention partial funding from P. Deligne's 2004 Balzan Prize in Mathematics.

The Jury consists of two Co-Chairmen, two Vice-Chairmen, two scientific secretaries and numerous experts. The Jury members are: Pierre Deligne (Co-Chairman), Victor Vassiliev (Co-Chairman), Boris Feigin (Vice-Chairman), Yuliy Ilyashenko (Vice-Chairman), Mikhail Agranovich, Valeriy 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 (5) in De-

ember 2005; five (5) in 2006; five (5) in 2007; and two (2) in 2008. Since the grants are for three years, those awarded in 2008 will continue until the end of 2011.

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).

Funds were used to finance 17 stipends. However, Sergei Shadrin left Russia to take up a position at the University of Zurich 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. Taking into account future payments, the fund of 2004 expired. However, Pierre Deligne decided to prolong the contest for the year 2009.

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

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

Main publications:

Kolesnikov, P.

- *Identities of conformal algebras and pseudoalgebras*, Comm. Algebra 34 (2006), no. 6, 1965–1979.

- *On the Wedderburn principal theorem in conformal algebras*, J. Algebra and Its Appl., 6 (2007), no. 1, 119–134.

- *Associative algebras related to conformal algebras*, Applied Categorical Structures 16 (2008), no. 1-2, 167–181.

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

- *On Irreducible subalgebras of matrix Weyl algebras*, in: *Advances in Algebra and Combinatorics*, K.P. Shum et al. (Eds.) World Scientific Publishing Co., Hong Kong,

2008. 205–217.

- *On irreducible algebras of conformal endomorphisms over a linear algebraic group*, *Sovrem. Mat. Prilozh T60* (2008), 42–56.

- *Conformal Algebras in The Context of Linear Algebraic Groups*, in: *Generalized Lie Theory in Mathematics, Physics and Beyond*, S. Silvestrov et al. (Eds.), Springer, (2009), 235–246.

Kuznetsov, A.

- *Hyperplane sections and derived categories*, *Izvestiya RAN: Ser. Mat.* 70:3 (2006) p. 23–128 (in Russian); translation in *Izvestiya: Mathematics* 70:3 (2006) p. 447–547.

- *Homological projective duality*, *Publ. Math. IHES*, 105, n. 1 (2007), 157–220.

- *Quiver varieties and Hilbert schemes*, *Moscow Mathematical Journal*, Volume 7 (2007), N. 4.

- *Derived categories of quadric fibrations and intersections of quadrics*, *Advances in Mathematics*, V. 218 (2008), N. 5, 1340–1369.

- *Exceptional collections for Grassmannians of isotropic lines*, *Proceedings of the London Mathematical Society*, V. 97 (2008), N. 1, 155–182.

- *Lefschetz decompositions and categorical resolutions of singularities*, *Selecta Mathematica*, V. 13 (2008), N. 4, 661–696.

- *Derived categories and rationality of cubic fourfolds*, *Proceedings 5-th European Congress of Mathematics*.

Rovinsky, M.

- *Motives and admissible representations of automorphism groups of fields*, *Math. Zeit.*, 249 (2005), no. 1, 163–221.

- *Semilinear representations of PGL*, *Selecta Math.*, 11 (2005), 491–522.

- *Admissible semi-linear representations*, *J. Reine Angew. Math.* 604 (2007), 159–186.

- *Automorphism groups of fields, and their representations*, *Russian Math. Surveys*, 62:6 (2007), 1121–1186.

- *On maximal proper subgroups of field automorphism groups*. *Selecta Math.* 15 2 (2009), 343–376.

Skopenkov, A.

- *A new invariant and parametric connected sum of embeddings*, *Fund. Math.* 197 (2007), 253–269.

- *A characterization of submanifolds by a homogeneity condition*, *Topol. Appl.* 154 (2007) 1894–1897.

- *Classification of smooth embeddings of 3-manifolds in 6-space*, Math. Zeitschrift, 260:3, 2008, 647–672.
- *Embedding and knotting of manifolds in Euclidean spaces*, in: *Surveys in Contemporary Mathematics*, N. Young and Y. Choi (Ed.), London Math. Soc. Lect. Notes, 347 (2008) 248–342.
- Cencelj, M., Repovš, D. and Skopenkov, A., *Codimension two PL embeddings of spheres with nonstandard regular neighborhoods*, Chinese Annals of Mathematics, Series B, 28:5 (2007) 603–608.

Bondarko, M.V.

- *Differential graded motives: weight complex, weight filtrations and spectral sequences for realizations; Voevodsky versus Hanamura*, J. Inst. Math. of Jussieu, 8 (2009), no. 1, 39–97.
- *Weight structures vs. t -structures; weight filtrations, spectral sequences, and complexes (for motives and in general)*, to appear in J. of K-theory.
- *Canonical representatives in strict isomorphism classes of formal groups*, Mathematical Notes, v. 82, n. 1–2, 2007, pp. 159–164.
- Bondarko M.V., Dievsky A.V., *Non-abelian associated orders of wildly ramified local field extensions*, Zapiski Nauchnyh Seminarov POMI, vol. 356, 5–45, 2008.

Borisov, D.

- *On the spectrum of two quantum layers coupled by a window*, Journal of Physics A: Mathematical and Theoretical. 2007. V. 40. No. 19, 5045–5066.
- *Asymptotic behavior of the spectrum of a waveguide with distant perturbation*, Mathematical Physics, Analysis and Geometry. 2007. V. 10. No. 2, 155–196.
- *Distant perturbations of the Laplacian in a multi-dimensional space*, Annales Henri Poincaré. 2007. V. 8. No. 7, 1371–1399.
- Borisov, D. and Cardone, G., *Homogenization of the planar waveguide with frequently alternating boundary conditions*, Journal of Physics A: Mathematics and General. 2009. V. 42. No. 36, 365205 (21pp).
- Borisov, D. and Freitas, P., *Asymptotics of Dirichlet eigenvalues and eigenfunctions of the Laplacian on thin domains in \mathbb{R}^d* , Journal of Functional Analysis 258 3 (2010), 893–912.
- Borisov, D. and Freitas, P., *Eigenvalue asymptotics, inverse problems and a trace for-*

mula for the linear damped wave equation, Journal of Differential Equations. 2009. V. 247. No. 11, 3028-3039.

- Borisov, D. and Freitas, P., *Singular asymptotic expansions for Dirichlet eigenvalues and eigenfunctions on thin planar domains*, Annales de l'Institut Henri Poincaré (C) Analyse non-linéaire. 2009. V. 26. No. 2, 547-560.

- Borisov, D. and Gagilishin, R., *Spectrum of periodic operators with a small local perturbation*. Izv. T.72, 4 (2008), 37–66.

- Borisov, D., *Asymptotics of solutions of elliptic systems with rapidly oscillating coefficients*, Alg. i An. 20 (2008), 19–42.

- Borisov, D. and Krejcirik, D., *PT-symmetric waveguide*, Integral Equations and Operator Theory. 2008. V. 62. No. 4., 489-515.

Rybnikov, L.

- Etingof, P., Loktev, S., Oblomkov, A., Rybnikov, L., *A Lie-theoretic construction of spherical symplectic reflection algebras*, Transformation Groups, 13 (2008), no. 3, 541–556.

- Chervov, A, Falqui, G. and Rybnikov, L., *Limits of Gaudin Systems: Classical and Quantum Cases*. SIGMA 5 (2009).

Loktev, S.

- *Weight Multiplicity Polynomials of multi-variable Weyl Modules*, Moscow Math. J. 10 1 (2010), 215–229.

- Guay, N., Hernandez, D., Loktev, S., *Double affine Lie algebras and finite groups*, Pacific Math. J. 243 (2009), no. 1, 1–41.

Panov, T.

- *Cohomology of face rings, and torus actions*, in “Surveys in Contemporary Mathematics”, London Math. Soc. Lecture Note Series, vol. 347, Cambridge, U.K., 2008, pp. 165–201.

- *Toric Kempf-Ness sets*. Proc. Steklov Inst. Math., vol. 263 (2008), p.159-172.

- Hiroshi Maeda, Mikiya Masuda and Taras Panov. *Torus graphs and simplicial posets*, Advances in Mathematics 212 (2007), no. 2, 458–483.

- Victor M. Buchstaber, Taras E. Panov and Nigel Ray, *Spaces of polytopes and cobordism of quasitoric manifolds*, Moscow Mathematical Journal 7 (2007), no. 2, 219–242.

- Mikiya Masuda and Taras Panov, *Semifree circle actions, Bott towers, and quasitoric Manifolds*, Mat. Sb. 199 (2008), no. 8, 95–122.

- Taras Panov and Nigel Ray, *Categorical aspects of toric topology*, in: *Toric Topology*

(M. Harada et al., eds.). Contemp. Math., vol. 460, Amer. Math. Soc., Providence, RI, 2008, pp. 293-322.

Arzhantsev, I. V.

- *On the factoriality of Cox rings*, Mat. Zametki 85 (2009), no. 5, 643-651.
- *Projective embeddings with a small boundary for homogeneous spaces*, Izv. Ross. Akad. Nauk Ser. Mat. 73 (2009), no. 3, 5–22.
- Arzhantsev, I., and Gaifullin, S., *Cox rings, semi groups and automorphisms of affine varieties*, Sbornik Math. 201, no. 1 (2010), 3–24.

Savin, A.

