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LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

insightLMU

The international edition of the LMU Munich newsletter

Buddha goes West

by Marcus Simon

Richard Gere, Tina Turner, Allen Ginsberg, Brad Pitt – these well-known figures are all fascinated by Buddhism, and are famous examples of the ever stronger influence of this Asian religion on western culture. At the same time, the cultural transfer into the west – and into other languages with it – is in turn having an effect on Buddhism itself. Professor of Religious Studies, Michael von Brück, has been investigating the reciprocal effects caused in the convergence of Buddhist and Christian cultures for many years. He asserts that religions are not firmly established, but are subject to a constant change process instead.

Source: Gachon

The Dalai Lama speaking at the European Parliament. In western societies, he is perceived and celebrated as an indefatigable fighter for the peaceful liberation of Tibet from the clutches of the Chinese oppressors. One is hard pressed to find a true discussion of his religious conceptions.

For the complete article, see
www.en.lmu.de/news/insightlmu/2009/02_01.pdf

Environmental think tank at LMU

by Cindy Heinkel

In August 2009, at the 1st World Congress of Environmental History in Copenhagen, LMU Munich will present the Rachel Carson Center – an international center for environmental research. The center, named after the famous American biologist and writer, will be a vibrant think tank where environmental protection and sustainability issues will be tackled from global, culture-comparative, historical perspectives.

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Daniel McFadden at LMU

by Julia Zahlten

Discussing one's own research with a Nobel Prize winner might be something, every PhD student dreams about. When Professor Daniel McFadden, Nobel laureate of 2000 and professor of economics at the University of Berkeley, California, visited the Center for Advanced Studies, it has become reality for four doctoral candidates of LMU Munich´s Department of Economics. During his stay in Munich, the visiting fellow took time to answer questions and give feedback, stimulating new perspectives on the students' topics.

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WHAT'S INSIDE

Environmental think tank at LMU

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How did the people in Japan develop their particular "earthquake culture"? Why have architecture, cattle farming and an entire population's humor adapted to repeated flooding in the Philippines? Why are Americans – often regarded as the worst environmental offenders – also active protectors of the environment preserving vast natural and wildlife areas such as Yellowstone National Park? These are some of the many questions running around in the mind of Professor Christof Mauch of LMU Munich. He, along with Professor Helmuth Trischler of the "Deutsches Museum" in Munich, came up with the idea for the Rachel Carson Center where academics from all around the world will come together to tackle the issue of "Nature as a cultural challenge" in six interdisciplinary fields of research.

"On the one hand, we are examining the human impact on the changes of the natural environment," explains Mauch. "And on the other hand, we are looking into the cultural consequences of natural change. A global, culture-comparative, historical approach allows us to understand and rethink." Mauch, who holds the Chair of North American Culture and Social and Political History at LMU Munich, finds the whole issue of the environment precarious and promising at the same time. While many individual initiatives exist in Germany, there is no true center to deal with environmental issues from a humanities perspective: "It is surprising that Germany, which is often seen as the environmental model country, has no place that systematically reflects the relationship of man and nature – historically, philosophically or culturally."

The new Rachel Carson Center is about to change that. Different disciplines will come together here – historical science will meet politology, art history and ethnology, as well as biology, agricultural science and forestry. "There is a store of motivation and creativity above all in the humanities – a potential beyond the calculations of structural analysts and statisticians, engineers and economists," says Mauch. Little wonder, then, that the new research center is being funded by the "Freedom for Research in the Humanities" program of the Federal Ministry of Education and Research. This German government initiative, launched in 2007, is designed to support universities that offer a coherent plan for international research centers focussing on the humanities. Munich is one of only seven locations in Germany selected for this program, since October 2008.

