



# Science-Switzerland, August - September 2012

News on Swiss science, technology, education and innovation

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## Scholarship Agreement between Switzerland and China

(Swiss Government, September 14, 2012)

The head of the Federal Department of Home Affairs Federal Councillor Alain Berset, and Vice Minister Du Zhanyuan of China's Ministry of Education have signed a Memorandum on Higher Education Cooperation during a working visit in Bern. The declaration of intent aims to consolidate and intensify cooperation between the two countries in the fields of science and research. The memorandum concerns the promotion of academic exchange programmes for young researchers through government scholarships, cooperation between higher education institutions and the involvement of China's Ministry of Education in the Sino-Swiss Science and Technology Cooperation, a highly successful bilateral research programme. The new memorandum raises the number of scholarships offered by both countries from 20 to 25 per year.

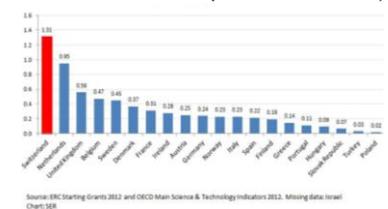
<http://swissinnovation.org/news/web/2012/01-120914-b4.html>

## Top Number of Prestigious ERC Grants

(Swiss Government, September 21, 2012)

The European Research Council (ERC) is awarding the ERC Starting Grants, which can be as high as EUR 2 million, for the fifth time. A total of 536 starting grants were issued and researchers in Switzerland secured 33 of these grants (6.2% of the total number of starting grants), placing Switzerland in the 5th slot after the United Kingdom, Germany, France, and the Netherlands. Switzerland's position has improved with respect to the previous year: in 2011, researchers in Switzerland secured 22 starting grants (7th place). Considering the ratio of starting grants to researchers, Switzerland ranks 1st with 1.31 grants per 1,000 researchers. The starting grants were awarded to the following institutions in Switzerland: EPF Lausanne (11 grants), ETH Zurich (8), University of Geneva (4), University of Lausanne (2), University of Zürich (2), IBM Research GmbH (2), University of Basel (1), University of Bern (1), University of Lugano (1) and the Swiss Tropical & Public Health Institute (1).

<http://swissinnovation.org/news/web/2012/00-120921-e8.html>



## 1. Policy

### European Particle Physics Refreshes Long-term Strategy

(Cern, September 12, 2012)

Some 500 particle physicists meeting in Krakow have been debating the long-term future of their field at the CERN Council Open Symposium on the European Strategy for Particle Physics. The symposium marks the first update of a strategy initially put in place in 2006 to coordinating particle physics research in Europe, as well as Europe's participation in projects hosted in other regions. Topics under discussion ranged from considerations of potential facilities to succeed the Large Hadron Collider (LHC), which is scheduled to run well beyond 2020, to the complementarity between accelerator-based research and cosmic ray studies, and future facilities for neutrino science.

<http://swissinnovation.org/news/web/2012/01-120912-3c.html>



## 2. Education

### ETH Zurich Defends Top Chemistry Ranking

(ETH Zurich, August 15, 2012)

The ETH Zurich was able to defend its position in the Shanghai-Ranking of 2012. Overall, ETH Zurich occupied the 23rd rank for the fourth time in a row. For Chemistry, the ETH Zurich was able to keep its excellent 5th place, just as in the two previous years. The University of Zurich was the second best university in Switzerland on rank 59, followed by the University of Geneva on the 69th place. The University of Basel is on rank 85, and the EPFL is positioned in the group of universities between the ranks 101 and 150.

<http://swissinnovation.org/news/web/2012/02-120815-68.html>



### EPFL and A\*Star of Singapore Cooperation

(EPFL, September 07, 2012)

EPFL and A\*Star of Singapore signed an agreement that enables collaboration between the two institutions at the doctoral level. Young researchers in life sciences, engineering, physics and mathematics will have the possibility to complete half of their courses at a research facility in Asia. In a few years, A\*Star of Singapore has become a cutting-edge scientific institution, and from now on, it will be a possible destination for doctoral students who opt to continue their studies abroad. A\*Star is not a school or university in the traditional sense. It is made up of various institutes that host the elite researchers of Singapore, and the agreement signed yesterday with EPFL will soon allow students to follow a doctoral curriculum at the institution.

<http://swissinnovation.org/news/web/2012/02-120907-49.html>



### ETH Zurich Leaps Forward Among World's Best Universities

(ETH Zurich, September 11, 2012)

ETH Zurich is the new number 13 on the list of the world's best universities. This is the result of the latest QS World University Ranking. ETH Zurich has thus defended its title as the best university in Continental Europe. ETH Zurich has moved up five places on its QS ranking from last year, bringing it to number 13 in the list of the world's top universities. This means that it is still the best-ranked university in Continental Europe on this list too.

