



Wissenschaftskolleg zu Berlin

INSTITUTE FOR ADVANCED STUDY

ARBEITSVORHABEN DER FELLOWS
FELLOWS' PROJECTS 2009/2010

Herausgeber:
Wissenschaftskolleg zu Berlin
Wallotstraße 19
14193 Berlin
Tel.: +49 30/89 00 1-0
Fax: +49 30/89 00 1-300
wiko@wiko-berlin.de
wiko-berlin.de

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Wenn nicht anders angegeben, erstrecken sich die Fellowships von Oktober 2009 bis Juli 2010.

If not otherwise indicated, the Fellowships extend from October 2009 to July 2010.

VORWORT

In dieser Broschüre werden die Fellows des Wissenschaftskollegs im Akademischen Jahr 2009/10 vorgestellt. Im Zentrum steht die Beschreibung der Arbeitsvorhaben, denen sie sich während ihres Aufenthaltes am Wissenschaftskolleg widmen wollen. Dazu kommen bibliographische Empfehlungen mit den Titeln einiger Aufsätze oder Bücher, die sie Interessenten zur Lektüre empfehlen, sowie kurze biographische Angaben.

Die meisten Fellows kommen für ein volles Akademisches Jahr (Oktober bis Juli) und verfolgen ein individuelles Forschungsvorhaben. In jedem Jahr gibt es aber auch eine Reihe von Wissenschaftlern, die in Schwerpunktgruppen eingebunden sind. Die Zugehörigkeit zu einer Schwerpunktgruppe sowie gegebenenfalls eine kürzere Aufenthaltsdauer sind jeweils vermerkt.

In der Zeit zwischen dem Redaktionsschluss dieser Broschüre und dem Beginn des Akademischen Jahres am 1. Oktober 2009 können sich noch leichte Änderungen ergeben. Aktualisierte Informationen zu den Fellows und ihren Arbeitsvorhaben sowie zu Veranstaltungen mit Fellows und zum Wissenschaftskolleg insgesamt stehen auf der Internetseite des Wissenschaftskollegs (www.wiko-berlin.de) zur Verfügung.

Berlin, im Juli 2009

PREFACE

This brochure presents the Fellows of the Wissenschaftskolleg of the academic year 2009/10. The emphasis here is on their descriptions of the work they plan to pursue during their stay at the Wissenschaftskolleg, plus the titles of some articles or books they recommend and short biographical notes.

The majority of the Fellows come for an entire academic year (October through July), and the invitation is usually made on the basis of their individual research plans. But each year there are also a number of researchers who are integrated in focus groups. Membership in a focus group and a shorter planned stay are noted for each Fellow, where applicable.

Between the deadline for submission to this brochure and the beginning of the academic year on October 1, 2009, some minor changes may arise. Up-to-date information on the Fellows, their work plans, and the Wissenschaftskolleg in general is available on the Wissenschaftskolleg's website (www.wiko-berlin.de).

Berlin, July 2009

GRO VANG AMDAM

from January 2010 to February 2010

Dr., Associate Professor of Integrative Neuroscience and Sociobiology
Norwegian University of Life Sciences, Ås

Born in 1974 in Norway

Studied Theoretical Regulatory Biology at the Norwegian University
of Life Sciences

LIFE HISTORY “GROUND PLANS” IN SOCIAL INSECT EVO-DEVO

Focus Group *Social Insects as a Model System for Evolutionary Developmental
Biology*

Recent work from my group and collaborators suggests that selection on major life history regulators may have been central to evolution of insect social behavior. By defining a “ground plan” of co-regulated traits, these systems can contribute to predictable variation in social phenotypes and serve as substrates for selective breeding.

I would like to mature these hypotheses into a heuristic framework that describes my ideas on the mechanisms of the “ground plan”. This framework will allow the focus group to expand its explanatory models to include specific candidate regulators. I believe this extended insight can change our understanding of how social behavior can emerge.

Recommended Reading

- Linksvayer, T. A., O. Rueppell, O. Kaftanoglu, R. E. Page, and G. V. Amdam. 2009. "The genetic basis for transgressive ovary size in honey bee workers." *Genetics*, in press.
- Patel, A., K. F. Fondrk, O. Kaftanoglu, C. Emore, G. Hunt, K. Frederick, and G. A. Amdam. 2007. "The making of a queen: TOR pathway is a key player in diphenic caste development." *PLoS ONE* 6: e509. Featured in *Nature*, Research highlights.
- Amdam, G. V., A. Csondes, M. K. Fondrk, and R. E. Page. 2006. "Complex social behaviour derived from maternal reproductive traits." *Nature* 439: 76–78.

ARJUN APPADURAI

from January 2010 to April 2010

Ph.D., Goddard Professor of Media, Culture, and Communication
New York University

Born in 1949 in Bombay

Studied Anthropology at Brandeis University and Social Thought
at the University of Chicago

MAX WEBER AND THE SPIRIT OF FINANCIALISM

This project is intended to bring Max Weber's ethical and historical work, especially his classic work *The Protestant Ethic and the Spirit of Capitalism*, to bear on the recent crises of the global economy. There will be a special effort to revive Weber's reflections on the relation between salvational uncertainty and entrepreneurial methodicality as features of the Calvinist personality. The analysis will also seek to extend the Weberian perspective to later work, notably that of Frank Knight, on the relationship between risk and uncertainty. The working argument is that, as economics has made increasing use of ideas of risk and risk management to build increasingly leveraged and abstract tools of financial speculation, the problem of uncertainty, both ethical and instrumental, has been largely forgotten. Today's financialism, which has led to unimagined scales of wealth generation, has also produced untold amounts of financial loss and institutional damage. This financialist ethic does not issue from any single religion or soteriology, but is driven by new ideas of vocation, calling, charisma and magical instrumentality, all of which could benefit from a Weberian perspective. My four months at the Wissenschaftskolleg will give me an invaluable opportunity to sharpen my questions, consult with the best Weber scholars in the world, and complete some initial essays on the subject.

Recommended Reading

Appadurai, Arjun. *Worship and Conflict Under Colonial Rule*. Cambridge: Cambridge University Press, 1981.

—. “Disjuncture and Difference in the Global Cultural Economy.” *Public Culture* 2, 2 (1990): 1–24.

—. *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis: University of Minnesota Press, 1996.

—. *Fear of Small Numbers: an Essay on the Geography of Anger*. Durham: Duke University Press, 2007.

EVA LIINA ASU-GARCIA

Andrew W. Mellon Fellow from May 2010 to July 2010

Ph.D., Estonian and General Linguistics

University of Tartu

Born in 1971 in Tartu, Estonia

Studied English and Swedish at the University of Tartu and

Linguistics at the University of Cambridge

ASPECTS OF ESTONIAN INTONATION

My research falls in the field of experimental phonetics and concerns above all such prosodic features of Estonian as intonation, rhythm and quantity. In my project, I plan to explore some aspects of Estonian intonation that have not been analyzed in depth previously. Very little research has targeted aspects of Estonian prosody in spontaneous speech and intonational variation. Also, virtually no work has explicitly investigated the interaction between word and utterance level prosodies. My project aims to combine these relatively neglected aspects of Estonian prosodic research focussing on the study of word and sentence prosody in spontaneous language usage, while taking into account variation and various interactions at work between different prosodic features. More specifically, I plan to carry out an analysis of the prosodic characteristics of varieties spoken on the islands of Estonia. The islands are prosodically one of the most interesting areas in Estonia. They have been considered the transition area between the Scandinavian tone languages and Finnic languages lacking word tone. Using recordings of spontaneous speech, I plan to investigate more closely the variety of Estonian spoken on the Island of Kihnu, comparing its intonation to that of the Island of Saaremaa and Standard Estonian.

Recommended Reading

Asu, Eva Liina. 2005. "Intonational Contour Alignment in Saaremaa and Standard Estonian." *Linguistica Uralica* 2, 107–112.

Asu, Eva Liina and Francis Nolan. 2007. "The Analysis of Low Accentuation in Estonian." *Language and Speech* 50 (4), 567–588.

Nolan, Francis and Eva Liina Asu. 2009. "The Pairwise Variability Index and Coexisting Rhythms in Language." *Phonetica* 66 (1–2), 64–77.

RAJEEV BHARGAVA

Ph.D., Professor of Political Theory

Centre for the Study of Developing Societies, Delhi

Born in 1954 in Delhi

Studied Economics at the University of Delhi and Philosophy of

Social Science/Political Theory at the University of Oxford

FORMS OF SECULARITY BEFORE MODERN SECULARISM

For over a decade now, I have tried to argue that a distinctive conception of political secularism that offered a real alternative to mainstream (idealized American or French) conceptions of secularism has been worked out in the subcontinent. This conception is not available as a doctrine or a theory but is present loosely in the best moments of inter-communal practice, in the Constitution of India appropriately interpreted, and in the scattered writings of some of their best political actors. I have identified the conceptual and normative structure of this model. A somewhat forced, formulaic articulation of Indian secularism could go something like this: The state must keep a principled distance from all public or private, individual-oriented or community-oriented religious institutions for the sake of the equally significant (and sometimes conflicting) values of peace, this-worldly prosperity, dignity, liberty, and equality (in all their complicated individualistic and communitarian versions). Surprisingly, this claim is not properly accepted even in India, where a virtual consensus exists among both opponents and defenders of secularism that it is alien to Indian culture and civilization. I have now begun work to challenge this consensus and to explore the conceptual spaces that were opened up in the past that formed part of the background conditions that made possible the emergence of this distinctive conception.

During my fellowship year, I shall try to offer a non-teleological conceptual history of the secular ideal in India. This examination of forms of secularity before modern Indian secularism will hopefully throw new light on its concep-

tual and normative structure and help further refine or modify its understanding.

Recommended Reading

Bhargava, Rajeev. *Individualism in Social Science: Forms and Limits of a Methodology*. Oxford: Clarendon Press and Delhi: Oxford University Press, 1992. (Paperback edition in 2008.)

—. “What is Secularism for.” In *Secularism and Its Critics*, edited by Rajeev Bhargava. Delhi: Oxford University Press, 1998. (Paperback edition in 1999.)

—. “Political Secularism: Why It Is Needed and What Can Be Learnt from Its Indian Version” In *Secularism, Religion and Multicultural Citizenship*, edited by Geoffrey Brahm Levey and Tariq Modood, 82–109. Cambridge: Cambridge University Press, 2009.

KATHERINE BOO

from February 2010 to June 2010

Staff Writer, *The New Yorker*

Washington, DC

Born in 1964 in Washington, DC

Studied English Literature and Philosophy at Barnard College, New York

ON THE WESTERN EXPRESS

A work of narrative nonfiction that tracks, over the course of three years, the lives of some of the 100,000 slum-dwellers who occupy land owned by the Mumbai airport. More broadly, the project will consider the infrastructure of opportunity in contemporary India.

Recommended Reading

Boo, Katherine. "Opening Night." *The New Yorker Magazine* February 23, 2009.

—. "Swamp Nurse." *The New Yorker Magazine* February 6, 2006.

—. "The Marriage Cure." *The New Yorker Magazine* August 18, 2003.

HORST BREDEKAMP

Permanent Fellow des Wissenschaftskollegs
Dr. phil., Professor der Kunstgeschichte
Humboldt-Universität zu Berlin

Geboren 1947 in Kiel

Studium der Kunstgeschichte, Archäologie, Soziologie
und Philosophie in Kiel, München, Berlin und Marburg

DIE GEBURT DER SKULPTUR AUS DEM GEIST IHRER NEGATION

Ich möchte versuchen, ein Projekt, das ich bereits während meines Fellow-Jahres 1991/92 bearbeitet habe, zu einem Abschluss zu bringen. Es handelt sich um den Versuch, die Entfaltung der romanischen Skulptur als Überwindung des Verbotes ihrer selbst zu deuten. Bis heute ist ungeklärt, warum es im 11. Jahrhundert geradezu zu einer Explosion der Bauplastik kam. Eine nicht minder wichtige Frage ist, warum sich dieses verbotene Medium zunächst im christlichen Nordspanien entfaltete. Dieser für die europäische Skulptur überaus folgenreiche Vorgang soll beschrieben und sowohl historisch wie bildtheologisch erörtert werden.

Lektüreempfehlung

Bredekamp, Horst. "Bild – Akt – Geschichte." In *Geschichtsbilder* 46. Deutscher Historikertag vom 19.–22. September 2007 in Konstanz. Berichtsband, herausgegeben von Clemens Wischermann, Armin Müller, Rudolf Schlögl und Jürgen Leipold, 289–309. Konstanz, 2007.

ALFRED BRENDEL
von März 2010 bis Mai 2010
Musiker
London

Geboren 1931 in Wiesenberg, heute Kozianau, Tschechien
Studierte Klavier an der Akademie für Musik und Darstellende Kunst, Wien

ÜBER MUSKALISCHE INTERPRETATION

Zusammenfassung alles dessen, was ich über Interpretation mitteilen kann, als Grundlage für eine Vorlesungsreihe in den USA im folgenden Jahr.

Lektüreempfehlung

Brendel, Alfred. *Alfred Brendel on Music: Collected Essays*. London: Robson Books, 2001; aktualisierte Neuauflage: J R Books, 2007.

Deutsche Ausgabe: *Über Musik: Sämtliche Essays und Reden*. München: Piper, 2001; aktualisierte Neuauflage, 2007.

—. *Ausgerechnet ich: Gespräche mit Martin Meyer*. München: Hanser, 2001.
Englische Ausgabe: *The Veil of Order: Alfred Brendel in Conversation with Martin Meyer*. London: Faber and Faber, 2002.

—. *Spiegelbild und schwarzer Spuk: Gesammelte und neue Gedichte*. München: Hanser, 2003.

PENELOPE BROWN

Ph.D., Anthropology, Linguistics

Max Planck Institute for Psycholinguistics, Nijmegen

Born in 1944 in Summit, NJ, USA

Studied Psychology, Anthropology, and Linguistics at the University of Iowa
and the University of California, Berkeley

SOCIAL INTERACTION AND CONVERSATION IN TZELTAL MAYAN

This project involves researching and writing a book on interactional principles and conversational structure in the Mayan language Tzeltal, a language spoken in southeastern Mexico where I have conducted linguistic and ethnographic research over nearly 40 years. The book will be the culmination of my work on Tzeltal interaction, based on the belief that from the in-depth comparative study of talk-in-interaction we can explore the extent to which interaction has a universal base and at the same time ask how culture influences the structure and interpretation of speech in naturally occurring conversations. Drawing on a large corpus of audio- and videotaped natural conversation in Tzeltal, I will use the methods of Conversational Analysis to examine particular conversational practices for their universal vs. culture-specific features, thereby contributing to a cross-linguistic base for conversation analysis and for social interaction more generally. Taking the whole communicative repertoire (speech, prosody, gesture, facial expression) as contributing to the meanings expressed in interaction, I will present micro-analyses of particular structures and actions, with the aim of constructing a holistic picture of the characteristics of Tzeltal conversational practices and exploring what they can contribute to an understanding of general principles of social interaction. I will set the work on Tzeltal in the context of what is known about conversational interaction in English, in European languages and cultures, and, to a lesser extent, in Chinese, Japanese, and other languages.