Aside from the innovative research field, there was another decisive factor in the competition for funding – the inclusion of an external partner. The Deutsches Museum, which attracts around 1.4 million visitors a year, is the most frequently visited museum in Germany and is one of the world's leading locations for researching, exhibiting and communicating science and technology. Since 1963, the museum has maintained a close relationship with LMU, including a long-standing research collaboration and several innovative research projects in cooperation with LMU's clusters of excellence. Helmuth Trischler, who heads the museum's research department and is also professor of modern history at LMU, likes the idea of bringing together many different academics with different kinds of environmental experience.

The center's directors and their teams are already promoting the project at international conferences and science forums in order to get worldwide renowned scholars from relevant fields interested in the venture. In the coming years the intention is to bring more than 100 fellows to Munich to exchange research ideas and results. There are also plans to establish a new Master's and PhD program in the near future allowing young academics to benefit from the center's multidisciplinary approach. The name Rachel Carson says it all: "In 1962, with her book 'Silent Spring', the American biologist, writer and ecologist described the influence of man on nature and the creeping change in the environment more vividly than any other scientist or writer before her," explains Mauch. "When the new worldwide environmental consciousness awoke in the 60s, we have no one to thank more for it than Rachel Carson." The famous name also sends out the clear message that Munich is not interested in creating a landmark for Bavaria, but in establishing a scientific think tank which aims at sharing its research findings worldwide.

For further information on the Rachel Carson Center, see **www.rachelcarsoncenter.de**

Daniel McFadden at LMU

(continued from page 1)

For the PhD students of the Department of Economics, the collaboration with the Nobel laureate Daniel McFadden offers a great opportunity. "I was really excited to work with one of the most renowned experts in this area of research," says Amelie Wuppermann, doctoral candidate at the Munich Graduate School of Economics. "Mr. McFadden was really friendly right away, listened carefully to our concerns and gave constructive comments. It was a very focussed working atmosphere." The guest also enjoyed meeting the young academics. "It was a very productive opportunity to be able to meet the students working on the same research in Munich that I carry out in the USA," McFadden says. "They have a different perspective of tackling upcoming questions."

The microeconomist has been cooperating with Professor Joachim Winter of the Seminar of Empirical Economics Research at LMU for several years. Their research focuses on the US health care system. Currently, they are examining the consequences of the new prescription drug program "Medicare Part D" for people over 65 and patients with severe illnesses or disabilities. The great variety of different insurance options puts pressure on individual consumers. Not everybody is able to cope with having to choose the right option.

"Health care is a field where it´s pretty easy for consumers to make mistakes," says McFadden. "In the situations when you need health care, it´s mostly pretty difficult to decide if you´re offered the right things." McFadden and Winter's research group, which includes the PhD students, evaluates the American health care system and formulates recommendations to improve it "so that people don´t fall through the system."

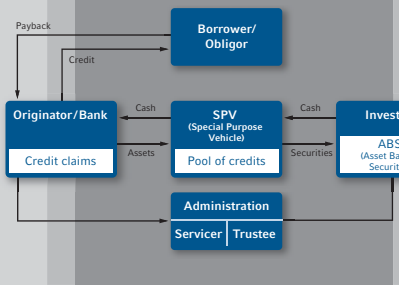
The long-term collaboration of the American Nobel laureate and the economists of LMU Munich is based on mutual success. "It is hard to sit within a system and talk about yourself – the external perspective of high quality, technically skilled people is priceless for the outcomes of the work," says McFadden. In addition to this, Germany´s extensive experience in the cooperation between state-provided and private healthcare is of an important empirical value, he adds. Conversely, Professor Winter is inspired by the way American economists see patients as consumers: "To talk about consumers who make their own choices is a different way to think about health care. As consumers, people expect to get a service and their money´s worth." For the PhD students, on the other hand, the collaboration offers access to a treasure of knowledge as well. "Daniel McFadden has been working in this area for 50 years. Such expertise is a significant advantage for us," emphazises Amelie Wuppermann.

At 72 years old, Professor McFadden would have been conferred emeritus status some years ago if he'd been in Germany. However, in the United States, the retirement age was dropped 20 years ago – luckily, McFadden thinks: "The retirement choice should be in the hand of the individual person. In my opinion productivity of labour is affected by the feeling of being needed and the work being appreciated – and I really don´t plan to retire in the near future."