<http://swissinnovation.org/news/web/2012/02-120911-e3.html>



### English Undergraduate Studies in St. Gallen from 2013

(UNISG, September 14, 2012)

The University of St.Gallen has a first undergraduate year that is the same for all students, the so-called Assessment Year. This first undergraduate year is of crucial significance: students are introduced to the core subjects. In addition, it works as an important orientation and selection aid. To ensure that outstanding teaching quality can continue to be offered in spite of increasing student numbers, the Assessment Year has been fundamentally reformed. From autumn 2013, it will be structured into three groups: two in German and one in English.

<http://swissinnovation.org/news/web/2012/02-120914-93.html>



### New Health Sciences Institute

(ETH Zurich, September 14, 2012)

ETH Zurich opened the new HPL building, which houses researchers from the Biomedicine division, and two newly created organizations, the Institute of Molecular Health Sciences and the Innovation & Entrepreneurship Lab. Molecular health science is an interdisciplinary field that aims to understand organ and tissue functions on a molecular basis, including how they respond to stress. This fundamental research will lead to better understanding of various diseases, such as cancer or diabetes. State-of-the-art technologies and experimental strategies will be used in the new institute, and starting in 2014 a new master's course will be offered.

<http://swissinnovation.org/news/web/2012/02-120914-fb.html>



### Top Rankings for University of St. Gallen

(UNISG, September 17, 2012)

The Master's programme in Strategy and International Management of the University of St. Gallen reaches 1st place in the ranking of the Financial Times again. The same applies to the School of Management in the latest



Handelsblatt ranking. The Master's programme in Strategy and International Management has reached the first place for the second time running in this evaluation. In the latest Handelsblatt ranking grades research in Business Administration in the German-speaking area, the University of St.Gallen has the strongest Business Administration faculty and is ranked first. Second place in the Handelsblatt ranking was awarded to the Vienna University of Economics and Business, which was followed by the University of Zurich.



<http://swissinnovation.org/news/web/2012/02-120917-5d.html>

### Four Major European Research Centers Create Platform for Smart Integrated Systems

(CSEM, September 20, 2012)

The four major European research centers CEA (France), CSEM (Switzerland), VTT (Finland) and Fraunhofer (Germany) that form the Heterogeneous Technology Alliance (HTA) have now launched a research, development and innovation for Smart Integrated Solutions. Their cutting-edge technologies will soon form the basis of innovative solutions to problems facing society in fields of transportation, health care, energy generation and distribution, and communication. This Smart Integrated System Solutions (SIS2) initiative - the fast track to innovation - will enhance the competitiveness of the European semiconductor community. Aggressive utilization of design, technology and application services is used as basis to build the advantages. The SIS2 initiative builds on existing competencies and infrastructures of HTA members and creates a cooperative Technology Infrastructure open to European Industry. This platform will help maintain and build on this leading position by supporting R&D and providing pilot production for innovative products in small and medium sized companies.

<http://swissinnovation.org/news/web/2012/02-120920-68.html>

## 3. Life Science / Health Care

### Brain Tumor Treatment

(Roche, August 10, 2012)

A new phase III study by Roche shows that Avastin, when combined with radiation- and chemotherapy, significantly extends the time without glioblastoma tumor progression. The study was a double-blind experiment. Avastin is currently permitted in thirty countries, including the United States, for the treatment of multiple types of cancer. The drug works by inhibiting blood vessel growth, thereby stopping the flow of blood to the tumor and stopping its growth. Glioblastoma multiforme is the most common form of malignant brain tumor and grows very aggressively.

<http://swissinnovation.org/news/web/2012/03-120810-40.html>

### Medication for the Treatment of Diabetic Muscular Edema

(Roche, August 13, 2012)

The approval of the medication "Lucentis" constitutes the first advancement of the therapy for the illness which leads to a deteriorated eyesight and even blindness. The remedy is produced by Roche and received approval from the Food and Drug Administration (FDA). Diabetes is the most common source for blindness of adults and affects approximately 560'000 people in the U.S. Lucentis is the only approved medication for the diabetic muscular edema, and unlike the standard treatment for the disease it can even restore a significant part of the sight of the patients.

<http://swissinnovation.org/news/web/2012/03-120813-18.html>

### First Wearable Detector for MRI

(ETH Zurich, August 13, 2012)

Scientists from ETH Zurich have developed the first elastic detector for magnetic resonance imaging (MRI). The detector in the form of an elastic bandage moulds itself to the shape of the patient's body, which also enables body parts to be examined in motion. The novel detector provides better images and greater patient comfort during the scan. In the latest prototypes the magnetic field is allowed to wobble thanks to measurement and control technology that handles even substantial field fluctuations. It should also be possible to examine body parts in motion, which is important to discern what the kneecap does while bending or whether the meniscus is torn partially or fully, for instance.



<http://swissinnovation.org/news/web/2012/03-120813-01.html>



## Vitreomacular Adhesion Treatment

(Novartis, August 15, 2012)

A recently released Phase III study of ocriplasmin shows its ability to resolve vitreomacular adhesion (VMA) with one single injection. VMA is an age-related eye disease that can cause visual distortion and blindness. The only treatment so far is surgery in advanced stages of the disease. The disease causes the vitreous in the eyeball to adhere to the retina and pull on it. Ocriplasmin dissolves the proteins that cause this adhesion. In the study, about 27% of patients had their disease resolved with this drug, compared to about 10% in the placebo group. Swiss pharmaceutical company Novartis has the rights to distribute the drug outside of the United States.

