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The international edition of the LMU Munich newsletter

How to achieve sustainable productivity growth

by Andreas Park

Increasing the productivity of an economy means improving the efficiency of its constituent units, but it is not obvious how public policy can promote this goal. What factors determine productivity, and what effects do these have on the environment? With the support of the Anglo-German Foundation, researchers led by Professor Tobias Kretschmer have looked into this question – and come up with some surprising answers.



▲ A significant finding from Thomas Kretschmer's study was that the quality of on-the-job training, not the age structure of the workforce, determines the impact of Information and Communications Technologies on productivity.

For the complete article, see www.en.lmu.de/news/insightlmu/2010/03_01.pdf

Picture this – early warning system

by Elizabeth Willoughby

Iceland's volcano eruptions last spring provided a key testing opportunity for Dr Ulrich Münzer, leader of the LMU Geology Department's Remote Sensing Research team that is developing an early warning system using satellite radar technology.

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Clever constitution

by Julia Zahlten

Training and promoting health research in developing countries – that's the aim of the newly established Center for International Health at LMU Munich. Now LMU welcomes the first participants in the Center's PhD program.

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Daughter of Scotland, Mother of ERASMUS

by Elizabeth Willoughby

Jean Schleiss, a native of Scotland and LMU's International Exchange Unit Coordinator, received the DAAD ERASMUS Prize 2010 for her outstanding contribution to the ERASMUS program over its 23-year evolution at Munich's university.

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Picture this – early warning system

by Elizabeth Willoughby

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An all weather camera

On April 11, 2010, Dr Münzer received scheduled TerraSAR-X satellite radar images of the glacial areas of southern Iceland, taken every 11th day as he had requested from German Aerospace Center (DLR). When seismic readings had shown a series of earthquakes earlier that month, Dr Münzer was sure an eruption was coming. He was right – on April 14, he received the phone call from his Icelandic co-investigator – but rain, clouds and spewing ash had grounded local air traffic and obscured the exact source.

Dr Münzer immediately requested daily satellite radar images – they're unaffected by weather – and received data within hours. Only then could the source be pinpointed and potential dangers revealed. The images showed three craters in the Eyjafjallajökull glacier, but would the torrent flow out of the northern side into a valley or would it carry rocks, sediments and giant ice blocks towards the southern coast, wiping out farms, homes and bridges? New images that the LMU team provided from two days later showed that the glacial torrent went north, filling a lake with sediments, ice blocks and basaltic stones. The receipt of those images allowed Icelandic authorities to make informed emergency measure decisions.

Pictures from space

As a principal investigator, Dr Münzer's early warning system development project allowed him to request 130 radar images from the German TerraSAR-X satellite. From 514 kilometers above Earth, nearly real-time space-based radar images provide the highest ground resolution worldwide, able to detect even minimal changes on glacial surfaces, 200 meters thick at the site of the last eruption. Dr Münzer's pictures were targeted at Iceland's subglacial volcanoes because, he says, "subglacial volcanoes provide the most significant indicators in observing volcanoes."

When the wind picked up last April and carried Iceland's ashes into European skies, grounding planes, closing airports and stranding travellers, an early warning system became an



▲ This aerial image, taken on 7 April 2010, shows the first eruption of the Fimmvörduháls volcano located between the glaciers Eyjafjallajökull and Myrdalsjökull.

obvious priority. At the end of July, Dr Münzer and his team flew to Iceland to work in conjunction with meteorologists, volcanologists and Iceland's own researchers. There was much to be done in the short, 6-week window of potentially good weather and daylight for LMU's team to make preparations for the next stage of the early warning system project, which should begin in October. As a result of the last eruption, new elevation models were needed, the surface of the ice had changed, and some of the 150-kilogram corner reflectors used to geocode radar images were buried under ash.

Exploring the Icelandic volcanoes

Because previous trips have exposed Dr Münzer's teams to whipping sand funnels, sandstorms and August snowstorms on the wasteland terrain, he knew he was at the mercy of weather. Waiting out days of torrential rains, when it wasn't too windy, he zigzagged over glacial surfaces in a Cessna taking photos out of the open window, looking for lines and depressions, marking changes and taking GPS readings.

On other days they were on Eyjafjallajökull measuring the ash layer thickness, the ice crystal consistency at different depths, and verifying the radar images. They also had to unbury the reflectors and clean, restore and re-measure them, authenticating each image. The glacial lake in front of Gigjökull scattered with enormous blocks of ice, sediments and rocks from the recent eruption presented another opportunity for investigation and data collection.