Recommended Reading

Brown, Penelope and Stephen C. Levinson. *Politeness: Some Universals in Language Usage*. Cambridge: Cambridge University Press, 1987.

Brown, Penelope. "Conversational Structure and Language Acquisition: The Role of Repetition in Tzeltal Adult and Child Speech." *Journal of Linguistic Anthropology* 8, 2 (1998): 197–221.

Brown, Penelope. "Principles of Person Reference in Tzeltal Conversation." In *Person Reference in Interaction: Linguistic, Cultural, and Social Perspectives*, edited by Nicolas J. Enfield and Tanya Stivers, 172–202. Cambridge: Cambridge University Press, 2007.

MARIA LUISA CATONI

Dr., Professor of Iconography of Ancient Art

Università degli Studi di Pisa and Scuola Normale Superiore di Pisa

Born in 1967 in Spoleto, Italy

Studied Classical Archaeology at the Università degli Studi di Pisa and the Scuola Normale Superiore di Pisa

THE DISEASE OF WOMEN

The project deals with the representations of giving birth in Ancient Greece, in the literary, technical (medical) and iconographical traditions.

My interest focuses on the ambiguous status of giving birth. The event seems to be too strong and appealing not to be metaphorized and referred to men, which is what has happened since Homer. The metaphor of giving birth is referred to men in order either to communicate a strong pain (e. g. caused by a wound in battle) or to express the labour of philosophical knowledge, which produces “metaphorical children”. What is left then to women, who are the ones literally involved in the event? The hypothesis is that the very possibility of metaphorizing giving birth could have in some way – to be researched – required to move the focus of the real, feminine prerogative of giving birth towards the sphere of disease. Literal childbirth as disease is attested both in the literary tradition (e. g. Plato) and in the iconographical one; here women are represented with the iconographical traits of absolute lack of control. This specific iconography was created around the end of the 5th century and the beginning of the 4th: representations of the subject are attested in music, theatre, painting and relief sculpture (function plays a major role here). The irrational, uncontrolled way women have to express *pathe* (such as giving birth) seems to be paralleled by the way they are represented in love: some traits of the iconography of women in childbed are used for women in love.

My final objective is to enter the very process of the specific ideological moves, of montage, for the creation of one of the most long-lasting prejudices in

Western culture; i. e., the idea of women as weak, irrational and uncontrolled in relation to *pathe*.

Recommended Reading

Catoni, Maria Luisa. “Le regole del vivere, le regole del morire. Su alcune stele per donne morte di parto.” *Revue Archéologique* I (2005): 27–53.

—. *Schemata. Comunicazione non verbale nella Grecia antica*. Turin: Boringhieri, 2008.

—. “Il Bello fra etica e arte.” In *La Forza del Bello: L'Arte Greca Conquista l'Italia (Mantova, Palazzo Te)*. Catalogo a cura di Maria Luisa Catoni. Milan: Skira, 2008.

LORRAINE DASTON

Permanent Fellow of the Wissenschaftskolleg

Ph.D., Director of the Max Planck Institute for the History of Science, Berlin

Professor, Committee on Social Thought, University of Chicago

Born in 1951 in Michigan, USA

Studied History, Philosophy of Science, and History of Science

at Cambridge and at Harvard

THE AGE OF OBSERVATION, 1600–1850

In the academic year 2009–10, I will be working on a book that aims to provide scholars and students with a synoptic overview of how observation became the most fundamental practice in the human and natural sciences from the early seventeenth to the mid-nineteenth century. During this period, observation became a method, a logic, and a way of life for European savants who watched everything from the weather to oysters to the customs of peoples at home and abroad. Far from being regarded as a lowly art, plied by unlettered artisans and peasants (as it had been earlier, in Antiquity and the High Middle Ages), or an inferior substitute for experiment (as it would be later, in the late nineteenth and twentieth centuries), observation had by the late seventeenth century become an essential and ubiquitous scientific practice, an art in the service of science. It featured prominently in the titles of learned books and articles; its prestige surpassed that of both experiment and deduction; it was the yardstick by which savants took each other's measure; it was even possible to become a "genius of observation". Observation was arguably the leading form of learned experience during the long Enlightenment, a distinction that it enjoyed neither before nor after this period.

This is a story that embraces all of the sciences, human and natural: astronomers and embryologists, botanists and philologists, physicists and ethnographers all honed their skills of seeing (and sometimes hearing, touching, smelling, and tasting), noting, describing, remembering, and judging. Observation also

embraced the use of instruments and the making of images, from rough sketch to engraved plate, as ways of extending the senses and fortifying memory and judgment. Cognitive practices like attention and memory are by their nature more difficult to excavate; yet they are integral to any understanding of what is epistemic about observation. It would be a mistake to dismiss them as merely psychological and therefore not of epistemological import. They certainly *were* psychological, but they also crystallized objects of inquiry, dictated how they could be rendered intelligible, and, above all, bridged the particular and the universal and connected past, present, and future.

Recommended Reading

Daston, Lorraine. *Wunder, Beweise und Tatsachen: Zur Geschichte der Rationalität*. Frankfurt/Main: Fischer, 2001.

Daston, Lorraine with Peter Galison. *Objectivity*. New York: Zone Books, 2007. (German translation: *Objektivität*. Frankfurt/Main: Suhrkamp, 2007.)

Daston, Lorraine. "Type Specimens and Scientific Memory." *Critical Inquiry* 31 (2004): 153–182.

DALE F. EICKELMAN

from January 2010 to April 2010

Ph.D., Professor of Anthropology and Human Relations

Dartmouth College

Born in 1942 in Evergreen Park, Ill., USA

Studied Anthropology and Islamic Studies at Dartmouth College,

McGill University, and University of Chicago

MAINSTREAMING ISLAM: TAKING CHARGE OF THE FAITH

I am planning to explore the influential impact that educated Muslims are having on rethinking Islamic thought and practice. My thesis is that the most profound transformations in the Muslim world today are occurring through the actions of middle-class professionals and religious intellectuals. This process of “mainstreaming” – which includes tolerance of other faiths and accommodation of alternative Muslim religious ideas and practices – presents Islam as an integral and “acceptable” part of civic life and requires a concrete set of skills and aptitudes. By building a better understanding of these skills through in-depth field work and drawing on my past research in Indonesia, Jordan, Morocco, Oman, Turkey and the United Arab Emirates, my work will present a more complex analysis of the effects of those reformers who are rethinking religion outside of traditional boundaries, or are shaping new social movements.

Recommended Reading

Eickelman, Dale F. *Knowledge and Power in Morocco*. Princeton: Princeton University Press, 1985.

Eickelman, Dale F. and James Piscatori. *Muslim Politics*. Princeton: Princeton University Press, 2004 (new edition).

Eickelman, Dale F. and Armando Salvatore. "Muslim Publics." In *Public Islam and the Common Good*, edited by Armando Salvatore and Dale F. Eickelman, 3–27. Leiden: Brill, 2004.

JENS EISERT

Dr. rer. nat., Professor für Quanteninformationstheorie
Universität Potsdam

Geboren 1970 in Ludwigshafen
Studium der Physik an der Albert-Ludwigs-Universität Freiburg
und der University of Connecticut

INFORMATION, KOHÄRENZ, VERSCHRÄNKUNG

Schwerpunkt *Klassische Simulation quantenmechanischer Systeme: Klassische Information versus Quanteninformation*

Einzelne physikalische Systeme des Ultrakleinen wie Atome, Photonen – also Quantenlichtteilchen – und Ionen gehorchen Naturgesetzen, die fundamental verschieden sind von denen, die wir von der durch die Alltagserfahrung geprägte makroskopische Welt kennen. Diese Welt wird bestimmt durch Gesetze der Quantenmechanik, einer fundamentalen physikalischen Theorie, die zu einer enormen Genauigkeit experimentell bestätigt ist. Diese Theorie macht prinzipiell nur statistische Vorhersagen, sagt aber in aller Regel nichts darüber aus, welches Messergebnis man konkret zu erwarten hat. Einzelne Quantensysteme wie einzelne Atome können auch in Zuständen sein, die kein klassisches Analogon kennen, und die zu stärkeren Korrelationen führen, als dies in der von uns anschaulich vorstellbaren klassischen Welt denkbar ist. Diese Verschiedenartigkeit dieser Theorie von all dem, was wir aus der Erfahrung kennen, hat seit ihrer rauschhaften Entwicklung in den späten 20er Jahren des letzten Jahrhunderts eine rege Debatte ausgelöst über den Status des absoluten Zufalls, der Nichtlokalität in der Theorie, und von Kausalität.

Lektüreempfehlung

Cramer, M., C. M. Dawson, J. Eisert, and T. J. Osborne. 2008. "Exact relaxation in a class of non-equilibrium quantum lattice systems." *Physical Review Letters* 100, 030602.

C. M. Dawson, J. Eisert, and T. J. Osborne. 2008. "Unifying simulation methods of quantum many-body systems." *Phys. Rev. Lett.* 100, 130501.

YEHUDA ELKANA

Ph.D., President and Rector (emer.)

Central European University Budapest

Born in 1934 in Subotica, today Republic of Serbia

Studied Physics and History at Hebrew University of Jerusalem
and Brandeis University

THE UNIVERSITY OF THE 21ST CENTURY: CONTENT AND CURRICULA

Higher education in the world, but especially in Europe, is in turmoil – witness the Bologna process, Excellence Centers, the discussion of quality in general, market-orientation, introduction of new IT methods, adult education, continuous education, distance learning and many more new ideas that remain to be explored.

Moreover, the main preoccupation of university administrations and governmental ministries of education is with structures, administrative streamlining and efficiency, accountability, assessment and quality control (whatever this may mean), private versus public funding, and the “if” and the “how much” of student participation in the cost of their own education. And all of this is indeed very important.

However, certainly no less important are questions of content and curricula – questions to which very little attention is paid. What is the social, cultural, and purely intellectual task of the university in the 21st century? Has it changed over the centuries? Which other institutions – if any – serve to create new knowledge? What kind of new knowledge is our age in need of? In what ways can and should the university supply that new knowledge? Through new curricula, new disciplines, or perhaps through restructuring of the university in quite a different, problem-focused way than its traditional division into faculties of natural science, social science and the humanities? This is an intellectual task

par excellence, namely to rethink what Francis Bacon called the division of the entire “*globus intellectualis*” into disciplines.

This agenda then raises the issue as to whether a single ideal curriculum should continue to deal with all these new tasks, or whether Europe has to move in the direction of differentiated curricula – i. e. diverse purposes and diverse student populations demand diverse curricula.

What kind of general education should an undergraduate in the 21st century possess? Should it comprise a new liberal arts concept or a new definition of humanistic education? What does it take for a student, in the course of three or four years of university education, to acquire both the rudiments of a certain discipline and to understand the great problems facing the world today – an understanding at least comparable to what one would expect to be gained from reading a good quality newspaper? And what does it take for that same student to have acquired enough of a scholarly methodology to know how to then continue pursuing their particular interests?

Can and should Europe continue in that certain tradition of the professions (medicine, engineering, law, accountancy, administration, etc.) being studied directly after high school, within the framework of an undergraduate curriculum, and with no initial degree in general education – or does Europe’s particular socio-political needs presuppose a general education (e. g. a B. A.) for every student?

At the other end of the educational continuum, precisely what kind of doctorate is needed in both the natural and social sciences as well as in the humanities? The process of how doctoral students choose their topic, the intellectual climate in which they work, and the type of scholarly community in which they are ensconced – in short, the entire academic milieu – must be rethought.

Obviously, these issues are not independent of the strong European desire to compete successfully with research and development and HE in the United States, nor are they independent of considerations regarding the costs incurred to achieve these aims.

My year at Wiko will be dedicated to making a start on the study of this complex of issues.

MARIE FARGE

Dr. Dr., Mathematics and Physics

Directeur de Recherche au Centre National de la Recherche Scientifique Paris

Born in 1953 in Paris

Studied Engineering at Stanford University, Physics at Université Paris VII,
and Mathematics at Université Paris VI

WAVELETS AND TURBULENCE

I plan to complete the book entitled *Wavelets and Turbulence* that Cambridge University Press has asked me to write. Turbulence is an open problem for both mathematics and physics, having a lot of applications in engineering. Wavelet theory is a new branch of harmonic analysis that I use to analyze, compute and model turbulent flows.

Recommended Reading

Farge, Marie. 1986. "L'approche numérique en physique." *Fundamenta Scientiae* 7, 2: 155–175

Farge, Marie. 1992. "Wavelet transforms and their applications to turbulence." *Ann. Rev. Fluid Mech.* 24: 395–457.

Farge, Marie and Kai Schneider. 2006. "Wavelets: application to turbulence." *Encyclopedia of Mathematical Physics*, eds. J. P. Francoise, G. Naber and T. S. Tsun, 408–419. Oxford: Elsevier.

ANNEGRET FAUSER

Marie Curie Fellow

Ph.D., Professor of Music

The University of North Carolina at Chapel Hill

Born in 1963 in Welzheim, Baden Württemberg

Studied Musicology, Art History, and Philosophy at the Rheinische Friedrich-

Wilhelms-Universität Bonn, the Ecole Normale Supérieure, Paris, and the

Université de la Sorbonne-Paris IV

SOUNDS OF WAR: MUSIC IN AMERICA DURING WORLD WAR II

During World War II, musical life in the United States reflected – often closely – the dynamic of the war: the early apprehension, intense debates, and preparatory work in 1939–41; the trajectory from deep anxiety in 1942 to increasing confidence by 1944; and finally the shift to victory and peace in 1945–46, which brought significant efforts to promote new American music overseas. Composers, performers, and musicologists in America contributed to the war effort actively and consciously as musicians. Thus Marc Blitzstein, Elliott Carter, Aaron Copland, Henry Cowell, Roy Harris, Colin McPhee, and Kurt Weill were all involved in the propaganda missions of the Office of War Information. Performers from Yehudi Menuhin to Lili Pons played and sang for soldiers at the front. Civilian commissions for new music focused on patriotic and “martial” subjects, most famously the series of fanfares that Eugene Goossens, the chief conductor of the Cincinnati Symphony Orchestra, requested from American composers and from European musicians in exile: Copland’s *Fanfare for the Common Man* is a still much-performed result. Classical music was heard on the radio and in film scores; it was performed in the Armed Forces, for example by the Camp Lee Symphony Orchestra; and it even played a role in the intelligence-gathering work of the Office of Strategic Services. Indeed, classical music in 1940s America had a cultural relevance and ubiquity that is hard to

imagine today, and it played an important role as a cultural counterpoint to the military effort as musicians and politicians were – in Henry Cowell’s words – “shaping music for total war.”

Recommended Reading

Fauser, Annegret. *Musical Encounters at the 1889 Paris World’s Fair*. Rochester: University of Rochester Press, 2005.