<http://swissinnovation.org/news/web/2012/03-120815-eb.html>

## New Diet Pill for U.S. Made in Switzerland

(20min.ch, August 19, 2012)

The U.S. center for disease control has approved two new diet pills for the first time in 13. One of those is produced in Zofingen, Switzerland. Because in every ten americans, seven are overweight, the pill is expected to meet a high demand. The pill, Belviq, is likely to be available in the U.S. from the beginning of 2013.

<http://swissinnovation.org/news/web/2012/03-120819-79.html>



## Artificial Genetic Code

(UNIGE, August 20, 2012)

Professor Matile at the University of Geneva wants to change how organic chemists build molecules. Rather than building them one atom at a time, he wants to encode a structure like DNA, but in two dimensions, with instructions to build the molecule. As an initial test, Matile wants to build organic solar cells that mimic photosynthetic processes. He realizes that the proposed effort is difficult and very theoretical, but he hopes to introduce a new tool to the organic chemistry community.

<http://swissinnovation.org/news/web/2012/03-120820-0d.html>



## Circadian Rhythm Regulation

(UNIGE, August 21, 2012)

A lot of our bodily functions are regulated according to our circadian, or daily, rhythm. The rhythm is driven both by local clocks in our cells and by a central clock in our brain. Researchers at the University of Geneva have now found a mechanism by which body temperature changes affect the expression of genes responsible for the circadian rhythm. The protein CIRP attaches itself to RNA responsible for transcribing circadian genes, and it is temperature sensitive, even to changes of one degree Celsius. To discover this mechanism, researchers used a new genetic engineering technique developed by their group.

<http://swissinnovation.org/news/web/2012/03-120821-3f.html>



## Genetic Vitamin Deficiency

(UZH, August 27, 2012)

Researchers at the University of Zurich, along with international colleagues, have discovered the gene that can cause a vitamin B12 deficiency by blocking that vitamin from entering cells. Vitamin B12 is taken in from external sources and transferred into cells through lysosomes with the help of two proteins, CbIF and ABCD4. The latter was just discovered by the team. The patients who were examined had a defective gene for coding this protein, and when receiving ABCD4 regained normal vitamin absorption function. This research will now allow for the identification and treatment of genetic vitamin B12 deficiencies.

<http://swissinnovation.org/news/web/2012/03-120827-1b.html>

## Low Risk of Genetically Modified Plants

(swissinfo.ch, August 28, 2012)

Genetically modified (GM) plants present little danger for the environment or people's health, according to Swiss researchers. Also, while they offer almost no benefit to farmers now, this could change if plants had the right properties. The government requested a national research programme on the risks and benefits of GM plants after the Swiss voted for a five-year moratorium on their use in 2005. The moratorium was extended for another three years by parliament. The researchers all reached the same conclusion: there were no identifiable negative effects on beneficial organisms, microorganisms or soil fertility. Three meta-analyses that looked at more than 1,000 international studies reached similar findings.

<http://swissinnovation.org/news/web/2012/03-120828-b8.html>





## Supplementary Diet Protects Babys From Dermatitis

(UZH, August 31, 2012)

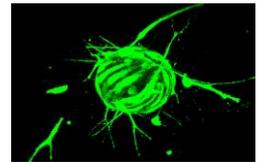
The first year of life is crucial for the development of the immune system. A team of scientists of the University of Zurich have found that a varied supplementary diet during the first year of life helps protecting a baby from allergies. A healthy diet includes vegetables, fruits, cereals, yogurt and meat, with every additional food reducing the risk of dermatitis by 25%. Since children with dermatitis are suffering from a heightened risk of contracting other allergies, it serves as an indicator for the strength of the immune system. The recommendation is to start introducing additional side dishes in combination with yogurt between the 4. and 6. month.

<http://swissinnovation.org/news/web/2012/03-120831-00.html>

## Cholesterol Inhibitors Block Lymphatic Vessel Growth

(ETH Zurich, September 04, 2012)

One of the world's top selling drugs potentially also acts against the growth of new lymphatic vessels, with potential implications for cancer therapy. Scientists led by Michael Detmar, Professor at the ETH Zurich, made this discovery with a newly developed cell culture system that allows compound screening for modulators of lymphatic vessel expansion. With the so-called three-dimensional cell culture system, they were able to show that Statins which are standardly used to treat patients with cardiovascular disease, are also able to prevent the progression of atherosclerosis. The researchers are also convinced that the number of animal experiments can be reduced with such a 3D-system, in particular with regard to the pharmacological testing of large numbers of chemical substances.