Knowing that there are volcanic eruptions on Iceland every three or four years and that the most active volcanic zone of the Middle Atlantic Ridge runs through this part of Iceland, key factors in the early warning system development, Dr Münzer is now eyeing the Mýrdalsjökull ice cap that lies above Katla, a subglacial volcano 25 kilometres east of Eyjafjallajökull. Dr Münzer thinks it will erupt soon. He was right about it the last time.



Clever constitution

by Julia Zahlten

Treatment of high altitude cough, HIV co-infection and interaction, and the effects of education on newborn outcomes are all-important health issues, especially in developing countries like Nepal, Tanzania or Ethiopia. They are just a few examples of the wide range of topics addressed in research projects by 14 young academics, mainly from Africa and South America, participating in LMU's new PhD Program "International Health".

Dr Anthony A. Nsojo from Tanzania is one of the participants in this program. His thesis is about persisting co-infections. "My focus will be on individuals co-infected with human herpes viruses, papilloma virus, immunodeficiency virus and different helminth infections," Nsojo explains. "For me, this topic is so important because if successfully addressed, results will help us in planning how to expand disease control strategies and thus reduce the morbidity and mortality rate due to such infections in our communities." Given that Nsojo has already been working as a general practitioner, and held a position as laboratory manager for the Mbeya Medical Research Center in Tanzania, he fully meets the criteria of the program. "We expected the candidates to be established in research," explains Dr Günter Fröschl, the program's coordinator. The Mbeya Medical Research Center in Tanzania has a long history of collaboration with LMU Munich.

The CIH^{LMU} Center for International Health which houses the doctoral degree program, is supported by the German Academic Exchange Service (DAAD). The PhD Program "International Health" is one of three components the center is based on and reflects the entire spectrum of health sciences at LMU.

Sustainable education

The PhD curriculum covers three years full-time, with the research conducted abroad and three module blocks at LMU. "Thanks to the support of the DAAD, we were able to allocate ten scholarships for travel and living expenses to participants from low-income-countries," says Fröschl. During their time in Munich, the students will be provided with up-to-date knowledge, making use of the outstanding facilities available at LMU. "A special focus lies on educating young researchers to become, in their turn, educators of the next generation of health professionals in their home countries," explains Fröschl. The candidates were required to have their research-project at hand upon application, and to be in contact with a supervisor in their home country. Additionally, every participant has a co-supervisor, or mentor, at LMU. This "sandwich



About doctoral studies at LMU Munich

Around 1,000 doctoral degrees are awarded in more than 100 subjects at LMU each year. Besides the traditional individual professorial supervision scheme, LMU is introducing an increasing number of international doctoral programs. In a series, insightLMU describes the academic profile and various services of these programs and gives useful tips on application conditions and contacts. For general information on doctoral studies at LMU, see www.graduatecenter.lmu.de

solution" is a core element of the new program and will help the PhD candidates to have continuous coaching and support throughout the study period. During the final module in Munich, the home supervisor, along with the LMU mentor, will be assisting the participants with advice, discussion and day-to-day review of the thesis before doctoral defense.

Chances and challenges

Katja Radon, Professor for Occupational and Environmental Epidemiology & Net Teaching, committed herself as mentor for María Teresa Solís Soto from Bolivia. "I met Maria Solís Soto during my work in Chile three years ago. She was a student participating in a summer school," remembers Katja Radon. "I am looking forward to working with her because she is an excellent, well-trained and dynamic young academic with high potential to improve the medical care in her home country. Also, her research project perfectly fits my own research interests." Solís Soto will write her thesis about asthma and allergies in children. Up to now, hardly any epidemiological research has been carried out in Bolivia, especially in the rural areas. "It will be an interesting challenge for Mrs. Solís Soto in this multiracial environment, concerning for example the various languages and the minimal infrastructure," adds Katja Radon.

Most of the participants have never been to Munich before, like Anthony Nsojo. "I visited Munich for the first time in June this year," says Nsojo. The first three-month-module is to start in October. "I am very excited about seeing Munich again, this time for longer. And I am particularly eager to start my first module studies."



RESEARCH



◀ In the third century AD, the fort in the oasis of Gheriat el-Garbia was established in the region known to the Romans as Tripolitania, in Northwestern Libya, during the reign of the Emperor Septimius Severus.



◀ Meal in a convivial atmosphere. Wall painting in a tomb in Wei-qu (Shaanxi) from 724.

ARCHAEOLOGY

Whodunit – the riddle in the sands

by Ortrun Huber

Digging in ancient ruins and searching for sherds of pottery – that's what most people have in mind when they think of archaeology. But today's field research in archaeology employs scientific prospecting, surveying and documentation techniques, including satellite-based imaging. Archaeologist Michael Mackensen's LMUexcellent project gives a good example of the toolkit modern excavators can call upon. Mackensen is investigating a Roman military fort at an remote oasis in the Libyan desert.