- Nazaikinskii, V. E., Savin, A. Yu., Sternin, B. Yu., *On the Poincaré isomorphism in K-theory on manifolds with boundaries*, (Russian) Sovrem. Mat. Fundam. Napravl. 34 (2009), 109-120.
- Nazaikinskii, V. E., Savin, A. Yu., Sternin, B. Yu., *The Atiyah-Bott index on stratified Manifolds*, (Russian) Sovrem. Mat. Fundam. Napravl. 34 (2009), 100-108.
- Savin, A. Yu, Sternin, B. Yu., *Surgery and index formulas on stratified manifolds*, (Russian), Dokl. Akad. Nauk 427 (2009), no. 3, 313–317.
- Savin, A. Yu., Sternin, B. Yu., *The index of nonlocal elliptic operators over C^* -algebras*, (Russian) Dokl. Akad. Nauk 426 (2009), no. 3, 314–317.
- Nazaikinskii, V. E., Savin, A. Yu, Sternin, B. Yu., *Noncommutative geometry and the classification of elliptic operators*, (Russian) Sovrem. Mat. Fundam. Napravl. 29 (2008), 131–164.
- Nazaikinskii, E., Savin, A. Yu., and Sternin, B. Yu., *Elliptic theory and noncommutative geometry*, volume 183 of Operator Theory: Advances and Applications. Birkhäuser Verlag, Basel, 2008.
- Nazaikinskii, E., Savin, A., and Sternin, B. Yu., *On index of non local elliptic operators*, Dokl. 420 5 (2008).
- Nazaikinskii, E., Savin, A. Yu., and Sternin, B. Yu., *Non commutative geometry and classification of elliptic operators*. Sovr. mat. Fund. napr. 29 1 (2008), 131–169.
- Savin, A. Yu. and Sternin, B. Yu. *Non local elliptic operators on compact Lie groups*. Dokl. Nauk (2010).
- Nazaikinskii, E., Savin, A., and Sternin, B., *Atiyah-Bott index on stratified varieties*, Sovr. mat. Fund. napr. 34 (2009), p. 100–108.

Feigin, E.

- *$N = 1$ formal genus 0 gromov-Witten theories and Givental's formalism*, Journal of

Geometry and Physics 59 (2009), 1127–1136.

- Feigin, B., Feigin, E., Jimbo, M., Miwa, T. and Takeyama, Y., *A $_1,3$ -Filtration of the Virasoro Minimal Series $M(p, p')$ with $1 < p'/p < 2$* , Publ. Res. Inst. Math. Sci., Volume 44, Number 2 (2008), 213–257.

- Feigin, B., Feigin, E., Jimbo, M., Miwa, T., and Mukhin, E., *Fermionic formulas for eigenfunctions of the difference Toda Hamiltonian*, Letters in Mathematical Physics: Volume 88, Issue 1 (2009), 39–77.

Shkredov, I.

- *On sumsets of dissociated sets*. Online J. of Anal. Comb. 4 (2009), Art. 4, 26 pp.

- *Some applications of W. Rudin's inequality to problems of combinatorial number theory*, Uniform Distribution Theory, 15 pages, submitted for publication (2009).

- *On an inverse theorem for $U_3(_)$ -norm*, Modern problems of mathematics and mechanics, Mathematics, Dynamical systems, v. 4, 2 (2009), 55–127.

Vdovin, E. P.

- *Carter subgroups of finite groups*, Siberian Adv. Math. v. 19 (2009), No. 1, 1–15.

Statements by the Prizewinner and by Professors Ilyashenko, Sossinsky, and Vershik:

Le règlement du prix Balzan stipule que pour moitié il doit être consacré à un ou plusieurs projets de recherche... qui devraient de préférence impliquer de jeunes chercheurs. Je suis heureux que ceci me permette d'essayer de repayer ma dette envers mes aînés en aidant de plus jeunes mathématiciens à suivre leur passion. Pierre Deligne (Rome, 18.11.2004)

A few words about the origin of the contest. In 2004 Pierre Deligne (Institute for Advanced Study, Princeton, NJ) was awarded the Balzan Prize. This prize is awarded by the Balzan Foundation for outstanding achievements in various domains of science and public service. Previously the Balzan Prize winners for mathematics were A. N. Kolmogorov, E. Bombieri, J.-P. Serre, A. Borel, M. Gromov and others. The rules of the Balzan Prize require that half of the sum would be spent for some project plausibly addressed to the support of young researchers. Pierre Deligne has chosen to support "struggling Russian mathematics". His proposal was accepted by the Balzan Foundation. (http://www.mccme.ru/pdc/rules_e.html)

In 2004 Deligne wrote in a letter to one of us: "I just won the Balzan Prize. Half the prize amount is for me to spend on a research project agreed to by the Balzan Foun-

dition. I believe that one of the most useful ways to spend this money (500,000 Swiss francs) would be for the benefit of the struggling Russian school of mathematics.” Together with several collaborators of the Independent University of Moscow, Deligne implemented this idea by organizing the “Pierre Deligne Contest for Young Mathematicians”, a yearly individual competition of research projects for young Russian, Ukrainian, and Byelorussian mathematicians, whose laureates are granted a sizable three-year fellowship. Together with Victor Vassiliev, Deligne heads the jury of the contest, which is run along lines similar to those used by the American NSF. Since 2005 Deligne comes to Moscow each December to supervise the final deliberations. During the past four years, sixteen fellowships have been granted, and the money coming from the Balzan foundation (having in mind the future payments to recent winners) has been entirely exhausted, but Deligne intends to continue the contest by using his personal funds. In 2006 the Russian philanthropic foundation “Dynasty” has organized the “D. B. Zimin Dynasty Foundation Contest for Young Mathematicians” with the same jury and according to the same rules. According to the corresponding agreement, this contest will run for two more years, after which it may be continued. The continuation of these two contests will undoubtedly play a crucial role in preserving the Russian mathematical school. We are deeply grateful to Pierre Deligne for his noble initiative, which has already done a great deal to help young Russian mathematicians to survive without giving up research. Yu. Ilyashenko, Moscow Independent University, Steklov Math. Institute; A. Sossinsky, Moscow Independent University, Institute of Mechanics; A. Vershik, St. Petersburg Branch of Steklov Math. Institute (“Notices of the American Mathematical Society”, Volume 56, number 10, November 2009, p. 1232).

I am particularly happy that this program has encouraged the Russian foundation “Dynasty” to create similar grants (three in December 2006, 2007, 2008 and 2009, and eight starting from December 2010). The same jury, recruited by Moscow Independent University, and of which I was co-president, gave both series of grants. Pierre Deligne (2010)

Michael Marmot

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.

UCL Balzan International Fellowship program

University College London

Adviser for the General Balzan Committee: Werner Stauffacher

As initiator of the era of social epidemiology and a pioneer in the development of a wholly new concept of preventive medicine, 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 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 been jointly working on a paper for "The National Medical Journal of India" on "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. Kristina László (Semmelweis University, Budapest, Hungary) has successfully published her work on "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, Ruzena Kubinova, Gyöngyvér Salavec, 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 (National Institute of Public Health, 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 in August 10-15, 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), 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), got his Master of Public Health degree from Johns Hopkins University, USA, and received his PhD in Medicine from UFRGS, Brazil. Dr Bassanesi's research area for the Balzan fellowship is related to socioeconomic urban segregation and its impact on health. He also has been working on the measurements of socioeconomic health disparities, especially in relation to cardiovascular mortality. He has also collaborated on epidemiological and clinical studies on tuberculosis. During his stay at UCL, Dr Bassanesi was a co-applicant 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 University, Budapest, Hungary) joined the Department 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 (Jonkoping University, Sweden) resided at UCL for five months (September 2009-February 2010). A Postdoctoral Fellow, Dr Fransson earned her PhD from the Karolinska Institute and an MSc in Statistics from Stockholm University. 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. Gyongyver Salavecz (Semmelweis University, Budapest, Hungary) spent September 2009, February 2010 and May 2010 in the Department. 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 University. She also completed a paper “Work Stress and Poor Health in Western European and in Post-communist Countries: an East-West Comparison Study” (co-authored 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.

Publications:

- Gaina, A., Sekine, M., Chandola, T., Marmot, M., Kagamimori, S., *Mother employment status and nutritional patterns in Japanese junior high schoolchildren*. “*International Journal of Obesity*”, 33(7):753-7, 2009.

- László, K.D., Pikhart, H., Kopp, M.S., Bobak, M., Pajak, A., Malyutina, S., Salavecz, G., Marmot, M., *Job insecurity and health: a study of 16 European countries*. “*Social Science & Medicine*”. Mar. 70(6):867-74, 2010.

- Szalavecz, G., Chandola, T., Pikhart, H., Dragano, N., Siegrist, J., Jockel, K.H., Erbel, R., Malyutina, S., Pajak, A., Kubinova, R., Marmot, M., Bobak, M., Kopp, M., *Work Stress and Poor Health in Western European and in Post-communist countries: an East-West Comparison Study*. “*Journal of Epidemiology and Community Health*”, 64:57-62, 2010.

Statement by the Prizewinner: *I am grateful to Balzan for celebrating the values of scholarship. Grateful for recognising that different disciplines have their own way to the truth. And grateful for the opportunity the Prize gives to enjoy supporting the research leaders of the future.* Michael Marmot (Rome, 18.11.2004)

Peter and Rosemary Grant

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.

Evolution in Small Populations

Department of Ecology and Evolutionary Biology of Princeton University

Zoologisches Museum of the University of Zurich

Harvard School of Dental Medicine

Adviser for the General Balzan Committee: John Krebs

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. A two-day symposium dedicated to the overall results was held on 5-6 September 2008 at Princeton University.

1. *Mate choice and speciation in species of Drosophila.* Margarita Womack Ramos has 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 has been 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 inbreed-

ing lowers the ability of small and inbred populations to respond to infectious diseases. To this aim, four allopatric species of mockingbirds on the Galápagos Islands were studied and the genetic variability in populations of different size is determined 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 has been supervised by Dr. Lukas Keller at the University of Zurich.

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) has 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 is being used to detect differences at early stages of development; and as Clabaut's project, chicken material is being used to try out new techniques before chosen ones are applied to the limited finch material.

Participants to the Balzan Symposium on “Evolution in Small Populations”: Michael Arnold (University of Georgia), Leticia Avilés (University of British Columbia), Veronica Barragán (University of San Francisco, Quito, Ecuador), Kimberly Bostwick (Cornell University), Paul Brakefield (University of Sheffield), Jeffrey Feder (University of Notre Dame), Michaela Hau (University of 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 (University of San Francisco, Quito, Ecuador), Kenneth Petren (University of Cincinnati), Paolo Piedrahita (Catholic University of Quito, Ecuador), Uli Reyer (University of Zurich), Robert Ricklefs (University of Missouri St Louis), Michael Ryan (University of Texas), Pablo Sanchez (Catholic University of Quito, Ecuador), Kerry Shaw (Cornell University), Thomas Smith (University of California Los Angeles), Klaus Schwenk (Goethe University Frankfurt), 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 Institute for Ornithology, Migration and Immuno-ecology).