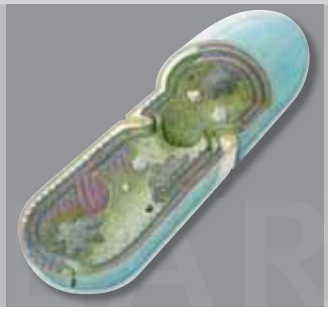
Nevertheless, on the weekends he enjoys his retreat – Daniel McFadden loves farming. He and his wife own a farm outside of Los Angeles where they have a vineyard. "I invested the winnings of the Nobel prize 2000 in this farm. I grew up on the countryside and the farm means a lot to me. It´s a welcome change from my scientific work," says McFadden. "You immediately see the fruits of your work. I love to sit on the porch and drink a glass of Cabernet Sauvignon from my home-grown vines."

▲ *During his research stay at LMU Munich, Economics Nobel Prize winner Daniel McFadden took time to discuss the research of doctoral students, stimulating new perspectives on their topics and gaining new insights for his own work on the US health care system.*

RESEARCH



The chart shows the structure of Asset Backed Securities transactions. A bank allowing a credit sells obligations to a special purpose entity, tranching and pooling them into new packages of obligations.



Schematic representation of a cyanobakterium. The blue and red colored fan-like structures are the light harvesting complexes which are composed of differently colored biliproteins, thereby optimizing photosynthesis.

LAW, ECONOMICS AND SOCIAL SCIENCES

Learning from the financial crisis

by Andreas Park

In only a few months, the international banking and financial crisis has wiped out billions – around the globe and in an unimaginable magnitude. But how could this happen? What brought the equity capital supply on the international banking market and the apparently well-organized world financial system to collapse? Professor Bernd Rudolph examines the microeconomic background and details reform prospects for the post-crisis world.

For the complete article, see
www.en.lmu.de/news/insightlmu/2009/02_02.pdf

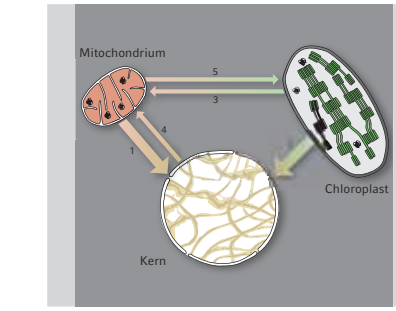
NATURAL SCIENCES

A building kit for brilliant organic pigments

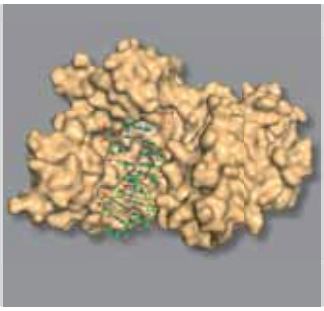
by Christine Amrhein

Cyanobacteria are true survivors, and can produce sufficient energy from photosynthesis to stay alive even under poor light conditions. The specialized "light collectors" which they use for photosynthesis are known as biliproteins. Biologists from the Botanical Institute of LMU Munich have now identified the chemical features responsible for the intense color and luminance of these proteins and and the biosynthetic pathways for their formation Biliproteins could in future be used as versatile labeling pigments in biology and in medicine.

For the complete article, see
www.en.lmu.de/news/insightlmu/2009/02_03.pdf



Overview of known types of inter-organelle DNA transfer. 1) mitochondrion-to-nucleus; 2) plastid-to-nucleus; 3) plastid-to-mitochondrion; 4) nucleus-to-mitochondrion; 5) mitochondrion-to-plastid.



Shapshot of polymerase η, reading through a DNA lesion caused by cisplatin. This process plays an important role in developing resistances against this usually very effective cancer therapeutic agent.