—. “Gendering the Nations: The Ideologies of French Discourse on Music (1870–1914).” In *Musical Constructions of Nationalism: Essays on the History and Ideology of European Musical Culture, 1800–1945*, edited by Michael Murphy and Harry White, 72–103. Cork: Cork University Press, 2001.

—. “Aaron Copland, Nadia Boulanger, and the Making of an ‘American’ Composer.” *The Musical Quarterly* 89 (2006): 524–55. Special Issue on “Music & Identity”, edited by Annegret Fauser and Tamara Levitz, published 2008.

DAVID FREEDBERG

from October 2009 to December 2009

D.Phil. (Oxon), Pierre Matisse Professor of the History of Art and
Director, Italian Academy for Advanced Studies in America
Columbia University, New York

Born in 1948 in Cape Town, South Africa

Studied Greek and Latin Philology at Yale University and History of Art
at Oxford University

MOTION AND EMOTION IN THE HISTORY OF ART

My 1989 *The Power of Images: Studies in the History and Theory of Response* was dedicated to an analysis of the symptoms of visceral and emotional responses to art across history and continents. It was not overtly concerned with the relations between how images look and how people respond to them. This is the task I hope to complete while at the Wissenschaftskolleg.

For a long time the emotions were excluded from the history of art. Bodily responses were separated from the largely cognitive domain of art. Narrow interpretations of Kant's *Critique of Judgment* reinforced such positions. Already from the late 1960s on, however, bodily and emotional responses began to be recuperated for the history of art, mainly as a result of pressures from gender studies. From the 1980s on, the cognitive neurosciences opened different paths to the understanding of embodied and emotional responses.

The question of the relationship between movement and emotion in art is central to the work of Aby Warburg, who followed both consciously and unconsciously on Nietzsche's rejection of Kant, and on late nineteenth- and early twentieth-century writers on empathy like Vischer and Lipps. These subjects dropped out of significant art historical concern for many years, but the new neuroscientific understanding of empathy and of felt imitative responses (as in the work of the mirror group from Parma) has made it possible to reinstate them, as central areas of concern for the history of images and of art.

The aim of the book which I hope to complete will be to outline a theory in which the relationship between motor and cognitive responses to images becomes central to esthetic understanding. Such a theory grows out of my long-standing commitment to the role of emotion and embodiment in responses to images. What is new will be the effort to suggest ways in which the interplay between felt imitative responses and prefrontal evaluation can offer a fruitful path to distinguishing between everyday responses and esthetic ones.

It will be clear that my book is predicated on a number of controversial positions – and not only on the centrality of motor and emotional responses to images in general and to art (or whatever it is that we call art) in particular. I hold the following views: that the humanities can no longer afford to neglect to come to terms with the biology of the brain; that the specter of reductionism has been exaggerated; that the mirror-neuron researches offer the possibility of a fruitful reevaluation of the standard approaches to intention, imitation, and empathy; that motor responses, like perception, are not inevitably cognitive; that vision evolved for movement; that it is both possible and necessary to maintain a distinction between automatic responses and the ways in which they are cognitively processed; that there are correlations between movement and emotion that are capable of being articulated; and that neither gesture nor emotion – like the capacities of the body itself – are fully exhausted by their cultural definition and limitations.

Recommended Reading

- Freedberg, David. *The Power of Images: Studies in the History and Theory of Response*. Chicago and London: Chicago University Press, 1989.
- . *The Eye of the Lynx: Art, Science and Nature in the Age of Galileo*. Chicago: University of Chicago Press, 2002.
- . “Empathy, Motion, and Emotion.” In *Wie sich Gefühle Ausdruck verschaffen: Emotionen in Nahsicht*, edited by K. Herding and A. Krause Wahl, 17–51. Berlin: Driesen, 2007.

RAGHAVENDRA GADAGKAR

Non-Resident Permanent Fellow of the Wissenschaftskolleg

Ph.D., Professor of Ecology

Indian Institute of Science, Bangalore

Born in 1953 in Kanpur, India

Studied Zoology and Molecular Biology in Bangalore

THE ORIGIN AND LOSS OF SOCIALITY IN INSECTS

Many insect species, particularly those of ants, bees, wasps and termites live in societies consisting of large numbers of individuals. Their colonies are often characterised by sophisticated levels of integration, communication and division of labour and by acts of altruism by some individuals for the welfare of the rest of the colony. The mechanism of evolution of such altruistic behaviour and the mechanisms by which the observed levels of integration, communication and division of labour are achieved are of great interest to biologists and laymen alike and are dominant themes in my project.

I have chosen the tropical primitively eusocial wasp *Ropalidia marginata* occurring in Southern India as a model system to investigate these questions. While continuing to study the evolution and organisation of these primitive insect societies, I propose to write during the current year a somewhat pedagogical essay on the methods for and pitfalls in the observational study of animal behaviour.

Recommended Reading

Gadagkar, Raghavendra. *Survival strategies: Cooperation and conflict in animal societies*. Cambridge, Mass.: Harvard University Press, 1997.

—. *The social biology of Ropalidia Marginata: Toward understanding the evolution of eusociality*. Cambridge, Mass.: Harvard University Press, 2001.

—. Interrogating an insect society. *Proceedings of the National Academy of Sciences, USA*, doi:10.1073/pnas.0904317106 (2009).

BORIS GASPAROV

Dr., Boris Bakhmeteff Professor of Russian and East European Studies
Columbia University, New York

Born in 1940 in Rostov on the Don, Russia

Studied Russian Language and Literature at Rostov University, Musicology
at the Musical Academy, Moscow, Slavic Linguistics at the Moscow Pedagogical
University, and Slavic and General Linguistics at the Academy of Science,
Minsk

ALEXANDER PUSHKIN AND THE WORLD OF EARLY EUROPEAN ROMANTICISM

The project's goal is to assess the impact of major themes and motifs of European early Romanticism (1790s–1810s) on Pushkin's artistic and intellectual evolution. While the early Pushkin easily appropriated such Romantic accessories as the exotic chronotope or the sardonic "Byronic" posture, it was later in his career that his work showed his growing awareness of Romantic metaphysical quests concerning the nature of language, Romantic philosophy of history and nationality, and some deeper features of Romantic subjectivity. Particularly important among the categories of early Romantic metaphysics and aesthetics that left an imprint on Pushkin's mature oeuvre were the personalization of the poetic voice; fragmentariness and polyphonic heterogeneity of poetic discourse; irony and auto-irony, understood as an instrument of relativizing consciousness, i. e., more in a Schlegelian than in a Byronic sense; treatment of language and writing as the principal vehicle of the metaphysical sensibility; and finally, the articulation of national consciousness and historical destiny by means of symbolic imagery tinged with messianism. To a large extent, his path showed the reversal of the pattern of development that was typical for Romanticism at large: from its early concerns with the metaphysical foundations of "Romantic poetry" to an increasing emphasis lately on overt stylistic features and narrative devices. In this sense, integrating Pushkin into the Romantic era can enrich the whole

perspective on European Romanticism and its place in literary and intellectual history.

Recommended Reading

Gasparov, Boris. *Poeticheskiĭ iazyk Pushkina kak fakt istorii russkogo literaturnogo iazyka* [Pushkin's Poetics in the History of Russian Literary Language]. Vienna: Wiener slavistischer Almanach, 1992.

A brief English version can be found in: "Pushkin and Romanticism." In *The Pushkin Handbook*, edited by David Bethea, 537–367. Wisconsin: The University of Wisconsin Press, 2005.

—. *Iazyk, pamiat', obraz: Lingvistika iazykovogo sushchestvovaniia* [Language, Memory, and Imagery: Linguistics of Everyday Usage]. Moscow: NLO, 1996.

—. *Five Operas and a Symphony: Word and Music in Russian Culture*. New Haven: Yale University Press, 2005.

LUCA GIULIANI

Rektor des Wissenschaftskollegs
Dr. phil., Professor für Klassische Archäologie
Humboldt-Universität zu Berlin

Geboren 1950 in Florenz
Studium der Klassischen Archäologie, Ethnologie und
Italienischen Literaturwissenschaft an der Universität Basel
und an der Ludwig-Maximilians-Universität München

PHILOSTRAT, *EIKONES*

Die um 200 n. Chr. verfassten *Eikones (Bilder)* des Philostrat gehören zu den Glanzleistungen der griechischen Literatur der römischen Kaiserzeit. Mit ungeheurer Suggestionskraft beschreibt der Autor in diesem Text eine imaginäre Bildergalerie und führt dabei paradigmatisch die Möglichkeiten rhetorischer Bildinterpretation vor. Man hat in der Vergangenheit oft nach dem Realitätsgehalt dieser Bildbeschreibungen gefragt und dabei den entscheidenden Punkt verkannt: Der Text sagt nicht allzu viel über eine reale Bildergalerie aus, wohl aber Entscheidendes über die reale Praxis der Bildbetrachtung. Es gibt kaum einen anderen antiken Text, aus dem so unmittelbar der zeitgenössische Betrachter und Interpret antiker Bildwerke spricht. Das hängt damit zusammen, dass Philostrat nicht nur ein großer Rhetoriker, sondern auch ein herausragender Kenner der Malerei und Bildhauerei gewesen ist. Dementsprechend erfordert dieser Text, wenn er heute angemessen verstanden werden will, auch eine doppelte Kompetenz: Er bedarf der Zusammenarbeit eines Philologen und eines Archäologen. Der Münchner Gräzist Oliver Primavesi (Fellow 2005/06) und ich arbeiten an einer Neuübersetzung des vielfach missverstandenen Werkes, die zugleich auch mit einem philologisch-archäologischen Kommentar versehen werden soll: ein ausgesprochen langfristiges Projekt.

Lektüreempfehlung

Giuliani, Luca. „Die unmöglichen Bilder des Philostrat: Ein antiker Beitrag zur Paragone-Debatte?“ *Pegasos* 8 (2006): 91–116.

STEPHEN GREENBLATT

Non-Resident Permanent Fellow of the Wissenschaftskolleg
Ph.D., The Cogan University Professor of the Humanities
Harvard University

Born in 1943 in Cambridge, Mass.

Studied English Literature at Yale University and
at Cambridge University

THE SWERVE

My principal aim this year is to finish the book I have been writing (tentatively entitled *The Swerve*) on the disappearance for almost a millennium of Lucretius' *De rerum natura* and its momentous recovery in the early fifteenth century. I am interested in what happens when a set of radical ideas, magnificently set forth in a beautiful poem but violently at odds with a culture's dominant theological and scientific understanding, reenters the European imagination.

I am engaged in two further book projects. For the University of Chicago Press, I am preparing a revised English-language version of my Adorno Lectures on Shakespeare that were originally published by Suhrkamp (*William Shakespeare: Freiheit, Schönheit und die Grenzen des Hasses*). And I am in the initial stages of writing a book on the global transformations of the Shakespeare-inspired play, *Cardenio*, that I co-authored a few years ago with Charles Mee. To date, apart from the US production, there have been adaptations performed in India, Japan, Croatia, Spain, and Brazil, and versions are upcoming in Poland, Argentina, Turkey, Egypt, and South Africa.

In addition, I have two substantial editorial projects. As general editor, I am preparing new editions of both *The Norton Shakespeare* and *The Norton Anthology of English Literature*.

Recommended Reading

Greenblatt, Stephen. *Hamlet in Purgatory*. Princeton, NJ: Princeton University Press, 2001.

—. *Will in the World: How Shakespeare Became Shakespeare*. New York: W. W. Norton, 2004.

—. Greenblatt, Stephen. *Shakespeare: Freiheit, Schönheit und die Grenzen des Hasses*. Frankfurt: Suhrkamp, 2007.

Greenblatt, Stephen with Ines G. Županov, Reinhard Meyer-Kalkus, Heike Paul, Pál Nyíri, and Friederike Pannewick. *Cultural Mobility: A Manifesto*. Cambridge: Cambridge University Press, 2009 (forthcoming).

DIETER GRIMM

Permanent Fellow des Wissenschaftskollegs

Rektor des Wissenschaftskollegs (2001–2007)

Dr. Dr. h.c., LL.M. (Harvard), Professor (em.) des Öffentlichen Rechts

Humboldt-Universität zu Berlin;

Bundesverfassungsrichter a. D.

Geboren 1937 in Kassel

Studium der Rechtswissenschaft und Politikwissenschaft in Frankfurt/Main,

Freiburg/Breisgau, Berlin, Paris und Harvard

1. VERFASSUNGSGERICHTSBARKEIT IM VERGLEICH

2. DIE VERFASSUNG UNTER DEM DRUCK DER GLOBALISIERUNG

Die Projekte stehen in Beziehung zueinander. Einerseits hat der Konstitutionalismus seit den Ereignissen von 1989/90 weltweite Verbreitung gefunden und wird immer stärker durch die – nun ebenfalls weltweite – Verbreitung der Verfassungsgerichtsbarkeit geprägt. Andererseits gerät die staatsbezogene Verfassung durch die wachsende Internationalisierung und Globalisierung unter Druck, ohne dass bisher geklärt wäre, ob und wie sich die konstitutionellen Errungenschaften auf überstaatlicher Ebene bewahren lassen.

Lektüreempfehlung

- Grimm, Dieter. *Die Verfassung und die Politik*. München: C. H. Beck, 2001.
- . *Die Zukunft der Verfassung*. 3. Auflage. Frankfurt/Main: Suhrkamp, 2002.
- . „The Constitution in the Process of Denationalization.“ In *Constellations* 12 (2005): 447–463.
- . „Integration by Constitution.“ In *International Journal of Constitutional Law*. 3 (2005): 192–208.

DANIEL HALBERSTAM

Ph.D., Eric Stein Collegiate Professor of Law and
Director, European Legal Studies Program
University of Michigan Law School

Born in 1966

Studied Mathematics and Psychology at Columbia University
and Law at Yale Law School

THE STRUCTURE OF AUTHORITY

This comparative project examines the structure of public authority across a host of domains from federalism and separation of powers in domestic law to pluralism and fragmentation in global governance. The project seeks to explore several core claims. First, that conflict among multiple claims of authority is inherent in the idea of modern liberal governance – from domestic constitutional law to global governance. Second, that such conflict can spell order, insofar as it gives rise to a decentralized practice of contestation and accommodation among the various claims of authority. And third, that this pluralist practice of conflict and accommodation across these various domains takes place by reference to a common grammar of legitimacy, i. e., a common way of framing claims of authority and accommodation.

Recommended Reading

Halberstam, Daniel. "Of Power and Responsibility: The Political Morality of Federal Systems." *Virginia Law Review* 732 (2004).

available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=531562

—. "Comparative Federalism and the Role of the Judiciary." In *The Oxford Handbook of Law and Politics*, edited by Keith Whittington, Daniel Kelemen, and Gregory Caldeira. Oxford: Oxford University Press, 2008.