Publications:

- Hoeck, P. E. A., Beaumont, M. A., James, K. E., Grant, B. R., Grant, P. R. and Keller, L. F., *Saving Darwin’s muse: evolutionary genetics for the recovery of the Floreana mockingbird*, “Biology Letters”, 6: 212-215, 2010.
- 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.
- Rebeiz, M., Ramos-Womack, M., Jeong, S., Andolfatto, P., Werner, T., True, J., Stern, D. and Carroll, S., *Evolution of the tan Locus Contributed to Pigment Loss in Drosophila santomea: A Response to Matute et al.*, “Cell”, 139, (6): 1189-1196, 2010.

Statements by the Prizewinners:

Being chosen for an award by the internationally renowned Balzan Foundation is an extreme honour, and something very, very special. It is special because, alone among the Foundations which I know, the Balzan Foundation makes funds available to young investigators in the field of the recipient. Peter Grant (Berne, 11.11.2005)

I am grateful to the Balzan Foundation for recognizing and celebrating the value of scholarship, and deeply grateful for the wonderful opportunity this Prize gives to young research scholars of the future. It is foundations, such as the Balzan Foundation, with its wisdom

in fostering inter-cultural and inter-generational exchange that will, surely, make tomorrow's world a better and a more humane place. Rosemary Grant (Berne, 11.11.2005)

*With prize money received from the Foundation we have supported the research of four young investigators over a period of three years. The research of the two post-doctoral fellows has been completed. Research of the two graduates approaches completion, and all research funds have been spent. Publications are planned, and in all cases the research is continuing with funds from other sources. At the conclusion of the supported research of the two post-doctoral fellows we organized a conference, entitled *Evolution in Small Populations*, to give the young investigators the opportunity to present their results to an invited audience of approximately 100 scientists with similar research interests. The conference was held at Princeton University on September 5th and 6th. It consisted of 32 presentations. Twenty-four were lectures given by established scientists in ecology, behavior and evolution, coming from Costa Rica, Britain, Switzerland and Germany as well as the U.S. and Canada. Four more were lectures given by the young investigators, and another four were short summaries of research given by recent graduates from Ecuadorian Universities, supplementing their poster presentations. We invited the Ecuadorian students to attend as a means of transmitting some of the benefits we have reaped from our research back to the country that has helped us. We believe the conference was an outstanding success, both in the lecture hall and outside during coffee breaks and meals when students and senior research workers were able to interact in small groups and establish valuable professional contacts as well as friendships.* Peter and Rosemary Grant (December 2008)

Five years ago we were the fortunate recipients of the Balzan Prize for our research findings, and we have devoted half the prize money to the support of four young investigators in research that is related to our own interests. In the first half of this lecture, I will outline their findings. Peter Grant (Accademia Nazionale dei Lincei, Rome, 13.5.2010)

So, I'd like to leave you with one message, and that is a conservation message: what our work has shown is that neither species nor environment are static entities, but they are dynamic and constantly changing, and to conserve species and the environment we must keep them both capable of further change. And I would like to thank the Balzan Foundation for supporting four wonderful young scientists, and their studies linking genetics, behavior and ecology with evolution, which have really supplemented ours. They have greatly contributed to a much more mechanistic understanding of the diversity of life. Thank you. Rosemary Grant (Accademia Nazionale dei Lincei, Rome, 13.5.2010)

Russel Hemley and Ho-kwang Mao

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.

New Directions in Mineral Physics: Multidisciplinary High Pressure Science Carnegie Institution of Washington, Geophysical Laboratory

Adviser for the General Balzan Committee: Enric Banda

With the second half of their Balzan Prize, Russell Hemley and Ho-kwang Mao are implementing 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 is focused on training and its goal is the exploration of the new high-pressure dimension in multidisciplinary physical sciences. The fellowships encourage the development, design, and fabrication of new instrumentation that exploit the CVD diamond technology developed by Hemley and Mao. Publications and dissemination of results are also being financed.

- Dr. Pierre Beck is a Balzan Award supported post-doctoral associate who was trained in high-pressure meteorite impact phenomena at the Ecole Normale Supérieure in Lyon, France. Prior to joining 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 is developing 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 Hemley and Mao's Balzan-supported project to develop combined static and dynamic (i.e., shock-wave) compression science.

- Dr. Lin Wang is a Balzan Award supported post-doctoral associate who has 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 is developing 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 Award support from September 1 to December 31, 2008. Mr. Zeng is a pre-doctoral fellow from Zhejiang University, China who had done a superb job both at Geophysical Laboratory and APS. Mr. Zeng has conducted numerous x-ray diffraction experiments at 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 February 24, 2009 print issue of PNAS. 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 is a high school student who received Balzan Award support to develop a high-pressure project studying the pressure, temperature, and temporal effects on a newly discovered O₂-H₂ alloy. This alloy was synthesized by compressing water into high-pressure phase ice VII and irradiated by x-rays, splitting the

H₂O molecules into O₂ and H₂. At ordinary pressure, O₂ reacts explosively with H₂ to form H₂O, but they coexist stably at high pressures. Mr. Kung used Raman spectroscopy as an in situ diagnostic probe to find the amounts of O₂ and H₂ 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 is a high school student who received Balzan Award support to study novel electronic phenomena in diamond. 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 involves careful measurement of electrical resistivity as a function of temperature from 4–500 K of well characterized nitrogen-doped CVD diamond that Hemley and Mao produce in their laboratory.

- Mr. Alexander Levedahl is a high school student who received Balzan Award 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 H₂ and H₂O.

- Ms. Claire Barkett is 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 Award support as she followed up on the earlier work of Jaqueline Rivera by synthesizing several solid solutions in the Fe₂O₃-Al₂O₃ system very close to the 1:1 FeAlO₃ composition. Because FeAlO₃ has a completely different structure than the rest of the Fe₂O₃-Al₂O₃ join, which have the rhombohedral corundum structure isostructural with the end members, it is of interest to know the precise range of compositions where the FeAlO₃ structure is stable. The careful chemical synthesis methods developed and carried out in this work are therefore crucial. Diffraction measurements on these materials will allow a refinement of work carried out in the 1950s, and aid in understanding the role of magnetic interactions between ferric ions in stabilizing the FeAlO₃ structure.

- Ms. Maura James received Balzan Award support in the summer of 2008. Ms. James is a high school student from the Convent of the Sacred Heart in Greenwich,

CT. She investigated high pressure clathrate formation in the $\text{H}_2\text{O-NH}_2\text{-H}_2$ ternary system with Stephen Gramsch and Maddury Somayazulu. This was an exploratory project in which Ms. James worked out special techniques for sample loading and mapping the composition of the mixture inside the diamond anvil cell. Using Raman spectroscopy, she found that with increasing pressure, the ammonium hydroxide- 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 is a high school student at Thomas Jefferson High School in Alexandria, VA. Ms. Madduri 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 5 GPa, a result that has important implications for the use of such materials in hydrogen storage applications. As a result of her work, Ms. Madduri was named a semi-finalist 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 Award support during the summer of 2008. Ms. Rivera developed new room-temperature, solution-based synthesis methods for solid solutions in the $\text{Fe}_2\text{O}_3\text{-Al}_2\text{O}_3$ 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 is now studying biochemistry at the Catholic University of America.

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.

- Banighan, E. J., R. Caracas, P. Beck, and R. J. Hemley, *Theoretical and experimental Raman study of spinel*, Eos Trans. AGU Fall Meet., Suppl., 87, 2006.

- Beck, P., A. F. Goncharov, V. V. Struzhkin, B. Militzer and R. J. Hemley, *Measurements of thermal diffusivity under planetary interior P-T conditions*, 37th Annual Lunar Planetary Science Conference (League City, TX, March 12-16, 2007, 2007).
- 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, February 5-7, 2007).
- Somayazulu, M., A. Levedahl, A. Goncharov, H. K. Mao and R. J. Hemley, *High pressure-temperature Raman spectroscopy of H²- H₂O clathrate*, Bull. Am. Phys. Soc. (APS March Meeting) (Denver, CO, March 5-9, 2007).
- Beck, P., A. F. Goncharov, V. V. Struzhkin, B. Militzer, H. K. Mao, and R. J. Hemley, *Measurement of thermal diffusivity at high pressure using a transient heating technique*, Appl. Phys. Lett., 91, 181914, 2007.
- Meng, Y. F., C. S. Yan, J. Lai, S. Krasnicki, H. Shu, Q. Liang, H. K. Mao, and R. J. Hemley, *Enhanced optical properties of chemical vapor deposited single crystal diamond by low-pressure/high-temperature annealing*, Proc. Nat. Acad. Sci., 105, 17620-17625, 2008.
- 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.
- 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, May 5-7, 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, June 5-7, 2008).
- Liu, H., L. Wang, X. Xiao, F. De Carlo, J. Feng, H. K. Mao, and R. J. Hemley, *Anomalous pressure-induced behavior of amorphous selenium from synchrotron x-ray diffraction and microtomography*, Proc. Nat. Acad. Sci., 105, 13229-13234, 2008.
- Meng, Y. F., C. S. Yan, J. Lai, S. Krasnicki, H. Shu, Q. Liang, H. K. Mao, and R. J. Hemley, *Enhanced optical properties of chemical vapor deposited single crystal diamond by low-pressure/high-temperature annealing*, Proc. Nat. Acad. Sci., 105, 17620-17625, 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, May 26-29, 2008).

- 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.

- 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.

- Goncharov, A. F., S. D. Jacobsen, V. V. Struzhkin, and P. Beck, *Optical properties of minerals in the deep-earth*, in *McGraw Hill 2008 Yearbook of Science & Technology* 242-245 (McGraw Hill, New York, 2008).

- Jia, L., J. R. Sun, F. W. Wang, T. Y. Zhao, H. W. Zhang, B. G. Shen, D. X. Li, S. Nimori, Y. Ren, and Q. S. Zeng, *Volume dependence of the magnetic coupling in LaFe_{13-x}Si₆ based compounds*, Appl. Phys. Lett., 92, 101904, 2008.

- Zeng, Q., Z. He, X. San, Y. Ma, F. Tian, T. Cui, B. Liu, G. Zou, and H. K. Mao, *A new phase of solid iodine with different molecular covalent bonds*, Proc. Nat. Acad. Sci., 105, 4999-5001, 2008.

- Goncharov, A. F., P. Beck, V. V. Struzhkin, B. D. Haugen, and S. D. Jacobsen, *Thermal conductivity of lower mantle minerals*, Phys. Earth Planet. Inter., 174, 24-32, 2009.