LIFE SCIENCES

Evolutionary tinkering

by Susanne Wedlich

New species can only arise if also new genes are formed. Duplication, which replicates already existing genes, is one of the most important mechanisms for increasing the number of genes. Evolutionary biologist Professor Wolfgang Stephan and his team were able to show the importance of natural selection in such processes. Plant biologist Professor Dario Leister, on the other hand, has demonstrated the existence of a hitherto unknown path to the generation of new genes: In this process, foreign genetic material that had been incorporated into cells millions of years ago is built into new gene arrangements.

For the complete article, see
www.en.lmu.de/news/insightlmu/2009/02_04.pdf

INTERDISCIPLINARY INSIGHTS

Cells – just big building sites

by Tim Schröder

Proteins determine the structure and function of all organisms. While they were formerly studied in relative isolation, today we know that they work together in a finely tuned manner. Nonetheless, it is only slowly that we are beginning to understand what happens in the human metabolism when a person gets ill. In the cluster of excellence "Center for Integrated Protein Science Munich" researchers in various disciplines are trying to find out more about the role of proteins. They use the most advanced new technologies to focus on proteins in living cells and different types of tissue.

For the complete article, see
www.en.lmu.de/news/insightlmu/2009/02_05.pdf

Tracking the inner builder

by Susanne Wedlich and Luise Dirscherl

The Alexander von Humboldt Professorship is the most highly endowed research award in Germany. With this prize, the eponymous foundation and the German Federal Ministry of Research seek to recruit renowned scientists from all over the globe to carry out long-term research activities in Germany. The first Humboldt Professorships were awarded in 2008, and two have been garnered by LMU, for developmental biologist Ulrike Gaul and physicist Georgi Dvali. In this issue, insightLMU introduces Professor Gaul, whose team will begin work at the Gene Center in June.

Ulrike Gaul has not only had an impressive career, but she is also the only woman among the first group of Humboldt award winners, a fact rarely overlooked by the numerous media reports on the Humboldt Professorship. Gaul patiently answers reporters' questions in this regard, but is quick to clarify that her real priority is "science". It was in search of better opportunities and conditions in science and research that Professor Gaul moved to the United States after obtaining her doctorate in 1988. But now, after 20 years of research at leading institutions in the US she will be returning to Germany, because the five million euros provided by the Humboldt award made the offer from LMU, with its excellent working conditions, irresistible.

Ulrike Gaul has plans: Along with her colleagues at the Gene Center of LMU, she will establish a new research focus in molecular systems biology. Systems biology, simply stated, seeks to understand the organism as a whole. Many a home-builder has gotten himself in trouble when trying, plans in hand, to imagine his future house with all the piping and cabling and other technical details. But Gaul has to deal with a much more complex construction plan: As a biologist, she examines the body's blueprints. This is not as easy as placing one brick on top of another and making sure that all systems are installed at the right time. Rather, in humans for example, one single ovum develops into some 200 different types of cells. When and how many of these cells arise, whether they coalesce into tissues or whether they die instead, all this is very precisely controlled. Even the smallest design error can do catastrophic damage. "The development of an organism is a central issue in biology and a fascinating problem", says Professor Gaul. "This process, after all, be it in animals or in humans, results in a complete biological system that is able to perceive its environment and move about in it, to feed itself and to replicate. And the starting point is a single egg cell with its genetic information, which represents the construction plan for the entire system and is transmitted in copy to all other cells." The genetic material DNA contains not only genes, which act as blueprints for proteins, the workhorses of the cell, but also the information about when and where these genes will become active. "We are interested in how the activity of genes is regulated and coordinated in an intact organism, and particularly during development," Gaul explains. "For a functional organism to develop, thousands of genes must be switched on and off in precisely defined patterns. We want to decode the regulatory machinery that ensures that all this takes place according to plan." To this end, Gaul and her co-workers seek to measure and record all participating factors and their interactions, and then model the processes mathematically, using computational methods.