—. "Constitutional Hierarchy: The Centrality of Conflict in the United States and Europe." In *Ruling the World? Constitutionalism, International Law, and Global Government*, edited by Jeff Dunoff and Joel Trachtman. Cambridge: Cambridge University Press (forthcoming).

available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1147769

ORNA HARARI

Ph.D., Philosophy
Tel Aviv University

Born in 1969 in Jerusalem

Studied Philosophy at the University of Haifa and Greek Philosophy
at Tel Aviv University

CAUSALITY AND LOGICAL DERIVATION IN LATE NEOPLATONISM

Neoplatonic thinkers inherited from Aristotle the requirement that demonstrative proofs should be based on *aitiai* (causes). Yet the incorporation of this requirement into Neoplatonism involves a modification of Aristotle's notion of logical derivation. Whereas Aristotle's notion of causality is tantamount to explanation and hence provides logical grounds, the Neoplatonic notion of causality holds for entities that bring about certain effects by being active. The Neoplatonic notion of cause, then, though compatible with explanation, is distinct from the notion of logical ground. Consequently, it calls for an analysis of demonstrative proofs, which takes into account not only the transitivity of the predicative relations stated in the premises, but the causal relation between productive causes and their effects.

My research is aimed at accounting for this transformation of Aristotle's theory of demonstration by addressing the following questions: 1) what problems does the causal account of logical derivation aim to solve; 2) what conceptual characteristics of this notion of cause facilitate its application to the logical domain; and 3) does this account reflect a shift in the attitude toward logic in late antiquity? This study may explain how Aristotle's theory of demonstration, which can account for a limited range of logical relations, served from late antiquity to the modern era as the paradigmatic model for carrying out research in a variety of different sciences.

Recommended Reading

- Harari, Orna. *Knowledge and Demonstration: Aristotle's Posterior Analytics*. Dordrecht: Kluwer Academic Publishers, 2004. (The New Synthese Historical Library.)
- . “*Metaxis* and Geometrical Reasoning in Proclus’ Commentary on Euclid’s Elements.” *Oxford Studies in Ancient Philosophy* 30 (2006): 361–389.
- . “Proclus’ Account of Explanatory Demonstrations in Mathematics and its Context.” *Archiv für Geschichte der Philosophie* 90/2 (2008): 137–164.

JONATHAN HARVEY

from October 2009 to December 2009

Ph.D., Professor (ret.) of Music

University of Sussex and Stanford University

Born in 1939 in Warwickshire, United Kingdom

Studied Music at the Universities of Cambridge, Glasgow, and Princeton

GLOBAL ETHIC: A VISION IN MUSIC

To compose a new commission from Hans Küng's Global Ethic Foundation for the Berliner Philharmoniker, Rundfunkchor Berlin and Rundfunk-Kinderchor Berlin. To be conducted by Sir Simon Rattle. Duration 90 minutes.

Recommended Reading

Harvey, Jonathan. *The Music of Stockhausen*. London: Faber and Faber, 1975.

—. *In Quest of Spirit: Thoughts on Music*. Berkeley, Cal.: University of California Press, 1999.

—. *Music and Inspiration*. London: Faber and Faber, 1999.

BINYAMIN HOCHNER
Ph.D., Associate Professor of Neurobiology
Hebrew University of Jerusalem

Born in 1946 in Rehovot, Israel
Studied Neurobiology at the Hebrew University of Jerusalem

COMPARATIVE EVOLUTIONARY ANALYSIS OF THE
ORGANIZATION AND FUNCTION OF THE NEURAL
SYSTEM OF THE OCTOPUS AND THE IMPLICATIONS IN
RELATION TO THE OCTOPUS' UNIQUE BODY PLAN
AND BEHAVIOR

Focus Group *Functional and Structural Constraints in the Evolution of
Sensorimotor Networks*

Below I describe several of the ideas that I intend to examine

- The neuromuscular system of the octopus arm is distinctly different from those of vertebrates and arthropods. What functional advantages does this unique neuromuscular system achieve for the function and control of flexible versus skeletal appendages?
- Many of the octopus' flexible arm movements involve "waves" as a basic pattern. Is this type of control used to simplify motor control by reducing the degrees of freedom? Or do these wave-like patterns of motion bring other benefits?
- The octopus uses a unique motor control space, the *reconfiguration space*, in which it dynamically shapes its arm structure. What do such new dimensions of control contribute to soft versus rigid appendages?
- The central and peripheral neural system in the octopus has a special organization, where commands for movement generation are embedded in the peripheral nervous system of the arm. What is gained by this division of control between *peripheral* and *higher motor centers*?

- For many years I have been studying mechanisms of short- and long-term synaptic plasticity in both simple and advanced invertebrates, like the octopus, and also in mammals. Summarizing and meta-analyzing the findings of my and other groups may advance our understanding of the evolution and function of complex brain systems.

Recommended Reading

Gutfreund, Y., T. Flash, G. Fiorito, and B. Hochner. 1998. "Patterns of arm muscle activation involved in octopus reaching movements." *J. Neurosci.* 18, 15: 5976–5987.

Sumbre, G., G. Fiorito, T. Flash, and B. Hochner. 2006. "Octopuses use a human-like strategy to control precise point-to-point arm movements." *Current Biology* 16: 767–772.

Shomrat, T., I. Zarrella, G. Fiorito, and B. Hochner. 2008. "The octopus vertical lobe modulates short-term learning rate and uses LTP to acquire long-term memory." *Current Biology* 18: 337–342.

BERT HÖLLDOBLER

December 2009 and June 2010

Dr. Dr. h. c., Professor (emer.) of Zoology

Biozentrum, Julius-Maximilians-Universität Würzburg

Foundation Professor of Life Sciences

Arizona State University, Tempe

Born in 1936 in Erling-Andechs, Bayern, Germany

Studied Biology, Chemistry, and Geography at the

Julius-Maximilians-Universität Würzburg

DEVELOPMENTAL EVOLUTION OF A SUPERORGANISM

Focus Group *Social Insects as a Model System for Evolutionary Developmental Biology*

The idea of the superorganism was extremely popular in the early part of the last century. William Morton Wheeler returned to it in his writings about insect societies repeatedly and in his celebrated 1911 essay “The Ant Colony as an Organism” he stated that the animal colony is really an organism and not merely the analog of one. This exercise, however elaborate and inspirational, eventually exhausted its possibilities. Almost one hundred years later, the concept of the superorganism is experiencing a vigorous revival with a new understanding and acceptance of multilevel selection theory.

This project will look at the evolution of social organizations in insects and underlying mechanisms that explain the enormous success of insect societies. These different social organizations exhibit various degrees of cooperation and division of labor. Such cooperative systems can only work by means of communication, without which there is no cooperation or division of labor in any social system, whether it is an assembly of genes, organelles, cells, or organisms. Comparative studies of various superorganismic grades demonstrate that intra-group cohesion is driven by inter-group competition. With increasing group cohesion

the group (insect society) becomes the major target on which selection operates. In the context of this discussion and book project I will cover the fields of sociogenesis, sociometry, communication, and group-level regulation of division of labor.

Recommended Reading

Hölldobler, B. and E. O. Wilson. 1990. *The Ants*. Cambridge, Mass.: Harvard University Press and Heidelberg: Springer Verlag.

Hölldobler, B. and E. O. Wilson. 2008. *The Superorganism*. New York and London: Norton.

WOLFGANG HOFFMANN-RIEM

Dr. iur., Professor (em.) für Öffentliches Recht und Verwaltungswissenschaften
Universität Hamburg
Senator der Justiz a. D., Richter des Bundesverfassungsgerichts a. D.

Geboren 1940 in Hannover

Studium der Rechtswissenschaft, Soziologie und Wirtschaftswissenschaft in
Hamburg, Freiburg i. Br., München und Berkeley

DIE ROLLE DES RECHTS BEI SOZIALEN INNOVATIONEN

Anknüpfend an frühere Untersuchungen über die Rolle des Rechts bei technikerheblichen Innovationen möchte ich meine Überlegungen jetzt auf soziale Innovationen konzentrieren, also etwa auf neue Organisationsformen, neue Lebensstile, neue Verhaltensmuster beim Umgang mit neuen und alten Problemen, angestoßen etwa durch Änderungen in der Arbeitswelt, im Gesundheitswesen, in der Demografie, auf Finanzmärkten oder im Internet. Wie und wie weit wirkt Recht auf die Entstehung oder Nichtentstehung solcher Innovationen ein; welche Änderungen im Recht sind sinnvoll, um eine hinreichende Innovationsoffenheit zu ermöglichen, aber auch eine Rückbindung von Innovationen an Gemeinwohlinteressen (Innovationsverantwortung)? Dies möchte ich auf meine in den vergangenen Jahren erfolgten Bemühungen zur Reform des Verwaltungsrechts und zur (Mit)Begründung einer steuerungswissenschaftlich orientierten Neuen Verwaltungsrechtswissenschaft beziehen, an deren systematischer Weiterentwicklung ich ebenfalls gern arbeiten möchte.

Lektüreempfehlung

Hoffmann-Riem, Wolfgang. *Regulating Media: The Licensing and Supervision of Broadcasting in Six Countries*. New York: The Guilford Press, 1996.

—. *Kriminalpolitik ist Gesellschaftspolitik*. Frankfurt: Suhrkamp, 2000.

—. *Regulierung der dualen Rundfunkordnung*. Baden-Baden: Nomos, 2000.

—. *Modernisierung von Recht und Justiz. Eine Herausforderung des Gewährleistungsstaates*. Frankfurt: Suhrkamp, 2001.

VINCENT M. JANIK

Ph.D., Reader in Biology
University of St. Andrews

Born in 1966 in Berlin
Studied Biology at the Freie Universität Berlin and the
University of St Andrews

REFERENCE AND VOCAL LEARNING IN ANIMAL COMMUNICATION

Focus Group *Complexity and Flexibility in Animal Communication*

The complexity of a communication system is influenced by the combination of underlying features that define it. Vocal learning and assigning referential meaning to signals have been identified as two such features that were crucial in the evolution of human language. In animals, we can find each of these features in separate species, but only few animals are capable of both. These are primates, delphinids and parrots. My project will focus on these animals. I will 1) revise and expand the existing theoretical framework for the study of reference in animal communication, 2) review the evidence for reference in the animal communication literature, 3) study the implications of the combination of reference and vocal learning in animal communication, 4) analyse our existing data on signal usage in animals for evidence for referentiality and 5) summarise methodological issues in the study of acoustic communication in animals. The project will be carried out in collaboration with Dr. Zuberbühler who will focus on intentionality. It will require a workshop on reference in animal communication that will bring philosophers, psychologists and biologists together to discuss definitions and evidence for reference and intentionality in animal signals. I will also continue to work with my students on the analysis of our dolphin communication data, which are directly relevant for this topic. The

results will be summarized in a publication on complexity in animal communication.

Recommended Reading

Janik, V. M. 2000. "Whistle matching in wild bottlenose dolphins (*Tursiops truncatus*)." *Science* 289: 1355–1357.

Janik, V. M. and P. J. B. Slater. 2000. "The different roles of social learning in vocal communication." *Animal Behaviour* 60: 1–11

Janik, V. M., L. S. Sayigh, and R. S. Wells. 2006. "Signature whistle contour shape conveys identity information to bottlenose dolphins." *Proceedings of the National Academy of Sciences of the USA* 103: 8293–8297.

EWA LAJER-BURCHARTH
Ph.D., Professor of History of Art and Architecture
Harvard University

Born in Warsaw
Studied Art History at Uniwersytet Warszawski and at the
City University of New York

INTERIORS AT RISK: SPACES OF THE SELF IN CONTEMPORARY ART

My project discusses the recurrent trope of the precarious interior in contemporary art. I am considering, among others, the work of artists such as Krzysztof Wodiczko, Jane and Louise Wilson, Pipilotti Rist, Andrea Zittel, and Janet Cardiff in order to explore the meaning of these spatial constructions as symptomatic of an ongoing transformation of interiority. I suggest that, although there are different issues at stake in these projects, they share a concern for what happens to the imagination of the self in the recent context of rapid political, economic and social change. These works, I argue, suggest a profound psycho-cultural transformation in the ways that an individual and collective subjectivity is conceived and I want to examine the forms of these new conceptions so as to address several questions. Are we witnessing the end of interiority as a space? How to imagine subjective autonomy in the era of cultural mobility? Should inner spaces be protected or shared? Do we even need depth?

Recommended Reading

Lajer-Burcharth, Ewa. *Necklines: The Art of Jacques-Louis David After the Terror*. New Haven, Conn.: Yale University Press, 1999.

—. “Interiors at Risk: Precarious Spaces in Contemporary Art.” *Harvard Design Magazine*. *What About the Inside?* Fall/Winter 2008/2009, 12–21.

—. “Multi-Story: Mary Kelly.” In *On Fidelity: Art, Politics, Passion, and Event*, edited by Milada Slizinska. Warsaw: Center for Contemporary Art, 2008.

—. “Image Matters: The Case of Boucher.” In *Dialogues in Art History*, edited by Elizabeth Cropper. Washington: National Gallery of Art, Center for Advanced Study in the Visual Arts, 2009.

MANFRED D. LAUBICHLER

Ph.D., Professor of Theoretical Biology and History of Biology and
Affiliated Professor of Philosophy
School of Life Sciences, Arizona State University

Born in 1969 in Salzburg

Studied Zoology, Mathematics, Philosophy at Universität Wien, Biology at Yale
University, and History/History of Science at Princeton University

GENE REGULATORY NETWORKS IN DEVELOPMENT AND EVOLUTION: CONCEPTUAL AND HISTORICAL REFLECTIONS

Focus Group *Social Insects as a Model System for Evolutionary Developmental
Biology*

One of the main problems of evolutionary biology is to understand the origin of phenotypic (morphological, physiological, and behavioral) variation and novelties. Over the last decades, a new discipline of evolutionary developmental biology (Evo-Devo) has emerged that attempts to integrate developmental and evolutionary biology to provide a comprehensive account of phenotypic evolution. Evo-Devo represents a synthesis of different research paradigms, most prominently of developmental genetics and evolutionary biology. However, these traditions have so far largely remained separate, thus keeping Evo-Devo from reaching its full potential. One reason for this separation is that the current model systems of developmental genetics are for the most part not well suited for evolutionary analysis, because they have been selected for their specific uses in developmental genetics. Social insects on the other hand, which until now have not been studied within this context, have several advantages that make them an ideal model system. Rob Page and I will convene a focus group in theoretical biology that will explore the potential of “Social Insects as a Model System for Evolutionary Developmental Biology”. This working group will

synthesize existing work from currently largely separate areas of biology (Evo-Devo, Theoretical Biology, and Social Insect Research) and produce critical reviews that will be published in a special issue of the *Journal of Experimental Zoology* focused on how social insects can be developed as a Model System for Evo-Devo. This group will thus define a new research program that can then be further pursued in the laboratories of participants and their colleagues. In addition, we will write a book on the conceptual foundations of biology, using examples from the social insects as illustrations.