- Liang, Q., C. Y. Chin, J. Lai, C. S. Yan, Y. F. Meng, H. K. Mao, and R. J. Hemley, *Enhanced growth of high quality single crystal diamond by MPCVD at high gas pressures*, Appl. Phys. Lett., 94, 024103, 2009.

- 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.

- Wang, L., Y. Pan, Y. Ding, W. Yang, W. L. Mao, S. V. Sinogeikin, Y. Meng, G. Shen, and H. K. Mao, *High-pressure induced phase transitions of Y₂O₃ and Y₂O₃:Eu³⁺*, Appl. Phys. Lett., 94, 061921, 2009.

- Wang, L., Y. Ding, W. Yang, W. L. Mao, W. Liu, Z. Cai, J. Shu, G. Shen, and H. K. Mao, *Application of nano/submicron-focused x-ray probe for ultrahigh-pressure studies*, High Pressure Synchrotron Science Workshop (Argonne, IL, May 6-8, 2009).

- Zeng, Q. S., Y. Ding, W. L. Mao, W. Luo, A. Blomqvist, R. Ahuja, W. Yang, J. Shu, S. V. Sinogeikin, Y. Meng, D. L. Brewster, J. Z. Jiang, and H. K. Mao, *Substitutional alloy of Ce and Al*, Proc. Nat. Acad. Sci., 106, 2515-2518, 2009.

- Liang, Q., C. S. Yan, Y. Meng, J. Lai, S. Krasnicki, H. K. Mao, and R. J. Hemley, *Recent advances in high-growth rate single-crystal CVD diamond*, “Diamond and Related Materials”, Volume 18, Issues 5-8, May-August 2009, Pages 698-703
- 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*, Proceedings of Intertech 2008, submitted.
- 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.
- 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, 9 September 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., in press.
- Beck, P., A. F. Goncharov, J. A. Montoya, V. V. Struzhkin, B. Militzer, R. J. Hemley, and H. K. Mao, *Response to “Comment on ‘Measurements of the thermal diffusivities at high-pressure using a transient heating technique’”*, “Applied Physical Letters, Volume 95, Issue 9, August 2009.
- Beck, P., A. F. Goncharov, V. V. Struzhkin, B. Militzer, R. J. Hemley, and H. K. Mao, *Measurements of thermal diffusivity under pressure in the diamond-anvil cell*, Appl. Phys. Lett., to be submitted.
- 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.
- 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 high-pressure/high-temperature experiments*, “High Pressure Research”, Volume 29, Issue 2, June 2009.
- Somayazulu, M., A. Levedahl, S. Gramsch, H. K. Mao and R. J., Hemley, *High pressure-temperature Raman spectroscopy of C2 clathrate of H₂- H₂O: Melting studies to 40 GPa and 1000 K*, J. Phys. Chem., in preparation.

Statement by the Prizewinners and by Patti Barkett:

We are especially pleased by the Foundation’s focus on training the next generation of researchers. The Accademia del Cimento was closed after only a decade of existence, despite its magnificent productivity. In our own times the quest for understanding likewise encounters periods of difficulty if not darkness. In a span

of ten short years, the Accademia lit a spirit of inquiry that became a touchstone for modern science. Visionary institutions like the Balzan Foundation celebrate and preserve this noble tradition. Thank you once again. Russell J. Hemley and Ho-kwang Mao (Berne, 11.11.2005)

She enjoyed her science research lab experience at the Geophysical Laboratory, Carnegie Institute of Washington D.C. very much this year. She is so grateful to the Balzan Foundation and their support for young scientists, like herself, who are curious and passionate about discovering new things. Dr. Stephen Gramsch, research scientist at the Geophysical Laboratory in charge of her Balzan High School Fellowship project, was such an inspiration and allowed her to experience research like a “real scientist”. She is even more committed, now, to pursue her passion in science. Priceless! (Patti Barkett, Claire Barkett’s Mom, 2009)

Paolo de Bernardis and Andrew Lange

2006 Balzan Prize for Observational Astronomy and Astrophysics

For their contributions to cosmology, in particular the BOOMERanG Antarctic balloon experiment.

Observation of the Cosmic Microwave Background (CMB)

Università di Roma “La Sapienza”

California Institute of Technology

Adviser for the General Balzan Committee: Per Olof Lindblad

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

1. *An experimental investigation of CMB polarization*, carried out under the responsibility of professor Andrew Lange until his death. This project is aimed at measuring the B-modes of CMB polarization, the signature of the Inflation Process. Half of the second part of the Balzan Prize to Lange is being used to support the work of young physicists (several of whom earned their Ph.D.s working on *BOOMERanG*) to pioneer the new technologies and methods that will be necessary to search for the signature of Inflation in the CMB. These technologies will be deployed in telescopes now operating at the South Pole, and on a new balloon-borne telescope, called SPIDER, that will circumnavigate the globe from Australia. The following activities have been supported:

- The development of the SPIDER experiment, a new-generation balloon-borne polarimeter for the measurement of the polarization of the Cosmic Microwave Background at medium and large angular scales (B.P. Crill, A. E. Lange, et al.). The instrument hardware is now being completed, and will be flown in 2011. The very large arrays of ultra-sensitive bolometric detectors developed in Caltech-JPL (Lange’s group) combined with the favorable environment of a stratospheric balloon flight make this instru-

ment the most ambitious CMB polarization experiment being flown before a future satellite mission. The latter is also being studied with extreme care in both Lange's and de Bernardis' groups (J. Bock, A.E. Lange, et al. (EPIC Collaboration) and P. de Bernardis, M. Bucher, C. Burigana, L. Piccirillo).

- Data analysis of the QUaD experiment, which has measured the anisotropy and the polarization of the CMB at sub-degree angular scales (A.R. Ade, A.E. Lange, et al. (QUaD Collaboration)).

- Hardware and the personnel running the BICEP instrument, deployed to the South Pole for measuring the polarization in the CMB at degree scales (H.C. Chiang, A.E. Lange, et al.).

2. *An experimental investigation of the first stages of the formation of cosmic structures*, carried out under the responsibility of professor Paolo de Bernardis. This project is aimed at measuring the effect of the first structures on the background CMB light: in fact effects like the Sunyaev-Zeldovich in the first clusters of Galaxies and resonant lines in the first structures leave an imprint in the CMB, which can be used to trace them. Half of the second part of the Balzan Prize to de Bernardis was used to acquire hardware to complete the instruments, to support the dedicated work of post-docs already trained on the BOOMERanG project, to support the collaboration with the Cardiff (Ade, Mauskopf) and Pasadena (Lange) groups for the development of subsystems, and the diffusion of cosmology results through the preparation of a book on observational cosmology. The following activities have been supported:

- 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.) and on the SAGACE study (see below) have been assigned. One fellowship has been assigned to Dr. Gianluca Polenta. After this activity, 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 de Bernardis' group in La Sapienza. The third fellowship has been assigned to Dr. Alessandro Schillaci, and he is currently active in 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 satellite mission described below. 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.

- The full phase-A study of an innovative satellite mission, called SAGACE, carried out by the Rome-Sapienza group in the framework of the second project above. A short description of this activity is presented in *SAGACE: the Spectroscopic Active Galaxies*

And Clusters Explorer. The full study has been described in a long document (ref. KI-SAG-RP-010), which has been submitted to the Italian Space Agency for evaluation and possible implementation as a national small mission.

- A study of the possibility to measure dark matter using high resolution observations of clusters of galaxies, presented in S. Colafrancesco, P. de Bernardis, S. Masi, G. Polenta, P. Ullio, *Direct probes of Dark Matter in the cluster 1ES0657-556 through microwave observations*, 2007.

- A book on observational cosmology for the general public, written by Prof. Paolo de Bernardis (P. de Bernardis, *Osservare l'Universo*, Il Mulino, Bologna, 2010).

Publications (in chronological order):

- S. Colafrancesco, P. de Bernardis, S. Masi, G. Polenta, P. Ullio, *Direct probes of Dark Matter in the cluster 1ES0657-556 through microwave observations*, "Astronomy and Astrophysics", 467, 1, 2007.

- B. P. Crill, A. E. Lange, et al., *SPIDER: A Balloon-borne Large-scale CMB Polarimeter*, in *Space Telescopes and Instrumentation 2008: Optical, Infrared, and Millimeter*, Jacobus M. Oschmann, Jr.; Mattheus W. M. de Graauw; Howard A. MacEwen (Editors), Proceedings of SPIE, Volume 7010, 2008.

- J. Bock, A.E. Lange, et al. (EPIC Collaboration), *Study of the Experimental Probe of Inflationary Cosmology (EPIC)-Intermediate Mission for NASA's Einstein Inflation Probe*, arXiv:0906.1188.

- J. Bock, A.E. Lange, et al. (EPIC Collaboration), *The Experimental Probe of Inflationary Cosmology (EPIC): A Mission Concept Study for NASA's Einstein Inflation Probe*, arXiv:0805.4207.

- P.A.R. Ade, A.E. Lange, et al. (QUaD Collaboration), *First season QUaD CMB temperature and polarization power spectra*, "The Astrophysical Journal", 674, 22-28, 2008.

- P.A.R. Ade, A.E. Lange, et al. (QUaD Collaboration), *Second and third season QUaD CMB temperature and polarization power spectra*, "The Astrophysical Journal", 692, 1247-1270, 2009.

- P. de Bernardis, M. Bucher, C. Burigana, L. Piccirillo, *B-Pol: Detecting Primordial Gravitational Waves Generated During Inflation*, "Experimental Astronomy", 23, 5-16, 2009.

- M. Veneziani, P. de Bernardis, et al. "Sub-Degree Sunyaev-Zel'dovich Signal from Multi-Frequency BOOMERanG observations", "The Astrophysical Journal", 702, L61-L65, 2009.

- H. C. Chiang, A.E. Lange, et al., *Measurement of Cosmic Microwave Background Po-*

larization Power Spectra from Two Years of BICEP Data, “The Astrophysical Journal”, 711, 1123-1140, 2010.

- P. de Bernardis, et al., *SAGACE: the Spectroscopic Active Galaxies And Clusters Explorer*, proc. of the 12th Marcel Grossman Meeting, R. Jantzen R. Ruffini eds., Paris, 2010, astro-ph/1002.0867.

- P. de Bernardis, *Osservare l’Universo*, Il Mulino, Bologna, 2010.