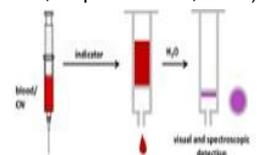


<http://swissinnovation.org/news/web/2012/03-120904-51.html>

## Rapid Cyanide Poisoning Diagnosis

(UZH, September 04, 2012)

Flue gas poisoning is prominently caused by cyanides. To save the life of a person with the poisoning, it is vital to administer the antidote instantly. Because the currently used cyanide tests take up to an hour, emergency doctors had to use the medicine based on mere assumptions. Two chemists of the University of Zurich were able to develop a cyanide test that allows a diagnosis in only two minutes.



<http://swissinnovation.org/news/web/2012/03-120904-42.html>

## Non-Coding DNA Sequences

(UNIGE, September 05, 2012)

A large research project, ENCODE, involving the universities of Lausanne and Geneva and over 400 researchers worldwide has discovered the function of a large part of the human genome. The Human Genome Project showed that only 2% of the genome is responsible for producing proteins. ENCODE shows that 80% of the genome is active, most of it serving as interrupts, or control sequences that activate or suppress genes. The project produced a vast amount of data that is being published in an open and interactive encyclopedia instead of only in static publications.

<http://swissinnovation.org/news/web/2012/03-120905-8e.html>

## Antibodies Against Alzheimer

(UZH, September 11, 2012)

Certain elderly people do not suffer from dementia. The psychiatrists Roger Nitsch and Christoph Hock investigated this phenomenon and have found a new therapy for Alzheimer's disease. The two scientists searched the blood of healthy elderly people for the immune cells which combat the amyloid deposition in the brain which is responsible for inducing the dementia. After identifying the correct cells, they decoded their genetic code and reproduced them through molecular biology. They are now testing the new remedy in a phase-1 study with Alzheimer's patients and so far, there have not been any complications.



<http://swissinnovation.org/news/web/2012/03-120911-d8.html>

## Map of Synaptic Connections between Neurons

(EPFL, September 17, 2012)

One of the greatest challenges in neuroscience is to identify the map of synaptic connections between neurons. Called the "connectome," it is the holy grail that will explain how information flows in the brain. In a landmark paper, published in PNAS, the EPFL's Blue Brain Project (BBP) has identified key principles that determine synapse-scale



connectivity by virtually reconstructing a cortical microcircuit and comparing it to a mammalian sample. These principles now make it possible to predict the locations of synapses in the neocortex.

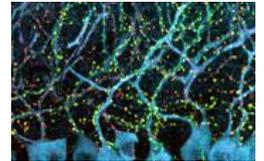
<http://swissinnovation.org/news/web/2012/03-120917-0e.html>

### Neural Disruption Caused by Autism Is Reversible

(UNIBAS, September 14, 2012)

People with autism suffer from a deep development disorder in the brain from early on. Scientists of the University of Basel have found one specific fault caused by autism in the neural circuits. The fact that they were able to reverse the changes in the brain is an important step for the development of a drug against autism.

<http://swissinnovation.org/news/web/2012/03-120914-64.html>



### First Mammalian "Cell Phone"

(ETH Zurich, September 17, 2012)

Researchers from ETH Zurich have quite literally created a "cell phone": they have reprogrammed mammalian cells in such a way that they can "phone" each other via chemical signals. The researchers used suitable signal molecules and constructed "devices" out of biological components that receive, process and respond accordingly to the signals. The devices consist of suitable genes and their products, proteins, which are linked to each other logically. Although other scientists have already developed synthetic communication networks for bacteria and yeast cells, it is the first network for mammalian cells as this cell type is far more complex.

<http://swissinnovation.org/news/web/2012/03-120917-ce.html>



### New Method for Researching Collaboration of Proteins

(ETH Zurich, September 18, 2012)

Scientists of the ETH Zurich have developed a new method to analyze the structure and composition of protein complexes. In their latest publication in "Science", they use the enzyme protein phosphatase 2A (PP2A) to showcase the new method. With conventional methods, it is possible to capture the structure of single protein complexes. However, to do so, they have to be gathered with high purity and in big amounts. The new method offers the advantage of requiring only small protein samples in order to analyze the protein complex.

<http://swissinnovation.org/news/web/2012/04-120918-9a.html>



### New Drug for Resistant Strain of Tuberculosis

(EPFL, September 19, 2012)

EPFL researchers have opened the door to a new strategy to fight tuberculosis, the second leading cause of death from infectious disease after HIV. In a study published in EMBO Molecular Medicine, EPFL professor Stewart Cole takes a hard look at the natural product pyridomycin, first reported in the 1950s, and determines exactly how it kills Mycobacterium tuberculosis. Pyridomycin inhibits a vital enzyme, much like the best frontline antibiotics, but in a sufficiently different way so it can combat even the most antibiotic-resistant strains that have recently afflicted Russia, South Africa and North America.