For the complete article, see www.en.lmu.de/news/insightlmu/2010/03_02.pdf

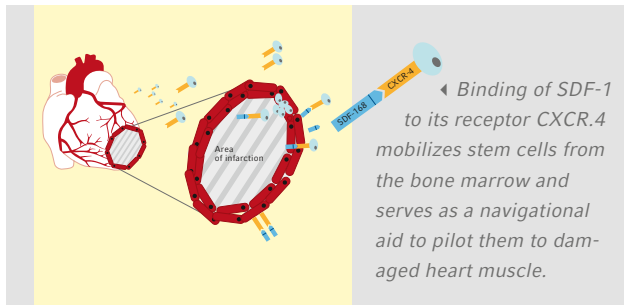
SINOLOGY

Cuisine and culture in the land of "Jade Foam"

by Marcus Simon

Chinese cuisine is as diverse as the country that created it. In his new book *Schlafender Lotos, trunkenes Huhn (Sleeping Lotus, Drunken Chicken)*, Professor Thomas O. Höllmann looks at the rich cultural history of Chinese cooking from various angles. He contrasts the greedy indulgence of the ruling elite with the penury of the majority of the population, traces the routes that brought exotic fruits and vegetables to the country, and explains what went into ancient Chinese beers.

For the complete article, see www.en.lmu.de/news/insightlmu/2010/03_04.pdf



◀ Binding of SDF-1 to its receptor CXCR4 mobilizes stem cells from the bone marrow and serves as a navigational aid to pilot them to damaged heart muscle.

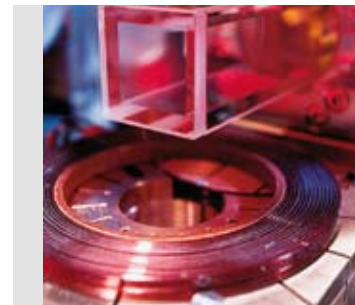
MEDICINE

Stem cells make the heart grow stronger

by Susanne Wedlich

Research on stem cells is controversial. They promise to provide novel therapies for many degenerative diseases but, so far, the primary source of stem cells is embryonic tissue. Clinical researcher Professor Wolfgang-Michael Franz hopes to use stem cells to repair heart tissue damaged by myocardial infarction. His colleague Professor Hans-Jochem Kolb aims to enhance the effectiveness of bone-marrow transplantation, an established treatment for leukemia, which involves the transfer of hematopoietic stem cells.

For the complete article, see www.en.lmu.de/news/insightlmu/2010/03_03.pdf



◀ Vacuum chamber containing a cloud of laser-cooled rubidium atoms (red). The fluorescence emitted by the atoms has been artificially amplified.

PHYSICS

Atoms under control

by Christine Rütth

Physicist Professor Immanuel Bloch and his team probe quantum interactions using ultracold atoms confined in optical lattices – crystals made of light beams. The set-up allows them to simulate conditions in real crystalline solids, which are often impossible to study directly. The ability to manipulate atomic behavior in such lattices provides insight into superconductivity and forms the basis for the elements of a quantum computer.

For the complete article, see www.en.lmu.de/news/insightlmu/2010/03_05.pdf



Daughter of Scotland, Mother of ERASMUS

by Elizabeth Willoughby

Newly wed and newly arrived in Germany in the early 80s, Jean Schleiss recalls that she was optimistic but a bit naive. She sees the same in many students she sends abroad each year on LMU's ERASMUS exchange program, as well as in the foreign arrivals to Munich's campus. Close to 700 LMU students spent a semester in another EU country in the last academic year. Jean says many return calling it the best experience of their lives.

Such confirmations make it all worthwhile for Jean Schleiss, who's been a part of LMU's ERASMUS development from the start. Before that, she was the study abroad administrator in LMU's International Office, a job she began, literally, as she was interviewing for it. Cutting the meeting short, she was introduced to a line of students all needing information on studying abroad. In those days, she worked alone. Today she heads a team of ten, most of whom have lived abroad, and she loves the job as much as she did 27 years ago.

At one point, however, Jean did attempt a sojourn – to give birth – but that was around the same time the ERASMUS program appeared and, before her son was much more than a year old, the head of student affairs asked her to come back to run things. “He had the foresight to see that something could really develop out of it,” says Jean.

The evolution continues

ERASMUS was organized quite differently at the beginning. Exchange opportunities were initiated by professors who had set up networks with partners in different countries and received funding directly from the European Commission. Then DAAD, the German Academic Exchange Service, became the national agency for ERASMUS's over 200 universities in Germany and the program structure changed. Today, Jean Schleiss's team liaises with partner universities and writes bi-lateral agreements, manages outgoing students and professors, and helps incoming students with finding accommodation, doing admissions and registrations, sorting study programs, advising courses and liaising with departments for students. “Thanks to her commitment we have a set of structures and procedures that can serve as an example for all exchange programs at LMU,” says Dr Stefan Fuchs, Head of the International Office.