Statements by the Prizewinners and by James Bock and Tom Soifer:

Il Premio Balzan è per noi non solo un riconoscimento delle attività e dei risultati della collaborazione BOOMERanG, ma anche una iniezione di speranza per le attività future nostre e dei giovani ricercatori e collaboratori. Nella situazione contingente di generale recessione delle risorse umane e finanziarie nell’università e nella ricerca in Italia, il contributo del premio permetterà la continuità delle nostre attività e la formazione di altri giovani. Paolo de Bernardis (Rome, 24.11.2006)

It is impossible to predict how and when we will finally understand the nature of the dark energy and dark matter that we now believe comprise most of the universe, or how and when we will understand the physics of the inflation that we believe spawned our observable Universe. It is especially fitting then, that the Balzan Foundation stipulates that half of the Prize be used to support the research of young scientists, for it is they who will make the next set of breakthroughs. I hope that my portion of the research funds will support new efforts by young scientists to peer yet further back in time, to the moment of Inflation itself, using a new generation of telescopes at the South Pole and on high-altitude balloons. Andrew Lange (Rome, 24.11.2006)

We are saddened to report the death of Andrew Lange on 22 January 2010 under tragic circumstances. Andrew Lange left his imprint on the CMB community through his research, but perhaps even more profoundly through the network of people he guided and influenced, including his current and former students and postdocs, and his many professional colleagues. His loss has been felt both widely and deeply in experimental cosmology. The research supported by the Balzan Foundation, directed to supporting younger researchers, continues on and is managed by his close colleagues James Bock, Sunil Golwala, and Tom Soifer at the California Institute of Technology. James Bock and Tom Soifer (2010)

Elliot Meyerowitz and Chris Somerville

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.

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

California Institute of Technology, Carnegie Institution

University of California Berkeley

Adviser for the General Balzan Committee: Marc Van Montagu

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

Elliot Meyerowitz 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 the University of Lund. 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. As Marcus Heisler accepted a Group Leader position at the European Molecular Biology Laboratory in Heidelberg in 2009, the continuing work now includes one additional institution.

Chris Somerville involved two post-doctorate students in studies concerning the molecular mechanisms involved in 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 has been studying 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. The research describing the discovery and analysis of the CSII protein has been submitted to "Science" for publication. 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 has recently been published in "Proceedings of the National Academy of Sciences" (PNAS 2008). Ying recently accepted a faculty position at Pennsylvania State University and began work there in January 2010. Since moving to Berkeley she has been supported on funds provided by Berkeley but she has continued work begun with Balzan support.

Balzan funds were also used by Professor Somerville to support postdoctoral fellow Seth DeBolt who investigated the involvement of sterol glucosides 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 glucosides 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 glucosides was recently published in "Plant Physiology". Seth recently moved to the University of Kentucky to assume a faculty position. 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 is now using the funds to partially support two second-year graduate students, Adisorn Chaibang and Brad Dotson. Adisorn is exam-

ining 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.

Publications:

- DeBolt, S., Scheible, W.R., Schrick, K., Auer, M., Beisson, F., Bischoff, V., Bouvier-Nave', P., Carroll, A., Hematy, K., Li, Y., Milne, J., Nair, M., Schaller, H., Zemla, M. Somerville, C.R., *Mutations in UDP-glucose: sterol glucosyltransferase in Arabidopsis cause transparent testa phenotype and suberization defect in seeds*, "Plant Physiology", 151, 78-87, 2009.
- Gu, Y., Deng, Z., Paredez, A.R., DeBolt, S., Wang, Z., and Somerville, C., *Prefoldin6 is required for proper microtubule dynamics and organization in Arabidopsis*, "Proceedings of the National Academy of Science", 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", 2008.

Statement by the Prizewinners: *Our contribution, and that of our colleagues in the Arabidopsis world, has been to speed and organize the gathering of data about the molecular mechanisms of plants. The time has now come to speed and organize the use of this information by developing a mathematical and computational infrastructure that will allow vast amounts of specific information about plants at the atomic, molecular, organelle, cell, and whole plant levels to be integrated into working models that can make specific experimental predictions. We envision that a future generation of biologists will have access to a "virtual plant" in which a computer model will integrate detailed molecular information to create a dynamic simulation of a plant throughout its lifecycle. We recognize that such a vision seems impractical at present. However, one of the things that we have learned during the past twenty-five years is the importance of setting seemingly impossible goals as a stimulus to scientific creativity and ambition.* Chris Somerville and Elliot Meyerowitz (Rome, 23.11.2006)

Sumio Iijima

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.

Carbon Nanotubes: Structural Study and Applications in Biomedicine

Meijo University, Nagoya

Adviser for the General Balzan Committee: Nicola Cabibbo

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.

Basically the program will be conducted at Meijo University, Nagoya, Balzan Prize-winner Sumio Iijima's affiliation from 2008 to 2010. Some research will be 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 Iijima.

Statement by the Prizewinner: *I am the first from Japan to receive this honorable Prize. Once again this confirms the Foundation's truly international view of humanity as well as its cultural motivation. My winning the Balzan Prize will make it possible to encourage young researchers in Asian countries as well, and also I thank the Foundation for its commitment to young scientists so that they can explore their own research programs, which involves young people in the hopes of understanding nanoscience and utilizing it for our society. Sumio Iijima (Berne, 23.11.2007)*

Jules Hoffmann and Bruce Beutler

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.

Endogenous Activators of Inflammation in Insects and Mammals Centre International de Recherche aux Frontières de la Chimie The Scripps Research Institute in La Jolla

Adviser for the General Balzan Committee: Nicole Le Douarin

The second half of the Balzan Prize to Jules Hoffmann and Bruce Beutler is being used for 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 the Beutler laboratory, the studies of Drs. Michael Berger, Sungyong Won, Lei Sun, Carrie Arnold, Amanda Blasius, Oren Milstein, and Philippe Krebs have been supported. In the Hoffmann laboratory, the work of Dr. Hidehori Fukuyama and of Dr. Anne Kaukinnen has been supported.

In La Jolla, Dr. Michael Berger has screened peptidomimetic libraries for activators of TLR signalling. These studies, designed to identify molecules that could cause unconventional activation of TLR signalling, have been performed as a collaboration with the laboratory of Professor Dale Boger at The Scripps Research Institute. Dr. Oren Milstein searched for immune activating functions of peptides that do not exist in the mouse proteome. Dr. Philippe Krebs has studied mutations that cause inflammatory disease, and their attenuation by mutations that disrupt TLR signalling. Particularly significant has been his demonstration that signalling via TLRs drives the lethal inflammatory disorder observed in mice with deficiency of the inositol polyphosphate 5

phosphatase, SHIP-1. Drs. Sungyong Won and Lei Sun have worked jointly to develop a technique for cloning mice from fibroblasts, with the goal of screening these cells en masse for ex vivo phenotypes (including spontaneous inflammatory phenotypes) before regenerating mice from them and positionally cloning the causative mutations. Dr. Carrie Arnold initiated a screen for defects in the adaptive immune response, and has been very successful with it, identifying eleven mutations to date. Dr. Amanda Blasius identified a key molecule for the responses of plasmacytoid dendritic cells to nucleic acids.

In Strasbourg, Dr. Hidehiro Fukuyama has pursued a biochemical strategy to identify proteins that interact with components of the IMD pathway in *Drosophila* to limit inflammation caused by endogenous stimuli. Dr. Kaukinnen 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 over the last few weeks now point to a significant role of the IMD signaling pathway (IMD stands for immune-deficiency, this pathway is equivalent to that downstream of mammalian TNF) in the defense of flies against several viral pathogens. The Balzan funds which are still available in Dr. Hoffmann's group will be concentrated on developing this new line of research.

Publication plans: Several relevant publications are being prepared in both the Beutler and Hoffmann laboratories.

Statement by the Prizewinners: *It will be used for joint efforts regarding the establishment of a model of inflammation in insects and mammals.* Jules Hoffmann and Bruce Beutler (2007)

Wallace Broecker

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.

Past Patterns of Precipitation and Earth Temperature Global Climate Change Research Foundation

Adviser for the General Balzan Committee: Enric Banda

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 Cambridge University, 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 of 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 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 did her Ph.D. research in France on the production rate of ^{36}Cl in separated minerals. On April 6, 2010, she joined Joerg Schaefer's group at Lamont-Doherty Earth Observatory to pursue the use of ^{36}Cl and ^{10}Be in what is termed "cosmic-ray exposure dating".

Publication:

- Jimin Yu, Gavin L. Foster, Henry Elderfield, Wallace S. Broecker and Elizabeth Clark, *An evaluation of benthic foraminiferal B/Ca and $\delta^{13}\text{C}$ for deep ocean carbonate ion and pH reconstructions*, "Earth and Planetary Science Letters", 293, 2010, pp. 114-120.

Statement by the Prizewinner: *I have decided to accept personally only ten percent of the award and to donate the other ninety percent to the Comer Science and Education Foundation. The Foundation's executive officer has to this end created a separate fund named the Global Climate Change Research Foundation to house this donation. It will be spent for small research grants focused on several key areas that I deem important to our understanding of the consequence of the ongoing global warming created by the release of CO_2 generated by the burning of fossil fuels.* Wallace Broecker (Rome, 21.11.2008)

Ian Frazer

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.

Immune Regulation and Therapeutic Immunisation

Diamantina Institute, University of Queensland, Brisbane

Adviser for the General Balzan Committee: Werner Stauffacher

Ian Frazer is using the funds available from his 2008 Balzan Prize to support two fellowships. The two post-doctorate researchers, together with Ian Frazer's group at Queensland University in Brisbane, study immune system reactions to papillomavirus in order to produce a new generation of vaccines to cure existing infection. The two fellows work on individual projects in the frame of Frazer's program aimed at the development of a "therapeutic vaccine" against HPV-induced cervical cancer. They are given the opportunity to visit other labs in Australia and internationally as part of their research projects.

- After a worldwide search Frazer identified Dr. Antje Blumenthal from New York as recipient of a five-year fellowship funded from his Balzan Prize, and started working in Brisbane in March 2010. Blumenthal is a young postdoctoral researcher who works on a protein called Wnt and with Frazer she studies how this protein regulates immunotherapeutic T cells in skin.

- The other project involves Dr. Steven Mattarollo, a postdoctoral scientist at the Diamantina Institute, who will be funded for 2 years to work at the University of Melbourne with Professor Mark Smyth, an acknowledged world expert on the role of NKT cells in control of cancer cell growth. Thereafter he will return to work with Frazer at the Diamantina Institute to further develop his own research program.