<http://swissinnovation.org/news/web/2012/03-120919-ab.html>



### Donation for Advancing Health Research

(ETH Zurich, September 21, 2012)

The company Philips Healthcare is donating ten million Swiss francs to ETH Zurich for medical technology research. The money can be used to fund researchers and professors, launch new groups, and buy scientific instruments. ETH Zurich benefits by being able to continue research in medical imaging technology and disease diagnosis, while Philips benefits from commercializing the new research, as it has done in the past through its partnership with the university. Philips and the Institute for Biomedical Engineering at ETH Zurich have had a close partnership since the institute's founding in 1971.

<http://swissinnovation.org/news/web/2012/03-120921-e5.html>





## Diabetes Treatment

(Novartis, September 21, 2012)

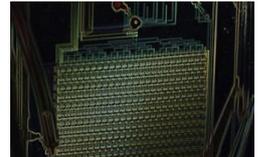
Novartis, the Swiss pharmaceutical company, announced that the European Medicines Agency's Committee for Medicinal Products for Human Use (CHMP) has issued positive opinions for new uses of the drugs Galvus® and Eucreas® in the treatment of type 2 diabetes. These drugs help control blood sugar when diet, exercise, and insulin do not suffice. They help the body control its own blood sugar, and are approved in many countries already.

<http://swissinnovation.org/news/web/2012/03-120921-e1.html>

## Multiple Biochemical Analyses on a Single Device

(EPFL, September 24, 2012)

Scientists at EPFL and the University of Geneva have developed a microfluidic device smaller than a domino that can simultaneously measure up to 768 biomolecular interactions. In traditional methods, it is generally possible to determine if an interaction takes place or not. The new device goes much further, because it can measure the affinity and kinetics of the interaction. The strength of the device lies in a sort of "push-button" in its microreactors. The push-button is activated at regular intervals of a few milliseconds, trapping protein-DNA complexes that form on the surface of the device. In addition to that, it can also be used to synthesize proteins in vitro, with a massive reduction in time and number of manipulations compared to the traditional method.



<http://swissinnovation.org/news/web/2012/03-120924-29.html>

## New Cancer Treatments

(Roche, September 24, 2012)

Roche, the Swiss pharmaceutical company, recently unveiled several new studies about drugs to help treat breast and skin cancer. The several studies look at new ways to use certain drugs and their effects on extending disease free survival. Some studies are looking at HER2-positive breast cancer, and others are looking at metastatic melanoma. The drug Herceptin blocks a key protein in HER2-positive breast cancer and enlists the body's immune system to target the cancer. Trastuzumab emtansine is a combination of antibody and chemotherapy agent that targets HER2 signaling and delivers the chemotherapy agent directly to the cancer cells. Zelboraf® inhibits the activity of the BRAF protein responsible for melanoma.

<http://swissinnovation.org/news/web/2012/03-120924-03.html>

## Marcel Benoist Prize for Research on Protein that Regulates Cell Growth and Cell Size

(UNIBAS, September 25, 2012)

Professor Michael Hall is the winner of this year's Marcel Benoist Prize, also known as the "Swiss Nobel Prize". The prize honors the researcher with the most valuable discovery, specifically with a high impact on the human life. Michael Hall won the prize for his discovery of a Protein that regulates cell growth and cell size. Hall named the growth factor "Target of Rapamycin" (TOR). TOR is important in aging processes and involved in several diseases, especially cancer.



<http://swissinnovation.org/news/web/2012/03-120925-r1.html>

## New Cassava Resists Viruses

(ETH Zurich, September 26, 2012)

Plant scientists at ETH Zurich have developed a new African cassava preferred by consumers and farmers that is resistant to the two major virus diseases in Africa. Now they want to test the resistant cassava in Africa. Cassava is one of the most important crops in tropical countries, particularly in Sub-Saharan Africa. However, plant viruses are threatening cassava production and with it the staple food of hundreds of millions of people. Researchers at ETH Zurich led by Wilhelm Gruissem, Professor of Plant Biotechnology and his senior scientist Dr. Hervé Vanderschuren have used gene technology to develop a new cassava variety that is resistant to the feared cassava brown streak virus.



<http://swissinnovation.org/news/web/2012/03-120926-bf.html>



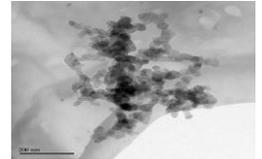
## 4. Nano / Micro Technology / Material Science

### Diesel Soot Classified As Carcinogen

The World Health Organization (WHO) has classified diesel soot as a carcinogen partly based on the research of an Empa scientist. Using X-ray light, Artur Braun was able to see differences in the structure and composition of soot created in a diesel engine versus that created in, say, a stove. The diesel soot had carboxyl groups and a graphite structure, whereas stove soot had hydroxyl groups and no graphite structure. Using this and more detailed data, toxicologists were then able to determine the effect of the soot on human lung cells. This overall research led to the WHO's action.