Understanding complexity has been a central theme in twentieth century biology. While the dominant approach has been the application of several successful reductionist research strategies there have always also been conceptual developments that provided a theoretical framework that focused on the complex system itself. These conceptual developments, however, did not happen in isolation; rather, there have been a wide range of fruitful interactions between conceptual and mathematical approaches and experimental research strategies. This project will focus especially on the emergence of the concept of gene regulatory networks within the investigative pathway of Caltech's Eric Davidson. In addition, as part of the focus group, this project will expand the concept of gene regulatory networks to include behavioral interactions within a colony as part of a mechanistic explanation of the development and evolution of social systems.

Recommended Reading

Laubichler, M. D. and J. Maienschein, eds. 2007. *From Embryology to Evo-Devo: A History of Developmental Evolution*. Cambridge, Mass.: MIT Press.

Laubichler, M. D. and J. Maienschein, eds. 2009. *Form and Function in Developmental Evolution*. Cambridge: Cambridge University Press.

OLOF LEIMAR
Ph.D., Professor of Zoology
Stockholms universitet

Born in 1949 in Rättvik, Sweden
Studied Mathematics and Theoretical Physics at the
Royal Institute of Technology, Stockholm

THE EVOLUTION OF PHENOTYPIC DETERMINATION AND THE PRINCIPLES OF ADAPTIVE DEVELOPMENTAL PLASTICITY

Focus Group *Social Insects as a Model System for Evolutionary Developmental Biology*

The overall aim of the project is to develop new theory about the evolution of phenotype determination, with an emphasis on variability in complex phenotypes. Important examples of phenotypic variation range from so-called personality types in humans and other animals, through alternative reproductive strategies in many animals and plants, to ecological specialization of organisms in varied environments. There will be an emphasis on behavior as a complex phenotype of crucial importance when theorizing about the superorganism as a conceptual model of phenotypic integration. The project will be guided by the unifying idea that different mechanisms of phenotype determination can be viewed as generalized forms of phenotypic plasticity. From this perspective, adaptive phenotypic plasticity, adaptive genetic polymorphism, maternal effects, and bet hedging in fluctuating environments fall under a common conceptual heading. Specifically, the project will address the following problem areas: 1) determination of multi-trait syndromes, exemplified by animal personalities, and their role in the emergence of a superorganism; 2) genetic conflict in the evolution of phenotype determination; 3) determination of alternative repro-

ductive strategies; and 4) the impact of developmental mechanisms on polymorphic canalization.

Recommended Reading

Leimar, O. and P. Hammerstein. 2001. "Evolution of cooperation through indirect reciprocity." *Proceedings of the Royal Society of London B* 268: 745–753.

Leimar, O., P. Hammerstein, and T. J. M. Van Dooren. 2006. "A new perspective on developmental plasticity and the principles of adaptive morph determination." *American Naturalist* 167: 367–376.

Wolf, M., G. S. van Doorn, O. Leimar, and F. J. Weissing. 2007. "Life-history trade-offs favour the evolution of animal personalities." *Nature* 447: 581–584.

WOLF LEPENIES

Permanent Fellow (em.) des Wissenschaftskollegs
Rektor des Wissenschaftskollegs (1986–2001)
Dr. Dr. h.c., Professor (em.) der Soziologie
Freie Universität Berlin

Geboren 1941 in Deuthen, Allenstein, heute Polen
Studium der Philosophie und Publizistik
in München, Münster und Berlin

BILDER UND ORTE

Ein Buch mit dem Titel „Bilder und Orte“ wird abgeschlossen. Es zeichnet nach, wie Auguste Comte in der ersten Hälfte des 19. Jahrhunderts die positivistische Bewegung mit Hilfe visueller Mittel stabilisiert und gleichzeitig eine neue politische Topographie entwirft, in der das Verhältnis der Metropole Paris zur französischen Provinz neu bestimmt wird.

Ein neues Projekt beschäftigt sich mit dem Plan einer Mittelmeerunion und vergleicht mit der sogenannten „Union latine“ und der „Anglosphäre“ zwei Versuche, innerhalb der globalen Welt geopolitische Subsphären zu schaffen, die sich durch gemeinsame kulturelle Überzeugungen auszeichnen.

Lektüreempfehlung

Lepenies, Wolf. *The Seduction of Culture in German History*. Princeton, N.J.: Princeton University Press, 2006.

—. *Kultur und Politik: Deutsche Geschichten*. München: Hanser, 2006.

—. *Qu'est-ce qu'un intellectuel européen? Les intellectuels et la politique de l'esprit dans l'histoire européenne*. Paris: Editions du Seuil, 2007.

ANGELIKA LINKE

Dr. phil., Professorin der Sprachwissenschaft
Universität Zürich

Geboren 1954 in Geislingen a. d. Steige, Baden Württemberg
Studium der Germanistik, Allgemeinen Geschichte und Skandinavistik an den
Universitäten Zürich und Stockholm

VERZEHR UND KOMMUNIKATION: EINE SINNGESCHICHTE IHRER VERSCHRÄNKUNG

Verzehr und Kommunikation sind für den Menschen gleichermaßen lebensnotwendig: Essen als Mittel seiner körperlichen, Kommunikation als Mittel seiner sozialen Erhaltung. Nahrungsaufnahme per se ist allerdings keine gesellige, sondern eine egoistische Aktivität. Zudem schließen rein physiologisch Essen und Reden einander aus. Demgegenüber steht die Tatsache, dass ihre Verbindung in der Tischgesellschaft zu unseren kulturellen Selbstverständlichkeiten gehört und sich Gesellschaften nicht zuletzt durch spezifische Formen der Verschränkung von Reden und Essen auszeichnen.

Zu diesen gehören etwa die Markierung von Eröffnung und Abschluss des Essens durch verbale oder körperkommunikative Rituale, die Verteilung des Rederechts während des Essens aufgrund sozialer Faktoren sowie die Ausbildung von spezifischen „kleinen Formen“ der Kommunikation wie Tischgebet, Trinksprüche, Toaste. Unterschiedliche räumliche und zeitliche Ordnungen (Sitzordnung, Aufteilung in unterschiedliche Gänge) eröffnen bestimmte Möglichkeiten der Kommunikation bzw. schränken sie ein.

Ich möchte mich mit den historischen Ausformungen der Verbindung von Reden und Essen (frühe Neuzeit bis Gegenwart) befassen und die sozialsemiotischen Signifikanzen des jeweiligen Ensembles von Essensanrichtung, Verzehrpraktiken und kommunikativen Mustern untersuchen.

Eine zweite, abstraktere Perspektive (die die erstgenannte überlagert) möchte ich unter Bezug auf die Begriffe von *Präsenz* und *Sinn* (H. U. Gumbrecht) auf-

greifen: Hier geht es mir um die semiotische „Zurichtung“ (und Zurichtbarkeit) von Körperlichkeit und Verbalität jenseits von deren medialer Gegebenheit und um die Veränderung dieser Zurichtung in der Geschichte der Neuzeit.

Lektüreempfehlung

Linke, Angelika. *Sprachkultur und Bürgertum: Zur Mentalitätsgeschichte des 19. Jahrhunderts*. Stuttgart: Metzler, 1996.

—. „Das Unbeschreibliche: Zur Sozialesemiotik adeligen Körperverhaltens im 18. und 19. Jahrhundert.“ In *Adel und Moderne: Deutschland im europäischen Vergleich im 19. und 20. Jahrhundert*, 247–268. Köln: Böhlau, 2004.

—. „Kommunikation, Kultur und Vergesellschaftung: Überlegungen zu einer Kulturgeschichte der Kommunikation.“ In *Sprache – Kognition – Kultur: Sprache zwischen mentaler Struktur und kultureller Prägung*, herausgegeben von Ludwig M. Eichinger und Heidrun Kämper, 24–50. Berlin/New York: de Gruyter, 2008.

TIMOTHY A. LINKSVAYER

from October 2009 to November 2009

Ph.D., Evolutionary Biology

Københavns Universitet

Born in 1976 in the USA

Studied Evolution at Indiana University

SOCIAL INTERACTIONS AND THE EVOLUTION OF COMPLEX PHENOTYPES

Focus Group *Social Insects as a Model System for Evolutionary Developmental Biology*

I study how social interactions affect the genetic basis, evolution, and development of complex social phenotypes. My project will focus on how multi-level selection acts on genetic components arising from social interactions to shape social evolution. I will extend a model of physiological epistasis arising from interactions between genes within organisms to intergenomic epistasis arising from social interactions. I will also build upon models of the evolution of sociality that incorporate both genes expressed during development and genes with social effects.

Recommended Reading

- Linksvayer, T. A., M. K. Fondrk, and R. E. Page. 2009. "Colony-level selection in honey bees produces coevolved socially-interacting gene complexes." *American Naturalist* 173: E99–E107.
- Linksvayer, T. A. 2007. "Ant species size differences are determined by epistasis between brood and worker genomes." *PLoS ONE* 2: e994.
- Linksvayer, T. A. and M. J. Wade. 2005. "The evolutionary origin and maintenance of eusociality in the aculeate Hymenoptera: maternal effects, sib-social effects, and heterochrony." *The Quarterly Review of Biology* 80: 317–336.

STEVEN M. LUKES

D. Phil., Professor of Sociology
New York University

Born in 1941 in Newcastle on Tyne, UK
Studied Philosophy, Politics, and Economics at Oxford University

SOCIOLOGY OF MORALS

An enquiry into the conceptual history and current diversity of the meanings of “moral”, leading to a study of how to investigate empirically the nature and extent of moral diversity.

Recommended Reading

Lukes, Steven M. *Emile Durkheim, His Life and Work: a Historical and Critical Study*. London: Penguin Books, 1973.

—. *Marxism and Morality*. Oxford: Clarendon Press, 1985.

—. *Moral Relativism*. New York: Picador/Macmillan, 2008.

ION MANOLESCU

Andrew W. Mellon Fellow from October 2009 to December 2009

Ph.D., Associate Professor of Romanian Literature, Author

Universitatea din București

Born in 1968 in Bucharest

Studied Philology and Theory of Literature at Universitatea din București

COGNITIVE SCIENCE AND LITERATURE: WHAT DOES THE MIND SEE?

My interdisciplinary project is in the combined fields of *literature*, *cognitive psychology* and *cognitive philosophy*. It focuses on understanding how the human mind functions in terms of real-life and literary imagery processing. Is the mind the “software” of the brain? What does the mind “see”, both in reality and within a literary text? How are real and literary images constructed? Whence do literary images emerge – from the mind of the author, from the “body” of the text, or from the mind of the reader? All these issues will be examined in an effort to understand the paradoxical functioning of the human mind in the process of imagery production, processing and maintenance.

Recommended Reading

Manolescu, Ion. *Notiuni pentru studiul textualitatii virtuale*. [Notions for the Study of Virtual Textuality.] Bucharest: Ars Docendi, 2002.

—. *Videologia. O teorie tehnoculturală a imaginii globale Videology*. [A Techno-Cultural Theory of Global Imagery.] Iasi: Polirom, 2003.

—. “Realitatea virtuală. O perspectivă literară și tehnologică.” [Virtual Reality: A Literary and Technological Perspective.] *Idei în dialog* 4 (2009).

MARTIN MOSEBACH

Schriftsteller

Frankfurt a. M.

Geboren 1951 in Frankfurt a. M.

Studium der Jurisprudenz an den Universitäten von Frankfurt und Bonn

ROMANPROJEKT

Wenn mich enge Freunde, die mein Werk gut kennen, derzeit fragen, woran ich arbeite, so sage ich ihnen „an etwas Neuem“ und das ist für sie weniger nichts sagend, als es klingt, weil sich dieser Roman nach meiner Absicht wirklich sehr deutlich von den vorhergehenden unterscheiden soll – aber worin? Ich habe das sichere Gefühl, dass ich, wenn ich das ausspräche, etwas zerstören würde.

Lektüreprüfung

Mosebach, Martin. *Das Beben*. München: Hanser, 2005.

—. *Eine lange Nacht*. Berlin: Aufbau Verlag, 2000; Aufbau Taschenbuch-Verlag, 2003.

—. *Westend*. München: DTV, 2004.

KIRAN NAGARKAR

Novelist, Playwright, Screenplay Writer, Literary and Social Critic
Mumbai

Born in 1942 in Bombay

Studied English Literature at the University of Bombay

“THE BROKEN COMPASS”

India was the first country that won its independence by following Mahatma Gandhi's philosophy of “ahimsa” or non-violent resistance. The remarkable thing about Gandhi was that he was able to enlist the finest and most dynamic minds in the country as well as inspire the vast majority of ordinary Indians. Under his leadership, the men and women of the subcontinent stood up to the overwhelming might of the British Empire. Time and again they were beaten, jailed, brutalized, and on occasion shot at point blank range. But this untested and bizarre idealism, which at that time must have seemed foolhardy in the extreme, won the day against all odds and the colonizer was forced to leave the country.

It is a tragic fact of history, however, that almost from the day we won independence, we lost this unique legacy of idealism. The paradox and the terrible irony is that even as the British were on their way out, Hindus and Muslims indulged in a bloodletting that has few parallels in history. The partition not only divided the country into Pakistan and India, but also led to perhaps the biggest two-way migration of peoples witnessed in the 20th century. In the wake of this regression to barbaric violence and at a time when we should have been dedicating ourselves to the monumental task of uniting and building the nation from scratch, the politicians, bureaucrats, and a substantial number of all strata of Indians institutionalised corruption and made it a way of life. Indeed today we rank amongst the most venal nations in the world.

The idea of the envisaged project is to trace how we lost our moral compass and explore the decline and fall of my countrymen. Indeed hardly anybody today can shirk the responsibility for what we have become.

We are all party to anaesthetizing our consciences. The only thing that we seem to care about is our own self-interest; albeit an extremely short-sighted notion of self-interest at that. The poor, the deprived, the less fortunate rarely, if ever, figure in our calculations. We have taken to wearing our patriotism on our sleeves but don't care for the country or the planet; it is a moot point whether we are at all exercised by the fact that the very villages, towns or cities where we live, not to mention our rivers, which we have always considered to be goddesses, are in a state of utter disrepair and fighting for their survival.

Writing this book is an endeavour fraught with grave risks and dangers. The temptation to fall back on clichés and stereotypes is enormous. Only if one can create flesh-and-blood characters, only if one can nuance them and their stories and endow them with unpredictability and inconsistencies, is there a chance of pulling it off. But as the dog-eared but nevertheless valid maxim says, nothing ventured, nothing gained.

Recommended Reading

Nagarkar, Kiran. *Ravan and Eddie*. New Delhi: Penguin Book, 1995. (German edition: *Ravan und Eddie*. 2004.)

—. *Seven Sixes Are Forty-Three*. New Delhi: Katha, 2004. (German edition: *Sieben mal sechs ist dreiundvierzig*. 2007.)

—. *Cuckold*. New Delhi: Harper Collins India, 2007. (German edition: *Krishnas Schatten*. 2008.)

—. *God's Little Soldier*. New Delhi: Harper Collins India, 2006. (German edition: *Gottes kleiner Krieger*. 2008.)