Publications:

- S. R. Mattarollo, A. Rahimpour, A. Choyce, D. I. Godfrey, G. R. Leggatt, and I. H. Frazer, *Invariant NKT cells in hyperplastic skin induce a local immune suppressive environment by IFN-gamma production*, "The Journal of Immunology", 184 (3), 2010, pp. 1242-1250,.

- S. R. Mattarollo, M. Yong, L. Tan, I. H. Frazer, and G. R. Leggatt, *Secretion of IFN-*

gamma but not IL-17 by CD1d-restricted NKT cells enhances rejection of skin grafts expressing epithelial cell-derived antigen, "The Journal of Immunology", 184 (10), 2010, pp. 5663 -5669.

Statement by the Prizewinner: *My research program on papillomavirus is now focussed on vaccines that can be used to cure existing infection with cancer causing viruses. Pleasingly, we have some positive signs from our clinical trials that these new generation vaccines may be of some therapeutic benefit. The specification of the Prize Foundation that the prize money should be used to benefit the career of an up and coming scientist ensures that the whole community will benefit from the award, though I feel a considerable responsibility to ensure that I provide a good opportunity and good mentorship for my selected protégée. I would hope to encourage a clinician scientist to work on further vaccines to help prevent more of the 20% of cancers that are attributable to infections.* Ian Frazer (Rome, 21.11.2008)

Michael Grätzel

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.

Improving the Performance of the Dye Sensitized Solar Cell Ecole Polytechnique de Lausanne (ETH)

Adviser for the General Balzan Committee: Nicola Cabibbo

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 producing electricity from sunlight. With the second half of the 2009 Balzan Prize for the Science of New Materials, the Laboratory of Photonics and Interfaces at the Ecole Polytechnique de Lausanne (ETH), directed by Michael Grätzel, will acquire an Atomic Layer Deposition System for the Laboratory and hire Dr. Aswani Yella as a postdoctoral fellow for two years. Aswani Yella is a Ph.D. student who has just finished her thesis with Professor Tausch Tremel in Mainz, Germany. Moreover, part of the sum will support visits of students and researchers from Italian universities within a framework of collaboration on the research project.

In adopting an experimental approach to the design of the Grätzel Cell, the Balzan research project will focus 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 of 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 millimetre) while the hole transporting material 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 on the surface of the nanocrystalline TiO_2 film. Following excitation by sunlight, the dye molecules inject electrons in the TiO_2 particles and the holes in the electrolyte or solid p-type conductor. For maximum efficiency in converting sunlight to electricity, with the solar cell it is very important to transform these negative and positive

photo-generated charge carriers into 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 recombined – in the same semiconductor solid, in the Grätzel Cell their recombination takes place across the interface that separates the electron transporting material from the hole transporting material. This provides an opportunity to slow down the charge-carrier recombination by timely engineering of this interface. The Balzan research project will explore several new strategies to slow down the interfacial charge carrier recombination rate. The dye molecule itself is already a molecular insulator and should TiO_2 thus hinder the electron-hole recombination on its own. However, the molecular dye layer formed on the TiO_2 nano-particles by absorption is not usually uniform, leaving part of the surface exposed to interaction with the electrolyte or hole conductor. Consequently, part of the research will be aimed at improving the process of self-assembly of the dye molecules in order to form more compact films on the surface, modifying the chemical composition of the dye molecules to equip them with long alkyl chains, reinforcing reciprocal lateral attraction. This is expected to increase compactness, retarding unwanted interfacial recombination of negative and positive charge carriers. Furthermore, an attempt will be made to use additives in the electrolyte to stimulate the formation of a denser dyed monomolecular layer. Finally the atom layer deposition (ALD) system purchased with the second half of the Balzan Prize will provide a powerful tool to modify the titanium oxide surface by superimposing a very thin layer of a semiconducting oxides in a contiguous and conformal manner. The goal here is to eliminate defects such as oxygen vacancies that are present on the nanocrystalline surface. These defects, called electronic surface states, are known to accelerate interfacial electron-hole recombination. Proper engineering of the interface will slow down interfacial charge carrier recombination, thus increasing open circuit voltage and cell efficiency.

Statement by the Prizewinner: *Im Hinblick auf die zahlreichen denkbaren Anwendungen, die Umweltverträglichkeit ebenso wie die einfache Herstellung und die geringen Kosten sollte die von unserer Forschungsgruppe entwickelte nanokristalline Farbstoffzelle den Weg für eine breitere Nutzung regenerierbarer Energiequellen ebnen helfen und so zur Entwicklung einer lebenswerten Zukunft für die Menschheit beitragen.* Michael Grätzel (Berne, 20.11.2009)

Brenda Milner

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.

Hemispheric Interaction in Cognitive Processes

Montreal Neurological Institute at McGill University

Adviser for the General Balzan Committee: John Krebs

Brenda Milner will devote the second part of the 2009 Balzan Prize for Cognitive Neurosciences to recruit several post-doctoral fellows from well-established neuroimaging labs. The young researchers will work under her supervision at the Montreal Neurological Institute at McGill University, using functional imaging to explore the issue of hemispheric interaction in cognitive processes, first in healthy volunteers, and possibly later in selected neurosurgical patients. 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.

Brenda Milner began her research project with a "brainstorming" session in Montreal, focused on the development of the appropriate experimental paradigms and involving researchers including Marcus Raichle. The *Workshop on Hemispheric Interaction* was held on April 21, 2010 at the Montreal Neurological Institute & Hospital (MNI). It was attended by Joelle Crane (MNI), Simon Eickhoff (University Hospital Aachen, Germany), Alan Evans (MNI), Stefan Köhler (University of Western Ontario), Hesheng Lui (Massachusetts General Hospital and Harvard Medical School), Brenda Milner, Morris Moscovitch (University of Toronto), Marcus Raichle (Washington University), Kate Watkins (Oxford University), and Robert Zatorre (MNI).

Since the early stages of her career, Brenda Milner has worked on delineating the differing and complementary specializations of the left and right cerebral hemispheres of the human brain (Milner, B., *Hemispheric specialization: Scope and limits*. In *The Neurosciences: Third Study Program*, F.O. Schmitt and F.G. Worden (Editors), Cambridge, Mass., MIT Press, pp. 75-89, 1974). In particular, in the domain of memory,

she has used special tasks with patients undergoing unilateral temporal-lobe removals for the relief of epilepsy to demonstrate material-specific deficits that vary with the side of the lesion. These laterality effects were even more striking in the case of Sperry's patients tested after cerebral commissurotomy. However, in working with the commissurotomized patients, and comparing their results with those of a matched group of patients in Montreal with intact commissures, it became evident to Brenda Milner and others that each hemisphere acting alone was severely handicapped on memory tasks (Milner, B. and Taylor, L.B., *Right-hemisphere superiority in tactile pattern-recognition after cerebral commissurotomy: Evidence for nonverbal memory*, "Neuropsychologia", 10, 1-15, 1972). This excited her interest in further exploring how the two hemispheres work together, both in health and disease. Subsequently, functional imaging studies have shown, for example: increasing bilaterality of involvement in normal healthy subjects as they grow older (Reuter-Lorenz P., Jonides J., et al., *Age differences in the frontal lateralization of verbal and spatial working memory revealed by PET*, "Journal of Cognitive Neuroscience", 12:174-187, 2000); 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".

Statement by the Prizewinner: *I wish to thank the Balzan Foundation for the challenge they have set me in dedicating half of this Prize to new research, preferably involving young scientists. Not many people at this late stage in their careers are given such an opportunity to engage with the future, and I am grateful for it. In the coming months, with selected young colleagues, I plan to explore further the ways in which the left and right hemispheres of the human brain interact in response to varying cognitive demands or to brain disease. This is still a relatively uncharted field.* Brenda Milner (Berne, 20.11.2009)

Index

Institutions

A

Abbazia di Montecassino, 17
Académie des inscriptions et belles-lettres, 58
Accademia Nazionale dei Lincei, 70, 109
American Academy in Rome, 17
American Association of Petroleum Geology, 89
Argonne National Laboratory, 113
Association internationale des sociologues de langue française (AISLF), 26

B

Bartlett School of Planning, University College of London, 44
Biblioteca Nazionale di Roma, 17
Bibliotheca Hertziana - Max-Planck-Institut für Kunstgeschichte, 20
Biozentrum, Universität Basel, 86
Birkbeck College, University of London, 30
Brown University, 47

C

California Institute of Technology, 121, 125
Carnegie Institution of Washington, 113, 125
Catholic University of Quito, 109
Central European University in Budapest, 64
Centre for Research in the Arts, Social Sciences and Humanities (CRASSH) at the University of Cambridge, 53
Centre International de Recherche aux Frontières de la Chimie, 129
Centre Méditerranéen pour l'Étude des Représentations Sociales, 34
Centro Internazionale di Studi di Architettura "Andrea Palladio", 17
Centro Stefano Franscini, 58
Cesar Chavez High School in Washington, DC, 113
China Academy of Art, also China Academy of Fine Arts, 47
CNRS Grenoble, 80
Collège de France, 20, 58, 89,
Columbia University, 17, 30, 47, 64, 131
Comer Science and Education Foundation, 131

Convent of the Sacred Heart in Greenwich, CT, 113
Cornell University, 109

D

Deutsche Forschungsgemeinschaft (DFG), 93
Diamantina Institute, University of Queensland, Brisbane, 133
Duke University, 109

E

École normale supérieure (ENS) Lyon, 113, 125
École normale supérieure (ENS) Paris, 20, 125
École Polytechnique de Lausanne (ETH), 135
European Commission, 26
European Molecular Biology Laboratory, Heidelberg, 125
European University Institute, Florence, 53

F

Fondation Maison des Sciences de l'Homme, 26, 34
Fondation Singer Polignac, 20
Fondazione Ezio Franceschini, 58
Fondazione IDIS - Città della Scienza di Napoli, 34
Fondazione Palazzo Albizzini. Collezione Burri, 62
Fondazione Scienze Religiose Giovanni XXIII, 17
Fonds national suisse de la recherche scientifique, 58

G

Georgetown University Law Centre, 56
Global Climate Change Research Foundation, 131
Good Counsel High School in Olney, MD, 113