<http://swissinnovation.org/news/web/2012/04-120806-b4.html>

(Empa, August 06, 2012)



### Nanoscience Partnership between Max-Planck and EPFL

Max-Planck-Gesellschaft (MPG) and EPFL signed a partnership agreement that involves creating a joint laboratory. The German institution, renowned for its 17 Nobel Prizes and 80 institutes will open an International Center dedicated to nanosciences at EPFL. The partnership includes the creation of a laboratory in Lausanne, the organization of joint summer schools and conferences, and funding for projects and theses. Twenty PhD students will eventually participate in the partnership and the two institutions are planning to fund six PhD positions on a permanent basis. The theses will be co-directed, thus preparing the next generation of scientists under ideal collaborative conditions between Germany and Switzerland.

<http://swissinnovation.org/news/web/2012/04-120816-bc.html>

(EPFL, August 16, 2012)



### High Yield Insulating Aerogel Plaster

The Empa has developed a new insulating plaster together with Fixit AG. The plaster is based on aerogel and provides double the isolation strength of currently used insulating plaster. Aerogel holds 15 entries in the Guinness book of world records, including the one as "best Isolator". The problem for industrial usage of aerogel as insulation was that the gel is too brittle to be used with a plaster machine. The Empa and Fixit are in the process of patenting their solution of insulating plaster using aerogel.

<http://swissinnovation.org/news/web/2012/04-120820-c9.html>

(Empa, August 20, 2012)



### Quantification of Nanoparticles in Consumer Goods

In response to the increasing need for the detection and analysis of nanoparticles, European industry and academics have launched the EU-funded SMART-NANO project. The consortium's principal purpose of developing a technology platform for the measurement of engineered nanoparticles (ENPs) could provide the key tool in assessing the fate and potential safety risks of ENPs for example in cosmetic products. The Swiss Center for Electronics and Microtechnology (CSEM) will coordinate the four-year project, the EUR 3.5 million funding of which will secure the platform's development, field application, and testing.

<http://swissinnovation.org/news/web/2012/04-120831-ed.html>

(CSEM, August 31, 2012)

### Nano-Velcro to Test Mercury Levels in Oceans

Researchers develop nano-strips for inexpensive testing of mercury levels in our lakes and oceans with unprecedented sensitivity. Mercury, when dumped in lakes and rivers, accumulates in fish, and often ends up on our plates. A Swiss-American team of researchers led by Francesco Stellacci at the EPFL and Bartosz Grzybowski at Northwestern University has devised a simple, inexpensive system based on nanoparticles, a kind of nano-velcro, to detect and trap this toxic pollutant as well as others. The particles are covered with tiny hairs that can grab onto toxic heavy metals such as mercury and cadmium. This technology makes it possible to easily and inexpensively test for these substances in water and, more importantly, in the fish that we eat.

<http://swissinnovation.org/news/web/2012/04-120910-22.html>

(EPFL, September 10, 2012)

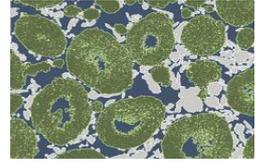




## Visualizing Complex Catalysts

(ETH Zurich, September 20, 2012)

Using state-of-the-art visualization techniques, chemical engineers at ETH Zurich explore the complex inner life of porous catalysts. Their work will aid in the development of rational catalyst design, allowing promising laboratory leads to find their way into large-scale industrial production. Pérez-Ramírez and his group utilised for their investigations nearly a dozen different visualization techniques, many more commonly known from their use in medicinal and biological research. These include X-ray, optical, electron microscopic and tomographic methods. "For the first time, our images allow us to gain an insight into the distribution of components inside the technical catalyst", states Pérez-Ramírez. The information of how uniformly the zeolite and binder particles are dispersed is important to determine the performance of a catalyst.



<http://swissinnovation.org/news/web/2012/04-120920-79.html>

## Artificial Photosynthesis

(Empa, September 21, 2012)

The Swiss Federal Laboratories for Materials Science and Technology EMPA is being funded by the VELUX Foundation to explore improvements to photoelectrochemical cells that convert sunlight into hydrogen. If these cells could also extract carbon dioxide and combine it with the hydrogen, then synthetic fuels could be formed. Empa is exploring low-cost materials such as iron oxide combined with algae protein to efficiently collect sunlight. These new cells could be integrated into many facets of architecture so that they become widespread.



<http://swissinnovation.org/news/web/2012/04-120921-57.html>

## 5. Information & Communications Technology

### Algorithm to Root Rumors, Epidemics and Crime

(EPFL, August 01, 2012)

A team of EPFL scientists has developed an algorithm that can identify the source of an epidemic or information circulating within a network, a method that could also be used to help with criminal investigations. EPFL researcher Pedro Pinto of the Audiovisual Communications Laboratory and his colleagues have developed an algorithm that could become a valuable ally for investigators, criminal or otherwise, as long as a network is involved. "Using our method, we can find the source of all kinds of things circulating in a network just by 'listening' to a limited number of members of that network," explains Pinto.