The ultimate goal of this work is to understand the developmental process in its entirety as a complex system. "The Humboldt Professorship will enable me and my colleagues at the Gene Center to study the regulation of gene activity at all levels – from high resolution structural analyses of participating molecules all the way to their integration in regulatory networks in the organism", says Professor Gaul. As a developmental biologist, however, she also wants to make use of her extensive experience in another way: She will act as a mentor – for young women just starting their career in science.

Life and accomplishments

Professor Ulrike Gaul studied biochemistry and physics at the University of Tübingen and obtained her doctorate in 1988 at the Max Planck Institute for Developmental Biology under the supervision of Professor Herbert Jäckle. Following postdoctoral work at the University of Washington and the University of California at Berkeley, she has been a Professor at the Rockefeller University in New York, one of the leading biomedical research universities in the world, since 1993. Professor Gaul and her group will move into the Gene Center of LMU Munich in June 2009.

For new professorial appointments to LMU, see www.en.lmu.de/news/people

IN SHORT

Crossing musical frontiers

One could hardly imagine the history of 20th century music without the cultural exchange between North America – in particular the USA – and Europe. A two-part conference run jointly by LMU Munich, Harvard University and the Paul Sacher Foundation, Basel, is the first to broach the issue of the dynamics of the transatlantic relationship in both halves of the century. The kick-off meeting took place at Harvard University at the end of 2008, whereas the second half was held in Munich in the beginning of May. Steve Reich, one of the leading composers of our time and a 2009 Pulitzer Prize winner, took part in the conference. In an attractive side program, renowned American musicians – the Chiara String Quartet, the Bugallo-Williams Piano Duo and pianist Bruce Brubaker – performed works of European and American composers that exemplified the message of the conference.

For more information on the conference, see **www.musikwissenschaft.lmu.de/forschung/tagungen/crosscurrents**

Art history ventures into the Internet

Recently, authors have been able to submit their papers to the expert community via the new online journal "Kunstgeschichte. Open Peer Reviewed Journal". Working on the basis of public peer review, it is a cross-epoch, international scholarly journal. "This innovative form of publication allows a multi-voiced assessment of research results, and gets a community actively involved that has so far had to take a more passive approach," says Hubertus Kohle, professor of mediaeval and modern art history at LMU Munich and responsible for the project. Besides publishing new research results representing the entire spectrum of subjects and diversity of methods applied in art history, the magazine also considers elder scholarly literature, and offers a platform for discussing the future development of the discipline. Papers can be published in English, German, French or Italian.

The new ejournal on Modern Art History is available at **www.kunstgeschichte-ejournal.net**

Three HFSP research grants go to LMU

On the trail of neuronal networks, stem cells and echolocation: This year, three research grants from the Human Frontier Science Program (HFSP) will go to teams that include researchers from LMU Munich. These projects will be looking into the way that bats process acoustic mirrors, how neuronal networks develop and what the significance of cell nucleus organization is to the differentiation of stem cells. Around 900,000 euros have been granted for each project to cover a period of three years. HFSP funds international research co-ops in life sciences, where only research groups involving scientists from at least two countries may apply. The partners will tackle problems that can best be studied in a group using interdisciplinary approaches.

For more information on the Human Frontier Science Program, see **www.hfsp.org**

LMU-Harvard Young Scientists' Forum

The newly established LMU-Harvard Young Scientists' Forum (YSF) will bring together 30 doctoral students and postdocs from both universities with senior faculty members. It will provide an interdisciplinary platform for young scientists in order to facilitate academic exchange and joint research. This year's conference, taking place at the Center for Advanced Studies from June 21 to June 24, attempts to trace the way from "molecules to organisms." Nominated participants rank among LMU's and Harvard's most talented doctoral students and post-docs, coming from laboratories that represent cutting-edge science in protein research and neuroscience. In various sessions and presentations, they will be discussing their research with their fellow students and established academics.

For more information on the conference, see **www.cipsm.de/en/newsEvents/events/YSF**

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