TOBIAS J. OSBORNE

Ph.D., Physics

University of London

Born in 1977 in Tasmania, Australia

Studied Mathematics and Physics at the University of Queensland

SIMULATION OF DISORDERED QUANTUM SYSTEMS

Focus Group *Classical Simulation of Quantum Systems: Classical Information vs. Quantum Information*

In practice, one never seems to find that quantum lattice systems are hard to simulate: we can easily construct difficult quantum lattice systems, but we never seem to encounter them in nature. This project is aimed at explaining this mystery: I aim to show that introduction of the tiniest amount of disorder to any system, difficult systems, will render them easy to simulate. Thus, naturally occurring systems – which always have some level of disorder – are easy to simulate. I'll then further explore this observation by supplying a computational method to understand the physics of disordered quantum lattice systems. In the final part of this project I'll take this observation to its logical extreme: I'll show that adding lots of noise to an evolving quantum lattice will “supercharge” it, thus allowing it to quickly explore many paths at once, and rendering it a powerful quantum computational tool.

Recommended Reading

- Osborne, Tobias J. 2006. "Efficient approximation of the dynamics of one-dimensional quantum spin systems." *Phys. Rev. Lett.* 97, 157202, quant-ph/0508031.
- Osborne, Tobias J. and Michael A. Nielsen. 2002. "Entanglement in a simple quantum phase transition." *Phys. Rev. A* 66, 032110, quant-ph/0202162.
- Burrell, Christian K. and Tobias J. Osborne. 2007. "Bounds on information propagation in disordered quantum spin chains." *Phys. Rev. Lett.* 99, 167201, quant-ph/0703209.

ROBERT E. PAGE JR.

Ph.D., Foundation Professor of Life Sciences
School of Life Sciences, Arizona State University

Born in 1949 in the USA

Studied Entomology at the University of California, Davis

THE DEVELOPMENTAL EVOLUTION OF DIVISION OF LABOR

Focus Group *Social Insects as a Model System for Evolutionary Developmental Biology*

Project of the Focus Group: One of the main problems of evolutionary biology is to understand the origin of phenotypic (morphological, physiological, and behavioral) variation and novelties. Over the last decades a new discipline of evolutionary developmental biology (Evo-Devo) has emerged that attempts to integrate developmental and evolutionary biology in an attempt to provide a comprehensive account of phenotypic evolution. Evo-Devo represents a synthesis of different research paradigms – most prominently of developmental genetics and evolutionary biology. However, these traditions have so far largely remained separate, thus keeping Evo-Devo from reaching its full potential. One reason for this separation is that the current model systems of developmental genetics are for the most part not well suited for evolutionary analysis, as they have been selected for their specific uses in developmental genetics. Social insects on the other hand, which until now have not been studied within this context, have several advantages that make it an ideal model system. Manfred Laubichler and I will convene a working group in theoretical biology that will explore the potential of social insects as a model system for evolutionary developmental biology. This working group will synthesize existing work from hitherto largely separate areas of biology (Evo-Devo, theoretical biology, and social insect research) and produce critical reviews to be published in a special

issue of the *Journal of Experimental Zoology* that will focus on how social insects can be developed as a model system for Evo-Devo. This group will thus define a new research program that can then be further pursued in the laboratories of participants and their colleagues.

Individual Project: Social insects demonstrate a remarkable division of labor in which different individuals engage in different tasks. This division of labor is believed to be a key determinant of their evolutionary and ecological success. However, in the most advanced social insects the vast majority of individuals within a society are sterile workers. In the honey bee, the focus of my research, a colony typically consists of a single reproductive queen and thousands of non-reproductive female workers that constitute a workforce divided into specialized tasks. How does such a social structure evolve? There is no single social genome on which natural selection can act. Evolutionary changes in the social structure of the colony must be derived from changes in the frequencies of genes that have effects on the development of non-reproductive individuals (workers). During my stay at the Wissenschaftskolleg, I will sift through the honey bee selective breeding data I have gathered over the last twenty years and look for the signatures and footprints of selective change at the level of worker development that gave rise to fundamental changes in the social structure of colonies. These changes will guide us in our understanding of the developmental evolution of social behavior.

Recommended Reading

Page, R. E., R. Scheiner, J. Erber, and G. V. Amdam. 2006. "The development and evolution of division of labor and foraging specialization in a social insect." *Current Topics in Developmental Biology* 74: 251–284.

Page, R. E. and G. V. Amdam. 2007. "The making of a social insect: developmental architectures of social design." *Bioessays* 29: 334–343.

MARCIA PALLY

from May 2010 to July 2010

Ph.D., Professor of Multilingual Multicultural Studies

New York University

Born in New York

Studied Choreography at the University of California at Los Angeles and

Multilingual Multicultural Studies at New York University

SEPARATION OF CHURCH AND STATE: AN ARGUMENT FROM THE DEVOUT (A CASE STUDY IN AMERICA'S EVANGELICAL COMMUNITIES)

Secularization theory has sustained neither its explanatory power in the face of religion's tenacity (consider the US or Korea) nor its predictive power about how people behave in mobile, multicultural conditions. This failure has reopened classic questions of modernity: how shall societies accommodate religious belief and practice along with liberal, secular government? How shall confessional communities see their relationship to secular government and to other groups in their pluralistic societies?

Left unresolved, these issues lead potentially to societal polarization, with secularists seeking to limit/privatize religion and believers seeking to maximize it in the public sphere. The problem, simply put, is: how shall we agree on a form of governance? The present study searches for a model of agreement between the secular and devout on the benefits of neutral, fair government separated from the Church and the benefits of robust religion in the civil sphere.

Recent shifts in America's evangelical communities suggest such a model. Significant numbers are moving away from the Religious Right and its theologically-tinged politics toward Church-State separation and pluralistic freedom of conscience. Other features include an emphasis on poverty relief, environmental protection, and Just War theory. This study investigates that shift in

a “thick description” based on investigator-participation, interviews, and analysis of books, sermons, blogs, and newsletters, among other source materials.

Recommended Reading

Pally, Marcia. *Lob der Kritik: Warum die Demokratie nicht auf ihren Kern verzichten darf*. Berlin: Berlin-Verlag, 2003, 2005.

—. *Warnung vor dem Freunde: Tradition und Zukunft US-amerikanischer Außenpolitik*. Berlin: Parthas, 2008.

—. *Die Hintergründige Religion: der Einfluss des Evangelikalismus auf Gewissensfreiheit, Pluralismus und die US-amerikanische Politik*. Berlin: Berlin University Press, 2008.

FRANK PASEMANN

Dr. rer. nat. habil., Extraordinary Professor of Theoretical Physics
Universität Osnabrück

Born in 1943, Schneidemühl, now Piła, Poland

Studied Physics and Mathematics at the Philipps-Universität Marburg

EMBODIED NEURAL LOCOMOTION CONTROL

Focus Group *Functional and Structural Constraints in the Evolution of Sensorimotor Networks*

The project approaches the problem of locomotion from the perspective of embodied systems. According to the central tenet of this approach, brain processes in general and – on the lowest level – motor control in particular should be described, analysed and theorised under the assumption that these processes emerge from brain-body-environment interactions.

For locomotion, rhythmic activity patterns appear naturally. A theory will therefore start from a Dynamical Systems perspective. The challenging part of this approach results from the fact that neural control has to operate in the sensorimotor loop, where external sensor signals as well as internal sensor signals will continuously drive the dynamics of control units. On this background the project will focus on two aspects:

1) Rhythmic neural activity patterns can be generated in at least two different ways: First, they can appear as the intrinsic dynamics of specific neural structures functioning as CPGs; i. e. they oscillate already as isolated neural systems. But rhythmic activity patterns are generated also in shorter or longer (reflex) feedback loops. The subject to study is the interplay of CPG and reflex loop functionality in concrete behavioural tasks for animals and/or animats.

2) Discerning between external and internal signal loops, reflecting the difference between perception and proprioception, the second aspect concentrates on

the interdependencies between these signal lines and on their role for the modulation and switching of behaviours.

Staying in the context of embodiment, the conceptual framing and the derived theoretical results will be tested on physical robots or by using physical simulations of e. g. multi-legged walking machines.

Recommended Reading

Pasemann, Frank 1996. "Repräsentation ohne Repräsentation – Überlegungen zu einer Neurodynamik modularer kognitiver Systeme." In *Interne Repräsentationen – Neue Konzepte der Hirnforschung*, edited by G. Rusch, S. J. Schmidt, and O. Breidbach, 42–91. Frankfurt: Suhrkamp.

—. 2002. "Complex dynamics and the structure of small neural networks." *Network: Computation in Neural Systems* 13: 195–216.

CLAUS PIAS

Dr. phil., Professor für Erkenntnistheorie und Philosophie der digitalen Medien
Universität Wien

Geboren 1967

Studium der Elektrotechnik an der RWTH Aachen und Kunstgeschichte,
Neuere und Ältere Germanistik, Philosophie und Kirchengeschichte an den
Universitäten Bonn und Bochum

COMPUTERSIMULATION: ZUR TECHNIKGESCHICHTE WISSENSCHAFTLICHEN WISSENS SEIT 1945

Das Projekt ist einer Geschichte und Theorie der Computersimulation gewidmet. Dabei stehen drei Fragen im Vordergrund: 1. Welche epistemologischen und wissenschaftstheoretischen Veränderungen bedeutet die Computersimulation für verschiedene Wissenschaften? Wie verändern sich die Verhältnisse von Beweis und Demonstration, Gesetz und Regel, Wahrheit und Richtigkeit, Performanz und Berechenbarkeit? 2. Mit welchen historiographischen Verfahren wäre eine Geschichte der Computersimulation angemessen zu schreiben? In welcher Weise und mit welchen Limitationen lassen sich dabei bspw. Ansätze zur *material culture* aus den *laboratory studies* übertragen und welcher spezifischen Ergänzungen bedürfen sie? 3. Inwiefern sind gegenwärtig zirkulierende Konzepte und Begriffe der Wissenschaftsforschung (heterogene Kollektive, Actor-Network-Theory, konstruktivistische Erkenntnistheorie u. a.) selbst schon einer Mediengeschichte der Computersimulation geschuldet? Und was bedeutet ihre Herkunft aus einer wissenschaftlichen Praxis für ihr kritisches Potential bei der Beschreibung eben dieser Praxis?

Während des Aufenthalts am Wiko sollen dabei insbesondere zwei Aspekte erforscht werden: Einerseits soll die Konzeptualisierung und Implementierung objektorientierter Programmiersprachen in der „Achsenzeit“ der 1960er Jahre, andererseits die Entstehung und Diskussion agentenbasierter Simulations-

modelle anhand ausgewählter Beispiele aus Ökonomie, Sozialwissenschaften und Epidemiologie rekonstruiert werden.

Lektüreempfehlung

Pias, Claus. „Klimasimulationen.“ In *Zwei Grad: Der Mensch und sein Wetter*, herausgegeben von P. Lutz und T. Macho, 109–116. Göttingen: Wallstein, 2008.

—. „Hollerith Feathered Crystal.“ Art, Science, and Computing in the Era of Cybernetics.” *GreyRoom* 29 (2007): 110–133.

—. „One-Man Think Tank.“ Herman Kahn, oder wie man das Udenkbare denkt.“ *Zeitschrift für Ideengeschichte* III/2 (2009): 5–16.

ANDREI G. PLEȘU

from May to June 2010

Dr. Dr. h.c., Professor of Philosophy of Religion

Rector of the New Europe College Bucharest

Former Minister of Culture (1989–1991) and

Minister of Foreign Affairs (1997–1999) of Romania

Born in 1948 in Bucharest

Studied Art History in Bucharest

OLD TESTAMENT COSMOLOGY FROM AN INTER- RELIGIOUS PERSPECTIVE

The reading of sacred texts seems to be, today, something reserved either for the specialists (philologists, historians, theologians), or to mere ritual piousness, with no analytical claims. What I would like to try in a book with the title “Old Testament Cosmology from an Inter-Religious Perspective” is a commentary to *Genesis*, aimed at a reader for whom the text is neither a *réservoir* of “technical problems”, nor the strict survival of an outdated mythology. What does the prose of the Old Testament have to say to a contemporary intellectual who has not abandoned religious questions, but who is outside confessional blocks and rudimentary piety? My book will not be about “actualizing” the text (the effort to make science “agree” with faith being, in my view, ridiculously inadequate), but about *rethinking* and *reliving* the text, which should prevent it from reaching the – noble and void – status of a museum piece.

Recommended Reading

Pleşu, Andrei. *Reflexion und Leidenschaft: Elemente einer Ethik des Intervalls*.
Wien: Deuticke, 1992.

—. *Wer in der Sonne steht, wirft Schatten*. Ostfildern vor Stuttgart: Ed. Tertium,
2000.

—. *Eliten – Ost und West*. Berlin: de Gruyter, 2000.

VASILIS POLITIS

Ph.D., Professor of Philosophy
Trinity College Dublin

Born in 1963 in Athens

Studied Philosophy at Oxford University

APORIA AND THE DEMAND FOR DEFINITIONS IN PLATO'S EARLY DIALOGUES

The aim of this project is to establish the function of aporia in a number of Platonic dialogues generally considered early and to show that this is of central significance for our understanding of, first, the method and structure of Plato's arguments and inquiries and, second, Plato's demand for definitions and the view that knowledge requires knowledge of definitions. It is of course generally recognized that many of these dialogues end in aporia, in the sense of the puzzlement distinctive of the failure of a search and typically the search for a definition. What has not been properly recognized, however, is that in these same dialogues Plato uses the term aporia and its cognates also for the puzzlement distinctive of the grasp of a particular problem and indeed for such problems themselves. According to this use, aporia is situated not at the end of a search, indicating its failure, but at the beginning of a search whose starting-point it serves to indicate. Such aporia is typically articulated in a question with two apparently conflicting sides (whether or not ..., whether ... or ...) with good or apparently good reasons on both sides. I shall argue that this use of aporia has two central functions in these dialogues: first, to motivate, direct and structure particular searches, searches whose aim is the resolution of particular aporiai; and, second, to defend and justify the raising of the *ti esti* question and the request for a definition. A central outcome of the project, therefore, is that there is an important sense in which the question *ti esti* F is not supposed to be primary in these dialogues; for there is supposed to be a different question prior to it, namely, a question that is of the form *whether or not F is G* and that articu-

lates a particular aporia. The aporia is “prior to” the *ti esti* question precisely in the sense that it serves to motivate and justify the raising of this question.

Recommended Reading

Politis, Vasilis. “The Place of Aporia in Plato’s Charmides.” *Phronesis* 53 (2008): 1–34.