<http://swissinnovation.org/news/web/2012/05-120801-68.html>

### New Programming Language Scala

(EPFL, August 23, 2012)

Typesafe, a company created just a year ago at EPFL and headquartered in the Science Park, has raised \$14 million to commercialize a new programming language called Scala. Scala was developed by EPFL professor Martin Odersky. Because it is Java-compatible, programmers and developers are likely to massively adopt it, particularly when the internet is involved. Its concise syntax makes it possible to reduce the number of lines of code by half. Scala is open-source, and programmers who participated in its development come from all over the world. Scala combines two well-established programming approaches – "object-oriented," the industry favorite, and "functional programming," whose adherents are primarily in the academic world. Functional programming is particularly effective for distributing jobs among several processors working simultaneously.



<http://swissinnovation.org/news/web/2012/05-120823-08.html>

### World's Least Infected Computers

(swissinfo.ch, September 04, 2012)

Viruses and other malware are lurking not just on porn sites, but in places you might never expect. To make it safer to surf, the Switch foundation monitors the Swiss web for malicious code. As a result, Swiss computers with an infection rate of 18.4% are the least infected in the world. In total, there are only eight nations with fewer than 20% infected computers and except Uruguay, all of them are European. South Korea (57.3%) and China (51.9%) are tailing the list. The U.S. is a bit better than the average, which is at 31.63%.



<http://swissinnovation.org/news/web/2012/05-120904-9d.html>



## Computer Science Research Award

(UNIFR, September 04, 2012)

Philippe Cudré-Mauroux, a computer science professor at University of Fribourg, has received a prize for his excellent contribution to the National Research Pole "MICS - Mobile Information and Communication Systems". Titled «Bottom-up Information Integration for the Web of Data», his work was awarded during the closing of the National Research Pole at EPFL. At this occasion, the best work in communication, computer science, and doctoral thesis' were commended.

<http://swissinnovation.org/news/web/2012/05-120904-08.html>



## NFC & Geolocation Startup at Tokyo Game Show

(Science & Technology Office Tokyo, September 21, 2012)

The EPFL Spin-off EverdreamSoft, mainly known for its free-to-play online Trading Card Game "Moonga", has entered a research agreement with the Swiss Federal Commission for Technology and Innovation (CTI) for the development of a secure mobile geolocation engine. The company is also working on a system for physical cards that can be transferred to the virtual world by the means of Near Field Technology (NFC). At the Tokyo Game Show 2012, the startup promoted its products in the midst of big players like Gloops, Inc., GREE, Inc., Capcom, Co., Ltd. and Square Enix, Co., Ltd.

<http://swissinnovation.org/news/web/2012/05-120921-e5.html>



## High Data Flow in Server Farms

(EPFL, September 21, 2012)

In gigantic server farms around the world, billions of database entries are queried every second. EPFL researchers have developed a system that drastically improves the circulation of this flow of information. The economic and environmental benefits are considerable. Researchers in EPFL's DATA Laboratory have developed DBToaster, a system that speeds up the pace of operations by a factor of 100 – 10,000.

<http://swissinnovation.org/news/web/2012/05-120921-af.html>



## Improving Bitcoin Security

(ETH Zurich, September 24, 2012)

The internet currency Bitcoin was created in 2009. The new electronic currency has an increasing number of supporters. But ETH-researchers found out, that there is a security problem. They also have a suggestion, how this problem could be solved. A postdoc at the Institute of Information Security of the ETH Zurich, managed to demonstrate that there is a security loophole during the verification of the payment. With an elaborate configuration, the buyer can actually spend his electronic coins twice: first, he buys the goods he desires; then he transfers the same amount to his own account. The network only registers the second illegal transaction instead of the first legal one, and the buyer ends up with both: the goods and the money.

<http://swissinnovation.org/news/web/2012/05-120924-b5.html>



## 6. Energy / Environment

### Electronic Horse Coach

(Agroscope, August 13, 2012)

The research institute Agroscope introduced a prototype of an e-coach together with the city of Avenches and the company Meterus Sàrl. The e-coach works like an e-bike, supporting the horse when it becomes tired. The e-coach was used to collect the garbage in the city of Avenches. Horses have enjoyed a increasing popularity because of its ecological image of a living drive. Especially in France, more than 120 communities are looking into this means of transportation. The e-coach aims to support the limited power of horses in order to make them a viable alternative to automobiles.

<http://swissinnovation.org/news/web/2012/06-120813-ab.html>





## Environment-Friendly Toilet

There are 2.6 billion people in the world who have no access to a decent toilet. An interdisciplinary team of Swiss aquatic researchers and designers from Austria won a special recognition award with their invention as part of the 'Re-invent the Toilet' competition, sponsored by the Bill and Melinda Gates Foundation. The new toilet model will provide a sanitary solution that ensures human dignity and hygiene, while also being environment-friendly and economically feasible.

<http://swissinnovation.org/news/web/2012/06-120815-e8.html>

(Eawag, August 15, 2012)



## Smart Windows

The project "Winsmart" aced out 21 other contenders and convinced the European experts. They awarded the project of Empa Scientist Matthias Koebel and his eight collaborators with a grant of more than EUR 3.8 million. The window uses a vacuum for insulation instead of the conventionally used gas. This results in a window three times thinner, while the insulation is increased two- to threefold. The team also works on switchable layers, making it possible to darken the window at the push of a button. Equipped with photosensitive sensors, the window could darken itself depending on the conditions outside.