H

Harvard Medical School, 137
Harvard University, 47, 109
Hebrew University (Jerusalem), 93
Hochschule der Künste, Zurich, 50

I

Independent University Moscow, 98
Institut de France, 20, 58
Institut d'Histoire de la Médecine et de la Santé at the University of Geneva, 70
Institut européen d'histoire de la République des Lettres – Respublica Literaria, 20
Institut Pasteur, 75
Institute for Advanced Study, Princeton, 98
Institute of Ophthalmologic Research, Sion, 86
Istituto Italiano per gli Studi Filosofici, 20
Istituto Nazionale di Studi sul Rinascimento, Firenze, 70

J

Jawaharlal Nehru University, Delhi, 106
Jilin University, China, 113
Johann Wolfgang Goethe-Universität Frankfurt am Main, 26, 109
Johns Hopkins University, 58
Jonkoping University, 106

K

L

Lamont-Doherty Earth Observatory of Columbia University, 131
Leiden University, 47, 56

M

Massachusetts General Hospital, 137
Max-Planck-Institut für extraterrestrische Physik (MPE), 93
Max Planck Institute for Ornithology, Migration and Immuno-ecology, 109
McGill University, 47, 137
Meijo University, Nagoya, 128
Merton College at the University of Oxford, 58
Michigan State University, 109
Ministère de l'Éducation nationale, 20
Ministère de l'Enseignement supérieur et de la Recherche, 20
Montreal Neurological Institute at McGill University, 137
Musée de Lille, 20

N

National Institute of Public Health, Cuernavaca, 106

National Taiwan University, 47

New York University, 47, 64

O

Ohio State University, 17, 47

Oppenheim's International Law, 56

P

Pennsylvania State University, 125

Polo Museale Romano, 20

Pomona College in Claremont, California, 36

Princeton University, 23, 109

Public Health Foundation of India, 106

Q

Queen Mary, University of London, 23

Queen's University, 20

R

Research Center of Nanocarbon Materials, National Institute for Advanced Industrial Science and Technology (AIST), Tsukuba, 128

S

School of Oriental and African Studies (SOAS) at the University of London, 47

Scuola Normale Superiore di Pisa, 17, 70

Semmelweis University, Budapest, 106

Smithsonian Tropical Research Institute, 109

St John's College, Oxford, 67

St. Peter's College, Oxford, 56, 58

Stanford University, 47

T

Texas A&M University, 17

The McDonald Institute for Archaeological Research, University of Cambridge, 40

The Scripps Research Institute in La Jolla, 129

Thomas Jefferson High School in Alexandria, VA, 113

U

- Universidade Federal do Rio Grande do Sul (UFRGS), 106
- Università di Firenze, 58
- Università di Roma “La Sapienza”, 121
- Università di Napoli L’Orientale, 47
- Universität Bern, 50
- Universität Heidelberg, 47
- Universität Konstanz, 58, 109
- Universität Zürich, 50, 109
- Université de Limoges, 58
- Université Denis-Diderot Paris 7, 125
- Université Paul Cézanne Aix-en-Provence, 89
- University College London, 40, 56, 106
- University Hospital Aachen, 137
- University of British Columbia, 109
- University of Bucharest, 64
- University of Buenos Aires, 64
- University of California Berkeley, 109, 93, 125
- University of California Irvine, 47
- University of California Los Angeles (UCLA), 36, 47, 109
- University of California Santa Cruz, 109
- University of Cambridge, 53
- University of Chicago, 47, 96
- University of Cincinnati, 109
- University of Georgia, 109
- University of Glasgow, 56
- University of Kentucky, 125
- University of London, 47
- University of Lund, 125
- University of Melbourne, 133
- University of Miami, 56
- University of Michigan, 17, 47, 64
- University of Minnesota, 131
- University of Missouri St Louis, 109
- University of Notre Dame, 109
- University of Nottingham, 56
- University of Otago, 106

University of Oxford, 30, 47, 58, 137
University of Pittsburgh, 47
University of Queensland, Brisbane, 133
University of San Francisco, Quito, 109
University of Sheffield, 109
University of Sydney, 64
University of Tel Aviv, 93
University of Texas, 109
University of Toronto, 47, 137
University of Toyama, 106
University of Washington, 109
University of Western Ontario, 137

V

W

Warburg Institute, University of London, 23
Washington University in St. Louis, 137

XYZ

People

A

Abzhanov, Arkhat, 109
Ackerman, James, 17
Afary, Janet, 36
Agranovich, Mikhail, 98
Akande, Dapo, 56
Akiko of Mikasa, 47
Amir-Ebrahimi, Masserat, 36
Andréani, L., 89
Angeli, Giovanna, 58
Appuhn, Karl, 17
Arnold, Carrie, 129
Arnold, Michael, 109
Arzhantsev, I., 98
Atkins, Nicolas, 30
Avagliano, Don Faustino, 17
Avilés, Leticia, 109
Aymard, Maurice, 34

B

Baer, Monika, 50
Bähler, Ursula, 58
Bailey, Rod, 30
Baldwin, John, 58
Ballinger, Pamela, 30
Balleriaux, Katherine, 53
Banda, Enric, 80, 89, 131
Barber, John, 30
Barkett, Claire, 113
Barkett, Patti, 113
Barman, Yurii, 98
Barragán, Veronica, 109
Baru, Rama, 106
Basak, Polly, 30

Bassanesi, Sergio Luiz, 106
Beck, Pierre, 113
Beevor, Antony, 30
Beloshapka, Valeriy, 98
Beltramini, Guido, 17
Berberian, Houri, 36
Berger, Michael, 129
Berridge, Virginia, 30
Bessel, Richard, 30
Beutler, Bruce, 129
Bhattacharya, Sanjoy, 30
Bi, Fei, 47
Blasi, Maria Pia, 17
Blasius, Amanda, 129
Blumenthal, Antje, 133
Boger, Dale, 129
Bogdanovich, Zhanna, 30
Bondarko, M., 98
Bonnefoy, Yves, 58
Bordes-Benayoun, Chantal, 26
Borisov, D., 98
Borri, Matteo, 70
Bostwick, Kimberly, 109
Botley, Paul, 23
Brakefield, Paul, 109
Brandt, Richard B., 64
Broecker, Wallace, 131
Bruschi, Arnaldo, 17
Buchstaber, Victor, 98
Buckland, Rosina, 113
Bügener, Annette, 113
Bulinskiy, Alexander, 98
Bullard, Melissa, 17
Burns, Howard, 17

Busino, Giovanni, 34
Büttner, Christof, 47

C

Cabibbo, Nicola, 128, 135
Cafà, Valeria, 17
Calvelli, Lorenzo, 17
Calvesi, Maurizio, 62
Carrante, Massimo, 47
Carrère d'Encausse, Hélène, 26, 36
Catanorchi, Olivia, 70
Cave, Terence, 67
Celenza, Christopher S., 17
Chaibang, Adisorn, 125
Chang, Sandra, 17
Changeux Jean-Pierre, 75
Chatifield Taylor, Adele, 17
Chelkak D.S., 98
Chen, Li-Wei, 47
Chen, Xin, 47
Chien, Li-Kuei, 47
Chiu, Lingting, 47
Christov, Theodor, 53
Ciaralli, Antonio, 17
Ciccolella, Federica, 17
Ciliberto, Michele, 70
Clabaut, Céline, 109
Coffey, John, 53
Cohen, Daniel, 30
Cohen, Daniel, 113
Collet, Beate, 26
Colonna, Stefano, 62
Compagnon, Antoine, 26
Concina, Chiara, 58
Conway, Martin, 30
Cook, Michael, 53
Cooper, Fred, 30

Corbellari, Alain, 58
Corni, Gustavo, 30
Cottet, Sandra, 86
Cox, Rosanna, 53
Crane, Joelle, 137
Cupperi, Walter, 17
Curziotti, Jacopo, 62

D

D'Ambruoso, Alberto, 62
Davis, Walter B., 47
Dawson, Hannah, 53
de Bernardis, Paolo, 121
de Laurentis, Pietro, 47
Dekel, Avishai, 93
Deligne, Pierre, 98
Dell'Omodarme, Francesca, 70
Desmarais, Ralph, 30
Dong, Jie, 47
Dotson, Brad, 125
Dressen, Angela, 17
Dufestel, Xavier, 20
Dworkin, Ronald, 64

E

Eickhoff, Simon, 137
Evans, Alan, 137

F

Fabbri, Natacha, 70
Fantini, Bernardino, 70
Fasanelli, Roberto, 34
Feder, Jeffrey, 109
Feigin, Boris, 98
Feigin, E., 98
Feldman, David, 30
Ferente, Serena, 53

Figes, Orlando, 30
Finscher, Ludwig, 50
Fiore, Camilla, 62
Flotté, N., 89
Forman-Barzilai, Fonna, 53
Förster Schreiber, Natascha, 93
Frank, Matthew, 30
Franklin-Hall, Laura, 64
Fransson, Eleonor, 106
Frazer, Ian, 133
Freiburghaus, Gabriela, 50
Frith, Chris, 40
Fukuyama, Hidehori, 129
Fumaroli, Marc, 20

G

Gaina, Alex, 106
Galli, Ida, 34
Gardika, Katerina, 30
Garon, Sheldon, 30
Gatrell, Peter, 30
Gavalas, Giorgos, 40
Gee, Jennifer, 109
Gehring, Walter, 86
Gemma, Cornelio, 70
Genzel, Reinhard, 93
Gibbard, Allan, 64
Gillingham, John, 30
Goeschel, Christian, 30
Golub Camil, 64
Gorlitzki, Yoram, 30
Gorodentsev, Alexey, 98
Grafton, Anthony, 23
Gramsch, Stephen, 113
Grant, Peter, 109
Grant, Rosemary, 109
Grätzel, Michael, 135

Green, Felicity, 53
Gregor, Neil, 30
Gromelski, Thomasz, 53
Gross, Jan, 30
Gu, Yi, 64
Gu, Ying, 125
Guerrieri Gonzaga, la marquise, 58
Guo, Hui, 47
Gusseïn-Zade, Sabir, 98
Gyewon, Kim, 47