SHELDON POLLOCK

from January 2010 to July 2010

Ph.D., William B. Ransford Professor of Sanskrit and Indian Studies
Columbia University, New York

Born in 1948 in Cleveland, Ohio

Studied Sanskrit and Indian Studies at Harvard University

FUTURE PHILOLOGY? THE FATE OF A SOFT SCIENCE IN A HARD WORLD

My book project at Wiko, *Future Philology?*, is an attempt to offer a different model of critical philology for the 21st-century university. First, I want to demonstrate the global presence of philology as a knowledge practice and trace the contours of its history especially in the early modern period (looking in particular at Europe, India, and China in the persons of Baruch Spinoza, Melputtur Narayana Bhattari, and Yan Roju). In many parts of the contemporary world, philology is under serious threat, most notably in South Asia, where I want to understand how it has happened that, for many millennia-long literary traditions, scholars who can actually read the texts have almost vanished. My attempt to reconstruct philology emphasizes its historical self-awareness, conceptual universality, and methodological pluralism, values that I regard as essential for any discipline of the future university. In the last, and for me the most important, part of the book, I turn from the politics of philology to the philology of politics, and ask what it might mean to think of philology not just as a scholarly discipline but as a way of life, one that links up – as early modern philology sought to link up – critical textual practices and democratic renewal.

Recommended Reading

Pollock, Sheldon, ed. *Literary Cultures in History: Reconstructions from South Asia*. Berkeley: University of California Press, 2003.

—. *The Ends of Man at the End of Premodernity*. Amsterdam: Royal Netherlands Academy of Arts and Sciences, Stichting J. Gonda-Fonds, 2005.

—. *The Language of the Gods in the World of Men: Sanskrit, Culture, and Power in Premodern India*. Berkeley: University of California Press, 2006. (Updated paperback edition, 2009.)

MARTIN PUCHNER

Ph.D., H. Gordon Garbedian Chair in English and Comparative Literature
Columbia University, New York

Born in 1969 in Erlangen

Studied Philosophy, History, and Literature at the Universität Konstanz,
Università di Bologna, UC Santa Barbara, UC Irvine and at Harvard University

PLATO'S SHADOWS: AN ESSAY ON THEATER AND PHILOSOPHY

Most philosophy makes little mention of the theater except to denounce it as a place of illusion and moral decay. The theater has responded in kind and steered away from philosophy, driven by the truism that theater consists of actions, not ideas. I argue that despite this mutual evasion, the histories of philosophy and theater have been crucially intertwined.

The point of departure (and presiding genius) of this approach is Plato, who invented philosophy as a form of drama. Plato the dramatist provides me with a paradigm through which I develop an alternative to the standard Aristotelian view of theater and philosophy, and this alternative view has led to some extensive archival discoveries, including the unknown history of dramatic adaptations of Plato's dialogues, of which I found over a hundred, the most immediate proof of Plato's hitherto unrecognized influence on theater history. More importantly, this Platonic perspective on theater history facilitates new readings of the most canonical modern dramatists, including Oscar Wilde, Bernard Shaw, Luigi Pirandello, Bertolt Brecht and Tom Stoppard, whose theater of ideas turns out to be a direct heir to Plato's drama. Finally, I will explore the consequences of my approach for philosophy, the result being a *dramatic* history of philosophy according to which philosophers such as Kierkegaard, Nietzsche, Burke, Camus and Deleuze will be shown to have formulated their thought with constant reference to theater.

Recommended Reading

Puchner, Martin. *Stage Fright: Modernism, Anti-Theatricality, and Drama*. Baltimore: Johns Hopkins University Press, 2002.

—. *Poetry of the Revolution: Marx, Manifestos, and the Avant-Gardes*. Princeton: Princeton University Press, 2006.

—. “Kenneth Burke: Theater, Philosophy, and the Limits of Performance.” In *Staging Philosophy*, edited by David Krasner and David Saltz. Ann Arbor: University of Michigan Press, 2006.

ANDRÁS SCHIFF

Oktober 2009

Pianist, Professor für Musik

Franz-Liszt-Musikakademie, Budapest, Hochschule für Musik und Theater

München und Hochschule für Musik Detmold

Geboren 1953 in Budapest

Studium der Musik an der Franz-Liszt-Musikakademie in Budapest

ESSAYS ÜBER MUSIK

Ich möchte an einem Buch arbeiten, bestehend aus Essays über die Interpretation von Musik und über die Kunst des Zuhörens.

Lektüreprüfung

Schiff, András. *Beethovens Klaviersonaten und ihre Deutung: „für jeden Ton die Sprache finden ...“*; *András Schiff im Gespräch mit Martin Meyer*. Bonn: Verl. Beethoven-Haus, 2007.

PAUL SCHMID-HEMPEL

Non-Resident Permanent Fellow of the Wissenschaftskolleg
Dr. phil., Professor of Experimental Ecology
Eidgenössische Technische Hochschule Zürich

Born in 1948 in Zurich

Studied Biology, Physiology and Ecology at the Universität Zürich

PARASITES AS THE SELECTIVE FORCE GENERATING DIVERSITY IN NATURE

Given their ubiquity and impact, parasites are thought to be the key drivers of diversification in organismic evolution. But biologists still do not yet understand exactly what processes affect the co-evolution between hosts and parasites and how, for example, it unfolds at the genetic level. But the possible consequences for the hosts might vary considerably. Rapidly co-evolving parasites, for example, should select for complex mechanisms that generate diverse offspring. Similarly, most parasites have evolved numerous ways of evading immune defences, which in turn forces hosts to evolve responses that are robust against manipulation.

The project therefore investigates the role that parasites play in nature and what strategies organisms use to defend themselves against this threat. Empirical data and theoretical concepts are the building blocks of such a framework, which should lead to better insights, for example, into why some parasites are harmful and others are not, or what the costs and benefits of efficient immune defence might be. An understanding of these issues is important for top human priorities such as medicine or the control of infectious diseases, as well as for some deep questions about the evolution of life itself.

Recommended Reading

- Schmid-Hempel, P. 2003. "Variation in immune defence as a question of evolutionary ecology." *Proceedings of the Royal Society London B* 270: 357–366.
- Richner, H. and P. Schmid-Hempel. 2006. "Grundlagen der Parasit-Wirt-Koevolution." In *Allgemeine Parasitologie*, edited by T. Hiepe, R. Lucius and B. Gottstein, 69–79. Stuttgart: Parey-Blackwell.
- Schmid-Hempel, P. 2008. "Immune evasion by parasites – a momentous molecular war." *Trends in Ecology and Evolution* 23, 318–326.

ULRICH SCHOLLWÖCK
Dr. rer. nat., Professor für Theoretische Physik
Ludwig-Maximilians-Universität München

Geboren 1967 in München
Studium der Physik an der Ludwig-Maximilians-Universität München
und University of Oxford

KLASSISCHE BESCHREIBUNG QUANTEN- MECHANISCHER VIELTEILCHENSYSTEME

Schwerpunkt *Klassische Simulation quantenmechanischer Systeme: Klassische Information versus Quanteninformation*

Klassische Simulationen quantaler Systeme. Ist es möglich, um den Preis nichtexakter Resultate, den fundamentalen Unterschied im Informationsgehalt quantenmechanischer Systeme und klassischer Systeme (die wir als Rechenwerkzeuge nutzen) soweit zu reduzieren, dass die Information klassisch komprimiert werden kann? Es ist bereits bekannt, dass die Antwort auf diese Frage fundamental mit den Verschränkungseigenschaften des Systems zusammenhängt. Für die im Moment rätselhafteste Klasse quantenmechanischer Systeme, die zweidimensionalen stark korrelierten Systeme (hierzu gehören beispielsweise die Hochtemperatursupraleiter) sollen neue algorithmische Vorschläge entwickelt und effizient umgesetzt und an wichtigen Problemen (zweidimensionales Hubbard-Modell) getestet werden.

Größe des Zustandsraums. Hier handelt es sich um ein Forschungsgebiet, das potentiell konzeptionell und philosophisch die größten Konsequenzen hat. Der Zustandsraum der Quantenmechanik ist exponentiell größer als der der klassischen Mechanik. Neueste Erkenntnisse zeigen aber, dass die Natur effektiv nur eine winzige Teilmenge dieses Zustandsraums erreichen kann, was erklären könnte, warum überhaupt effiziente klassische Beschreibung möglich sein kann, andererseits aber auf eine innere Struktur des Zustandsraums hinweist,

was für unser Verständnis und Sprechen über Quantenmechanik wichtig sein könnte. Diese Strukturierung soll weiter vorangetrieben werden.

Lektüreempfehlung

Schollwöck, Ulrich. 2005. „The density-matrix renormalization group.“ *Reviews of Modern Physics* 77, 259.

Daley, A. J., C. Kollath, U. Schollwöck, and G. Vidal. 2004. „Time-dependent density-matrix renormalization-group using adaptive effective Hilbert spaces.“ *Journal of Statistical Mechanics: Theory and Experiment* P04005.

Cramer, M., A. Fleisch, I. McCulloch, U. Schollwöck and J. Eisert. 2008. „Exploring local quantum many-body relaxation by atoms in optical superlattices.“ *Physical Review Letters* 101, 063001.

TANJA SCHWANDER

from November 2009 to February 2010

Ph.D., Biology

Simon Fraser University, Burnaby

Born in 1978 in Brugg, Switzerland

Studied Population Genetics, Zoology, and Ecology at the
University of Lausanne

FACTORS AFFECTING CASTE FATE IN SOCIAL INSECTS

Understanding how a single genome can produce a variety of different phenotypes is of fundamental importance in genetics and developmental biology. One of the most striking examples of phenotypic plasticity is the female caste system found in ants and other eusocial insects, in which different phenotypes are associated with reproduction (queen caste) or helping behavior (worker castes).

A longstanding paradigm for caste determination was that female eggs are always totipotent with the important morphological and physiological differences between queens and workers stemming solely from a developmental switch during the larval stage under the control of nutritional and other environmental factors. However, there are an increasing number of examples showing genetic components in caste determination, as well as maternal effects influencing the developmental fate of females.

I will write a review on the evolution of genetic caste determination in social insects. In this review, I will present a broad overview of the studies providing strong direct and indirect evidence of a genetic component to caste differentiation and discuss factors that may have led to the evolution of genetically hardwired caste systems. In addition, I will argue that purely environment-controlled caste systems are very difficult to demonstrate and probably unlikely to occur in genetically heterogeneous societies. Detailed molecular analyses are likely to uncover additional cases of genetically-

determined queen and worker determination and various degrees of genetic predispositions toward a particular caste.

Recommended Reading

Schwander, T., J. Y. Humbert, C. S. Brent, Cahan S. Helms, L. Chapuis, E. Renai, and L. Keller. 2008. "Maternal effect on female caste determination in a social insect." *Current Biology* 18: 265–269.

Schwander T. and L. Keller. 2008. "Genetic compatibility affects queen and worker caste determination." *Science* 322: 552.

Schwander T. and B. J. Crespi. 2009. "Twigs on the tree of life? Neutral and selective models for integrating macroevolutionary patterns with microevolutionary processes in the analysis of asexuality." *Molecular Ecology* 18: 28–42.

DIETER THOMÄ
Dr. phil., Professor für Philosophie
Universität St. Gallen

Geboren 1959 in Heidelberg
Studium der Philosophie, Germanistik und Romanistik an der
Albert-Ludwigs-Universität Freiburg

DAS UNGEMACH DER GIER: DER KALIFORNISCHE GOLDRAUSCH ALS SCHLÜSSELEREIGNIS DER MODERNE

Der kalifornische Goldrausch 1849 scheint ein marginales, pittoreskes Ereignis innerhalb der „Great Transformation“ der modernen Gesellschaft zu sein. Doch dieses Ereignis kann als Spiegel dienen, in dem das Verhältnis der Moderne zum Geld und dessen ethischer und sozialer Gehalt besonders deutlich zu Tage treten. In dem geplanten Projekt soll der Diskurs um den Goldrausch rekonstruiert und im Rahmen einer Philosophie des Geldes auf seinen systematischen Gehalt hin überprüft werden.

Ausgangspunkt ist die Geschichte des Großgrundbesitzers John August Sutter, der den Goldrausch auslöst und als Pionier gefeiert wird, später aber seinen Besitz verliert und sich als Feind der Gier inszeniert. Damit ist eine Ambivalenz angelegt, die im 20. Jahrhundert von zahlreichen Künstlern auskostet wird. Blaise Cendrars verfasst einen Roman (*L'Or*), der u. a. von Sergej Eisenstein in einem Drehbuch sowie von Luis Trenker (*Der Kaiser von Kalifornien*) und James Cruze (*Sutter's Gold*) in zwei Filmen aufgegriffen wird. In dem geplanten Projekt sollen die scharfen Differenzen zwischen den verschiedenen Versionen mit Blick auf deren Inhalt und ästhetische Form analysiert werden; überspitzt kann man sagen, dass bei Eisenstein eine kommunistische, bei Trenker eine faschistische und bei Cruze eine kapitalistische Tendenz zum Ausdruck kommt. So wird der Goldrausch zu einem Beispiel narrativer Identitätsbildung sowie zu einem Schauplatz der ideologischen Auseinandersetzung

im 20. Jahrhundert. Darüber hinaus gibt die Geschichte mitsamt ihren Interpretationen Anlass zu sozialphilosophischen und ethischen Überlegungen zur Bedeutung des Geldes für die moderne Lebensform.

Lektüreprüfung

Thomä, Dieter. *Vom Glück in der Moderne*. Frankfurt/M.: Suhrkamp, 2003.

—. *Totalität und Mitleid: Richard Wagner, Sergej Eisenstein und unsere ethisch-ästhetische Moderne*. Frankfurt/M.: Suhrkamp, 2006.

—. *Väter: Eine moderne Heldengeschichte*. München und Wien: Hanser, 2008.

GALIN TIHANOV

Ph.D., D.Phil., Professor of Comparative Literature and Intellectual History
The University of Manchester

Born in 1964 in Lovech, Bulgaria

Studied Slavic Studies, English, and Cultural History at Sofia University and
Oxford University

THE POST-ROMANTIC SYNDROME

While holding the Fellowship, I will be working on a book with the above title. The book is an interdisciplinary study in intellectual history. The main argument is that 20th-century German thought was largely a response to an intellectual agenda that survived the demise of German Romanticism as an artistic current. This agenda was revived in a social climate that had rendered Romanticism (and the solutions it had suggested) impossible, while preserving the validity of its anxieties and giving rise to a specific post-Romantic ideological discourse that marked much of the late Wilhelmine and the entire Weimar period and persisted in various forms beyond World War II.

The title of the book captures two facts. First, that the scene of 20th-century German philosophy, social and economic thought and cultural theory was shaped and largely dominated by the resurrection and proliferation, in strongly modified fashion, of essential aspects of the Romantic intellectual agenda. Second, the fact that 20th-century German philosophy, social and economic thought and cultural theory, even when trying to escape the orbit of Romantic thought (by severely criticising Romanticism), remained riveted to it, thus reproducing a syndrome of enduring dependence.

The book proceeds from a firm evidential basis and incorporates, whenever appropriate, the results of archival research that help to reconstruct a much fuller and nuanced picture of German philosophy, social thought, and cultural theory in the twentieth century. Whenever appropriate, I also draw on Russian,

French and English material so that a truly comparative perspective is sustained, thus always keeping the German case in perspective.