But the world is a changing place, today's students are an Internet generation and Jean Schleiss recognizes that the program must reflect that. She has, for example, just moved



▲ “Ms. ERASMUS” celebrating the 20th birthday of the European exchange program in 2007.

to an online application process and is planning to devise more interactive orientation days. She and her team have more ideas too, like providing intercultural training programs and establishing platforms and activities linking past exchange students to new ones to create a support network for better integration.

“My heart is really with the incoming students,” says Jean, “I'm very much aware of the problems they face when they arrive – at first you think you know everything.”

Abroad even the basics are a challenge, and so is everything else.

Once, a wheelchair-bound student's tires exploded on a Friday night, but Jean was able to track down a repairman before he locked up for the night. Many times have students turned up early for the fall term to join in Oktoberfest festivities – a time of year when hotels are generally full – which is how many a student has ended up in Jean's kitchen peeling potatoes for dinner and camping there for a couple of nights. “One must count oneself lucky to have such highly motivated people who are so devoted to their work,” says Professor Reinhard Putz, VP for International Affairs. “I have even heard it said that Ms. Schleiss is referred to as ‘Mrs. ERASMUS’.”

“I think I probably did mother a lot of the ERASMUS,” she says. “I've always had a sympathetic ear and try and solve their problems without too much bureaucracy. I like to think of the incoming students as being part of a family.” Besides the DAAD award, there is an even greater one for Jean: “When our students come back, they've learned tolerance. They've learned to be flexible. The exchange makes them open towards other countries, mentalities, and it makes them question things at home. It makes them critical thinkers.”



Code of conduct for international student affairs

LMU Munich is among the more than 100 German universities who have agreed to adopt a new “Code of Conduct for International Student Affairs at Institutions of Higher Education”. The purpose of the Code, which was recently published by the Conference of University Rectors (Hochschulrektorenkonferenz), is to standardize the structure and improve the quality of services for foreign students at German universities. The document sets out agreed program guidelines in the areas of information, advisory services and advertising, as well as criteria for academic assessment and enrolment. It also defines standards for language courses and competence, and for the academic supervision and social support of students from abroad. These are issues to which LMU Munich has always paid particular attention. Attracting 7000 young people from 125 countries, LMU is the most popular German university among international students.



www.gate-germany.de/09518

LMU establishes “Theologicum”

Since the end of last semester, LMU’s two theological faculties have occupied a joint location for the very first time, in the new Theologicum in the Main Building’s north wing, thus enabling them to strengthen their longstanding and successful cooperation. As early as 2004, the library of the so-called “Bücherturm” combined the collections of the Faculties of Catholic and Protestant Theology, and Philosophy. With holdings of more than 340,000 volumes it comprises the largest open access library of its kind in Germany. Thirty departmental libraries, spread throughout the downtown campus, have been merged into this central facility. During the course of this integration project, modern offices as well as seminar rooms for students, academics, and administrative staff have been created.

New Executive Board to assume office on 1 October

Bernd Huber is to assume his third term as President of LMU Munich on 1 October 2010. This was the first time an LMU President was elected by the University Council, which consists of eight university members and eight external members. The University Council also elected three new vice-presidents to replace outgoing members of the University’s Executive Board. As of 1 October, medievalist Professor Beate Kellner takes responsibility for issues related to research, clinical physiologist Professor Ulrich Pohl for international affairs and informatician Professor Martin Wirsing for teaching and studies. The two serving vice-presidents, Dr Sigmund Stintzing and Dr Christoph Mülke, retain responsibility for academic appointments, and for finance and administration, respectively. Their terms of office end on 31 March 2012.



www.en.uni-muenchen.de/about_lm/organization

LMU involved in Munich’s new lung research center

On 12 July 2010, Federal Minister of Education and Research Professor Annette Schavan opened the new Comprehensive Pneumology Center (CPC). Four partners – LMU Munich, the Medical Center of the University of Munich, the Helmholtz Zentrum München (German Research Center for Environmental Health), and the Asklepios Fachkliniken München-Gauting (Asklepios Pulmonary Hospital) – are consolidating their expertise in experimental and clinical pulmonary research. The scientific concept of CPC focuses on the diagnosis, therapy, and prevention of severe lung diseases such as bronchial asthma, chronic obstructive pulmonary disease (COPD), and lung cancer. Through research into the molecular mechanisms of pulmonary disease, CPC aims to develop new therapeutic approaches which can be translated as rapidly as possible into clinical practice for the benefit of patients.

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