H

Ha, Polly, 53
Haggith, Toby, 30
Hall, Peter, 44
Halldenius, Lena, 53
Hamon, Youri, 89
Hampsher-Monk, Iain, 53
Harrison, Mark, 30
Hassiotis, Loukianos I., 30
Hattori, Cordélia, 20
Hau, Michaela, 109
He, Liqun, 47
Heisler, Marcus, 125
Heller-Roazen, Daniel, 58
Hemley, Russell, 113
Higgins, Rosalyn, 56
Hobsbawm, Eric, 30
Hoeck, Paquita, 109
Hoffmann, Jules, 129
Howden-Chapman, Philippa, 106
Huang, Yu-chin, 47
Huemer, Christine, 17
Huey, Raymond, 109
Hulton, Ana, 64
Hunt, Anthony, 58
Husson, L., 89

I

Iijima, Sumio, 128
Ilyashenko, Yuliy, 98
Iodice, Nicola, 20
Ionescu, Stefan, 64
Isaac, Joel, 53

J

James, Harold, 30
James, Maura, 113
Jaxcsens, Eileen, 17
Joyce, Richard, 64

K

Kainulainen, Jaska, 53
Kaloshin, Vadim, 98
Karr, Susan, 53
Kaufmann, Thomas, 53
Kaukinnen, Anne, 129
Kazemi, Arash, 36
Keddie, Nikki, 36
Keller, Lukas, 109
Khelemskiy, Alexander, 98
Khovanski, Askold, 98
Kim, Minku, 47
Kim, Youn-mi, 47
Kitcher, Philip, 64
Kitson, Simon, 30
Knust, Jennifer, 17
Kochanowicz, Jacek, 30
Köhler, Stefan, 137
Kolesinikov, Pavel, 98
Kozlov, Valeriy, 98
Kralik, Christine, 17
Krebs, John, 109, 96, 137
Krebs, Philippe, 129
Kuncevic, Lovro, 53
Kung, Andrew, 113

Kuznetsov, A., 98

L

Lagrou, Pieter, 30
Lamagna, Luca, 121
Lando, Sergey, 98
Lange, Andrew, 121
Langlois, Suzanne, 30
László, Kristina, 106
Lauritzen, Frederick, 17
Lebow, Katherine, 30
Le Douarin, Nicole, 75, 86, 129
Le Pichon, Xavier, 89
Le Roy, C., 89
Ledderose, Lothar, 47
Lee, Daniel, 53
Lenski, Richard, 109
Levedahl, Alexander, 113
Levy, Carl, 30
Li, Weng-Hsiung, 96
Lifschitz, Avi, 53
Lin, J.Y., 89
Lindblad, Per Olof, 93, 113, 121
Liu, Yu-jen, 47
Loget, N., 89
Loktev, S., 98
Lorius, Claude, 80
Losos, Jonathan, 109
Lui, Hesheng, 137
Luk, Yu Ping, 47
Lullo, Sheri A., 47
Lütteken, Laurenz, 60
Lynch, Frances, 30

M

Ma, Ya-Chen, 47
MacAuslan, Rowan, 30

Macioce, Stefania, 62
Mahdavi, Pardis, 36
Madurri, Manchali, 113
Maezaky, Shinya, 47
Magnusson, Lars, 53
Maissen, Thomas, 53
Malafouris, Lambros, 40
Malcolm, Noel, 53
Maliks, Reidar, 53
Mao, Ho-kwang, 113
Marías, Fernando, 17
Marmot, Michael, 106
Mattarollo, Steven, 133
Matteoli, Marco, 70
Matthiae, Paolo, 70
Matveev, Segrey, 98
Mayhew, Emily, 30
Mazower, Mark, 30
McElligott, Anthony, 30
McKee, Christopher, 93
Mény, Yves, 53
Merridale, Catherine, 30
Meyerowitz, Elliot, 125
Michaut, Lydia, 86
Milner, Brenda, 137
Milstein, Oren, 129
Milward, Alan, 30
Morcom, Shaun, 30
Mortimer, Sarah, 53
Moscovici, Serge, 34
Moscovitch, Morris, 137
Mout, Nicolette M.E.H., 23, 70
Mühle, Eduard, 30
Munteanu, Dana, 17

N

Nagel, Thomas, 64

Natanzon, Sergey, 98
Nelson, Eric, 53
Nicolaci, Michele, 62
Nijhout, Frederik H., 109
Noor, Mohamed, 109
Nord, Philip, 30
Nowicki, Stephen, 109

O

Oblezin, S.V., 98
Oudai Celso, Yamina, 70
Ozkul, Basak Demires, 44

P

Panayi, Panikos, 30
Panov, Taras, 98
Park, Jong Phil, 47
Pastur, Leonid, 98
Patel, Kiran, 30
Peggy, Pik Ki, 47
Peñafiel, Nicolás, 109
Petren, Kenneth, 109
Petrolini, Chiara, 70
Petrucci, Armando, 17
Petruccione, John, 17
Pettit, Philip, 53
Pick, Daniel, 30
Piedrahita, Paolo, 109
Polenta, Gianluca, 121
Pons, Silvio, 30
Positselski, L., 98
Pouzet, Jean-Pascal, 58
Prachumwat, A., 96

Q

Quataert, Eliot, 93

R

Raben, Remco, 30
Radding, Charles M., 17
Radhakrishnan, Manu, 17
Raichle, Marcus, 137
Ramos-Womack, Margarita, 109
Raphaël, Freddy, 26
Razborov, Alexander, 98
Read, Christopher, 30
Reades, Jonathan, 44
Recchia Francesca, 44
Reinisch, Jessica, 30
Renfrew, Colin, 40
Reuter, Martina, 53
Reyer, Uli, 109
Riall, Lucy, 30
Ricklefs, Robert, 109
Rivera, Jaqueline., 113
Romijn, Peter, 30
Rösch, Petra, 47
Rossi, Carla, 58
Rossi, Federica, 17
Rossi Monti, Paolo, 70
Rostaing, Corinne, 26
Rostam-Kolayi, Jasamin, 36
Rothschild, Emma, 30
Rovinski, M., 98
Rowland, Ingrid, 17
Rueger, Jan, 30
Rüegg, Walter, 20, 26
Ryan, Michael, 109
Rybnikov, L., 98

S

Sabnis, Sonia, 17
Salavec, Gyongyver, 106
Salenice, Irena, 30

Salgado, Nelly, 106
Salvatici, Silvia, 30
Sanchez, Pablo, 109
Santelli, Emmanuelle, 26
Savin, A., 98
Schillaci, Alessandro, 121
Schimmelpfennig, Irene, 131
Schlombs, Adele, 47
Schnapper, Dominique, 26
Scholz, Gottfried, 50
Schmidt, Georg, 53
Schmitt, Alexander, 53
Schneider, Nicola, 50
Schubert, Leo, 17
Schulze, Rainer, 30
Schweizer, Anton, 47
Schwenk, Klaus, 109
Seibold, Eugen, 89
Sergeev, Armen, 98
Sevela, Marie, 30
Shadrin, A., 98
Shapiro, Kristen, 93
Shaw, Kerry, 109
Shen, Alexander, 98
Shephard, Ben, 30
Shi, Jie, 47
Shilnikov, Leonid, 98
Shimazu, Naoko, 30
Shirali, Mahnaz, 26
Shiryaev, Albert, 98
Shissler, Holly, 36
Shkredov I. (2.7)
Shvidkovsky, Dmitry, 17, 47, 62
Sierhius, Freya, 53
Silvestrini, Vittorio, 34
Sivakumaran, Sandesh, 56
Sivaramakrishnan, Kavita, 106

Skinner, Quentin, 53
Skopenkov, A., 98
Sloan, James G. 56)
Smith, Iain, 30
Smith, Thomas, 109
Smyth, Mark, 133
Snowden, Frank, 30
Snyder, Timothy, 30
Somerville, Chris, 125
Sripada, Chandra, 64
Stacey, Peter, 53
Stargardt, Nick, 30
Stauder, Adrienne, 106
Stauffacher, Werner, 106, 133
Steinert, Johannes-Dieter, 30
Stephanson, Anders, 30
Stern, David, 109
Sternberg, Amiel, 93
Stierle, Karheinz, 20, 58, 67
Street, Sharon, 64
Summerfield, Penny, 30
Sun, Lei, 129
Swain, Nigel, 30

T

Tahvanainen, Antti, 53
Taimanov, Iskander, 98
Takahashi, Nobushiro, 47
Takamatsu, Mari, 47
Tanner, Jakob, 30
Thane, Pat, 30
Thomas, Keith, 30, 44
Thompson, John, 109
Timorin, V.A., 98
Tits, Jacques, 98
Tohidi, Nayereh, 36
Tooze, Adam, 30

Toubert, Pierre, 26
Touraut, Caroline, 26
Tremel, Tausch, 135
Trentmann, Frank, 30
Treshchev, Dmitry, 98
Troncarelli, Fabio, 17
Tsai, Suey-ling, 47
Tsfasman, Michail, 98
Tsilaga, Flora, 30
Tully, James, 53

U

Urchueguía, Cristina, 50

V

Vale, Lawrence, 44
Van Miert, Dirk, 23
Van Montagu, Marc, 125
Vassiliev, Victor, 98
Vdovin E.P., 98
Veca, Salvatore, 64, 53
Vershik, Anatoly, 98
Virchillo Franklin, Carmela, 17
Vinberg, Ernest, 98
Volpi, Caterina, 62

W

Wachsmann, Nik, 30
Wake, David, 109
Wakita, Mio, 47
Wang, Lin, 113
Wang, Su-chin, 47
Wang, Xianfeng, 131
Wanzenried, Elisabeth, 50
Watkins, Kate, 137
Webb, Philippa, 56
Weindling, Paul, 30

Weinrich, Harald, 58
Wenzel, Claudia, 47
West-Eberhard, Mary Jane, 109
White, Elizabeth, 30
White, Nick, 30
Wikelski, Martin, 109
Wilde, Ralph, 56
Wildhaber, Luzius, 56
Winter, Jay, 30
Won, Sungyong, 129

X

Xue, Lei, 47

Y

Yao, Ning, 47

Yella, Aswani, 135
Yi, Lidu, 47
Yilmaz, Huseyin, 53
Yoshida, Ken, 47
Yu, Jimin, 131

Z

Zahra, Tara, 30
Zaidi, Waqar, 30
Zarmakoupi, Mantha, 17
Zaskalczky, Marton, 53
Zatorre, Robert, 137
Zelikin, Mikhail, 98
Zeng, Charles Qiaoshi, 113
Zink, Michel, 58
Zuccari, Alessandro, 62