Recommended Reading

Tihanov, Galin. *The Master and the Slave: Lukács, Bakhtin, and the Ideas of Their Time*. Oxford: Clarendon Press and New York: Oxford University Press, 2000.

—. “Why Did Modern Literary Theory Originate in Central and Eastern Europe? (And Why Is It Now Dead?)” *Common Knowledge* 10, 1 (2004): 61–81.

—. “Robert Musil in the Garden of Conservatism.” In *A Companion to the Works of Robert Musil*, edited by Philip Payne, Graham Bartram, and Galin Tihanov, 117–148. Rochester, NY: Camden House, 2007.

ARNDT VON TWICKEL

from January 2010 to April 2010

Neurocybernetics

Universität Osnabrück

Born in 1978 in Berlin

Studied Biology in Freiburg, Bonn, and Cologne and

at the École Normale Supérieure de Lyon

COMPARING BIOLOGICAL WITH EVOLVED ARTIFICIAL NEURAL NETWORKS IN THE SENSORIMOTOR LOOP

Focus Group *Functional and Structural Constraints in the Evolution of
Sensorimotor Networks*

I will try to identify general principles regarding structure-function relationships in neural networks acting in the sensorimotor loop. To this end I will focus on comparing small, identified biological neural networks with a range of neural networks developed via artificial evolution. By changing structure and parameters of the neural networks, artificial evolution allows for a systematic exploration of possible neural structures and therefore for a systematic investigation of the role of different sensory inputs on the generation of movements. When a multitude of functional controllers have been derived under different conditions, they will be analyzed and compared on multiple levels: 1) behavioral level, 2) structural level (usage of specific sensors, connectivity, network size, lesions, etc.), and 3) dynamical systems level. Comparison of controllers derived under different boundary conditions (e. g. muscle or environment properties) is expected to highlight structural constraints of neural controllers that are specific to the movement system and to yield insight into diverse functional modules. Comparison with known biological networks will, firstly, support or reject biological hypotheses and, further, allow the formulation of new hypotheses. If time permits, the derived control principles will be tested on a physical robot.

Recommended Reading

Twickel, A. von and F. Pasemann. 2007. "Reflex-oscillations in evolved single leg neurocontrollers for walking machines." *Natural Computing* 6, 311–337.

RAYMOND WESTBROOK
Ph.D., Professor of Assyriology
The Johns Hopkins University, Baltimore

Born in 1946 in England
Studied Law at the University of Oxford, Comparative Law at Hebrew
University of Jerusalem and Assyriology at Yale University

THE EARLY HISTORY OF LEGISLATION

The purpose of this project is to investigate the phenomenon of legislation in the earliest recorded law, namely the legal systems of the Ancient Near East. Our sources are primarily cuneiform documents from Mesopotamia, in which by far the greatest quantity of legal records is preserved, but with attention also to sources from Egypt, Syria, Anatolia, and biblical Israel. The chronological limits of the investigation are from the mid-third millennium B.C., when the first recognizable legislative texts appear, to the mid-first millennium B.C., when the Ancient Near Eastern texts overlap with Greek sources and raise questions of mutual influence. A key thesis of this project that we wish to test is that the Greek sources, interpreted by classical historians as legislation in the modern sense, retain certain archaic characteristics that reveal the influence of an earlier jurisprudential tradition from the Ancient Near East.

Recommended Reading

- Westbrook, Raymond. "Codification and Canonization." In *La Codification des Lois dans l'Antiquité*, edited by Ed. Lévy, 33–47. Paris: Bocard, 2000.
- . "Drakon's Homicide Law." In *Symposion 2007*, edited by E. Harris and G. Thür, 3–16. Vienna: Österreichische Akademie der Wissenschaften, 2008.

ADAM S. WILKINS
Ph.D., Evolutionary Biology
University of Cambridge, UK

Born in 1945 in Columbus, Ohio
Studied Biology at Reed College, Portland and Genetics
at the University of Washington, Seattle

MAKING FACES: A HISTORY OF THE HUMAN FACE IN FOUR PARTS

My project is a book on the history of the (human) face. There is a large literature on the face as an expression and signaling device, initiated by Charles Darwin in his *The Expression of the Emotions in Man and the Animals* (1872), but which has enormously expanded recently. The human face is a primary mirror and signaler of human emotional states, second only to language as a communication device.

Yet the evolutionary origins of these capabilities have received much less attention. Our nearest relatives, the great apes, have a repertoire of facial expressions for communication but no other species has our range of expressive capabilities. At present, there is no treatment of the evolutionary history of the human face and its capacities. To do justice to this subject requires insights from evolutionary biology, paleoanthropology, genetics, and developmental biology.

My book will have four parts. The first will deal with the developmental biology of the human face, from early embryonic development to the more subtle changes that take place in childhood and adulthood, and its genetics. The second will deal with the evolution of animal faces, from the origins of bilateral symmetry in early animal evolution, to the faces of early vertebrates, then the mammals and primates and, finally, humans. It will trace the transition from physiognomic recognition (that of physical features) to the evolution of the capability for making and interpreting facial expressions in the great apes and humans. The third section will deal with the evolution of the neural capacities

for “reading” expressions. The final part will concern the cultural dimension: the evidence for the growing awareness, in human history, of the face, as recorded in early art work.

The book is to be written for the general reader but will be based on solid scholarship, with endnotes and a full bibliography.

Recommended Reading

Wilkins, Adam S. *Genetic Analysis of Animal Development*. 1986, 1993. New York: John Wiley & Sons.

—. *The Evolution of Developmental Pathways*. 2002. Sunderland, Mass. Sinauer Associates.

Wilkins, A. S. and S. R. Holliday. 2009. “The evolution of meiosis from mitosis.” *Genetics* 181: 3–12.

HARALD WOLF

Dr. rer. nat., Professor of Neurobiology
Universität Ulm

Born in 1955 in Berlin

Studied Biology and Chemistry at the Technische Hochschule Darmstadt

THE MOTOR CONTROL NETWORK IN LOCUST FLIGHT – SEGMENTAL ORGANISATION AND SENSORIMOTOR INTERACTIONS

Focus Group *Functional and Structural Constraints in the Evolution of Sensorimotor Networks*

Project of the Focus Group: A modelling approach shall address questions of structure-function relationship in neuronal networks, of constraints that limit functional flexibility, and of the evolution of motor control networks. Evolutionary considerations may include energetics and scaling problems.

Despite the frequent use of neuronal network modelling in (neuro-)informatics – e. g. as an adaptive tool to solve complex control tasks – and in (neuro-)biology – mostly in pursuit of cellular signalling mechanisms – the present set of questions has received little attention. We shall address the properties of (sensorimotor) networks on the levels of network structure and its general implications for network function, functional flexibility and the association of structural and functional changes during evolution. This may reveal how novel network features are linked to morphological and functional changes of the body they control, and it may yield general insights that bear upon areas ranging from artificial network design for technical control tasks to the understanding of nervous system evolution.

Well-known physiological networks shall be compared on a conceptual level. Candidate networks are those underlying peristaltic vegetative motor patterns (e. g. the crustacean stomatogastric system or vertebrate respiration network),

crawling and swimming of legless organisms (e. g. leech or lamprey locomotion), rhythmic action of locomotor appendages (e. g. insect walking or flight), and aimed limb movements.

Individual Project: The control network for locust flight is among the best-studied neuronal networks, particularly with regard to the integration of sensory feedback with central-nervous rhythm generation. Nonetheless, many intriguing features still await scrutiny. In the present context, the distributed and monolithic organisation of the flight control network is of particular interest. Usually, the control circuits of segmental appendages – legs and wings – exhibit a corresponding segmental and bilaterally symmetric organisation. For example, basic motor control of both vertebrate and insect legs is by one dedicated control network per appendage. These (hemi-)segmental networks are connected by a small number of pathways that allow coordinated movements of the appendages. The functional and evolutionary reasons for the exceptional monolithic structure of locust flight control are enigmatic. Modelling of the locust flight oscillator with evolutionary algorithms is expected to shed light not only on the functional reasons for this feature, but also on general principles of network organisation.

Recommended Reading

Wolf, H. 1995. “Plasticity in insect leg motor control: interactions between central program and sensory signal processing.” *Verh. Dtsch. Zool. Ges.* 88.2: 153–164.

Wolf, H. and R. Wehner. 2005. “Desert ants compensate for navigation uncertainty.” *J. Exp. Biol.* 208: 4223–4230.

Ausborn, J., W. Stein, and H. Wolf. 2007. “Frequency control of motor pattern by negative sensory feedback.” *J. Neurosci.* 35: 9319–9328.

YOGENDRA YADAV

Senior Fellow, Political Science

Centre for the Study of Developing Societies, Delhi

Born in 1963 in Gurgaon, India

Studied Political Science at Jawaharlal Nehru University, New Delhi and

Panjab University, Chandigarh

DEMOCRATIC POLITICS IN CONTEMPORARY INDIA

As “democracy” expands to most parts of the world, there is a tendency to interpret and evaluate democratic politics all over the globe in the light of the narrow historical experience of Western Europe and North America. My project is a part of an ongoing global conversation that seeks to interrogate this established but parochial “commonsense” about democracy.

I wish to contribute to this conversation by writing about India’s democratic experience since independence. Initially written off as a country not suited for democracy due to its complex diversities, extreme poverty and high illiteracy, India has now been accommodated as an exception to the dominant understanding of democracy. There is a need to move beyond this culturally essentialist understanding of Indian exceptionalism and reflect upon this experience to rewrite democratic theory itself.

Specifically, I propose to focus on elections in post-independence India. The existing body of knowledge on elections and voting behaviour leads us to view Indian elections as a series of absences, if not maladies. My point of departure is to see the apparently unique features of Indian elections are a product of the encounter between modern structure of formal political choice (instituted through a system of “free and fair” elections through a given set of rules) and the historically constituted public sphere in India. This opens the way to reinterpret what is often seen as electoral “volatility”, party “fragmentation”, “casteism” in politics or the “absence of ideology” and the widespread “clientalism” in Indian elections. I plan to work on a book manuscript on this subject with Dr. Alistair

McMillan of the University of Sheffield. I would also begin working on a book on Democracy in India, besides completing a long essay on Rammanohar Lohia, a twentieth-century Indian socialist thinker who was trained in Germany.

Recommended Reading

Yadav, Yogendra et al. *State of Democracy in South Asia*, Delhi: Oxford University Press, 2008.

Yadav, Yogendra, Sandeep Shastri, and K. C. Suri. *Electoral Politics in Indian States: Lok Sabha Elections in 2004 and Beyond*. Delhi: Oxford University Press, 2009.

Yadav, Yogendra. "Politics." In *India Briefing: A Transformative Fifty Years*, edited by Marshall Bouton and Philip Oldenburg, 3–38. New York: M. E. Sharpe, 1999.

Hindi version: *Rajneeti ke Saat Adhyay*, edited by Abhay Dube. New Delhi: Vani Prakashan, 2002.

SERGIY YAKOVENKO

from January 2010 to April 2010

Ph.D., Neuroscience

Université de Montréal

Born in 1976 in Kharkiv, Ukraine

Studied Molecular Biophysics at Kharkiv National University and

Neuroscience at the University of Alberta

NEURO-MECHANICAL SYNERGIES FOR MOVEMENT CONTROL: INSIGHTS FROM BIOMECHANICAL AND CONTROL-SYSTEM MODELLING

Focus Group *Functional and Structural Constraints in the Evolution of
Sensorimotor Networks*

One of the major roles of the neural system is to control body movement. This function has been evolving to enable animals to execute an increasing number of behaviours that contribute to their survival. Historically, systematic reductionist techniques have been used to gain functional understanding of different parts of the neural system. However, an increasing number of questions in neuroscience that address the interactions between multiple pathways with overlapping (redundant) functions are resistant to these classical techniques. The alternative is to use the computational analysis that merges bottom-up (reductionist) and top-down (holistic) approaches. The main goal of the proposed project is to use biomechanical models together with control systems techniques to study the contribution of mechanical and neural constraints to movement control. Special consideration will be given to the description and composition of synergies for the generation of movement and to the evaluation of the hypothesis that synergies were acquired sequentially during evolutionary development.

Recommended Reading

- Yakovenko, S., V. Mushahwar, V. Vanderhorst, G. Holstege, and A. Prochazka. 2002. "A. Spatiotemporal activation of lumbosacral motoneurons in the locomotor step cycle." *J. Neurophysiol.* 87: 1542–1553.
- Yakovenko, S., V. Gritsenko, and A. Prochazka. 2004. "Contribution of stretch reflexes to locomotor control: a modeling study." *Biol. Cybern.* 90: 146–155.
- Yakovenko, S., D. A. McCrea, K. Stecina, and A. Prochazka. 2005. "Control of locomotor cycle durations." *J. Neurophysiol.* 94, 1057–1065.

KLAUS ZUBERBÜHLER
Ph.D., Professor of Psychology
University of St. Andrews

Born in 1964 in Basel
Studied Zoology and Anthropology at the Universität Zürich and Psychology at
the University of Pennsylvania

THE PSYCHOLOGICAL BASIS OF COMPLEXITY AND FLEXIBILITY IN ANIMAL COMMUNICATION

Focus Group *Complexity and Flexibility in Animal Communication*

Communication in humans is characterised by a high degree of mutual awareness between the signaler and receiver. Meaning emerges, not so much as a function of the specific referent linked to an utterance, but from the intention the signaler is trying to convey to a receiver by means of some utterance. This is one of the reasons why pointing, a semantically vacuous signal, can readily convey the same complex meaning as a structurally complicated sentence. This high degree of complexity and flexibility is not usually seen in animal communication, and it calls for an investigation of its evolutionary origins. My project thus has three main goals.

First, I will conduct a broad and comprehensive review of the empirical literature on animal communication to search for evidence of intentional signaling. The focus will be on non-human primates, which are particularly prone to high levels of social awareness and goal-directedness. This review will feed into a book project that is part of the focus project carried out with Dr. Janik. For this purpose, we will also consult with other experts in the field and run a number of workshops.

Second, together with my postdocs and doctoral students, I will examine our existing primate vocalisation database, compiled at our field sites in the Ivory

Coast, Uganda, and Nigeria, for evidence of intentional signaling. For this purpose, we hope to run a series of specific workshops at the Wissenschaftskolleg.

Third, I will develop and design new observational and experimental techniques that are suitable to address the issue of intentionality with free-ranging primates.

Recommended Reading

Arnold, K. and K. Zuberbühler. 2006. "Semantic combinations in primate calls." *Nature* 441: 303–303.

Slocombe, K. E. and K. Zuberbühler. 2007. "Chimpanzees modify recruitment screams as a function of audience composition." *Proceedings of the National Academy of Sciences of the United States of America* 104: 17228–17233.

Townsend, S. W., T. Deschner, and K. Zuberbühler. 2008. "Female chimpanzees use copulation calls flexibly to prevent social competition." *PLoS One*: 3, e2431.