<http://swissinnovation.org/news/web/2012/06-120830-e9.html>

(Empa, August 30, 2012)



## New Data On Biofuel Ecobalance

A new study led by Empa gives an up-to-date picture of the ecobalance of various biofuels and their production processes. Only a few are overall more environmentally friendly than petrol. In recent years, the demand for supposedly environmentally friendly biofuels has increased significantly worldwide. However, there has been a controversy about their environmental sustainability around whether the production of biofuels is defensible from an ecological viewpoint. The Empa comes to the same conclusion as an earlier study in 2007: many biofuels based on agricultural products indeed do help to reduce the emission of greenhouse gases, but lead to other environmental pollution, such as too much acid in the soil and polluted (over-fertilised) lakes and rivers.

<http://swissinnovation.org/news/web/2012/06-120924-e0.html>

(Empa, September 24, 2012)



## Efficiency Record for Hybrid Solar Cells

The EPFL's Institute of Microengineering presented in Frankfurt "hybrid" photovoltaic cells with an energy conversion efficiency of 21.4%, the highest obtained for the type of substrate they used. This breakthrough will contribute to lower the cost of solar cell based installations. In the medium term, an investment of CHF 2000 in photovoltaic cells would suffice to provide more than enough electricity for the consumption of a four people household.

<http://swissinnovation.org/news/web/2012/06-120928-a8.html>

(EPFL, September 28, 2012)

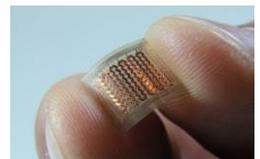


## Solutions for Increased Energy Efficiency

In an energy hungry world with growing numbers of smart devices and applications, greenTEG provides innovative solutions for autonomous systems and increased energy efficiency. The ETH Zurich spin-off develops and produces thin and mechanical flexible thermoelectric generators (TEGs). Using the Seebeck-Effect, TEGs convert temperature differences from any kind of source directly into electricity and thus increase energy efficiency in a wide range of applications including smart buildings (sensors, actuators) and consumer electronics. The foil-based TEGs developed by greenTEG allow easy integration into applications and devices. Size, shape, power out-put as and the sealing can be customized to specific needs.

<http://swissinnovation.org/news/web/2012/06-120930-z0.html>

(greenTEG, September 30, 2012)





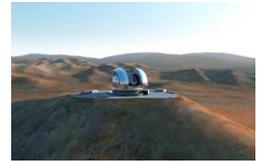
## 7. Engineering / Robotics / Space

### Revealing the Outer Reaches of the Universe

The European Extremely Large Telescope Project (E-ELT) has officially been launched. This enormous telescope, with a diameter of nearly 40m, will be built in Chili and will include technologies developed at EPFL. The spectacular project will lop a few meters off the top of Cerro Armazones, in Chili. But it's well worth it: with the principal 39.3 m-diameter mirror, we'll be able to observe stars and galaxies – both nearby and in the far reaches of the universe - with a level of detail that is unimaginable today.

<http://swissinnovation.org/news/web/2012/08-120802-b4.html>

(EPFL, August 02, 2012)

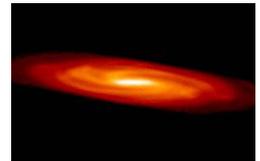


### Dark Matter Near Sun

Astronomers at the University of Zurich and the ETH Zurich, together with other international researchers, have found large amounts of invisible "dark matter" near the Sun. Their results are consistent with the theory that the Milky Way Galaxy is surrounded by a massive "halo" of dark matter, but this is the first study of its kind to use a method rigorously tested against mock data from high quality simulations.

<http://swissinnovation.org/news/web/2012/07-120809-ad.html>

(UZH, August 09, 2012)



### Electronic Engine for Rollator

The Lucerne University of Applied Sciences is working on a new rollator, powered by an electronic drive. The internationally backed project aims to develop a modern walker which includes not only a supportive drive, but also an integrated tablet device for navigation and emergency applications. The venture is backed by 9 european institutions from Austria, Sweden and Switzerland who will provide EUR 3 million for the 36 months during which the project is executed und ther the lead of the iHomeLab of the Lucerne University of Applied Sciences.

<http://swissinnovation.org/news/web/2012/07-120816-33.html>

(HSLU, August 16, 2012)

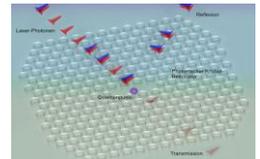


### Ultra-Fast Light Switch Circuit

Future transistors could make use of light instead of electricity. Researchers of the ETH Zurich were able to engineer a precursor of such an optical transistor. They are the first to have engineered an optical switch able to either block a ray of light, or let the pass through, depending on the quantum state of the block.

<http://swissinnovation.org/news/web/2012/07-120817-8e.html>

(ETH Zurich, August 17, 2012)



### Robot "Obelix" Travels Through Freiburg

A robot developed by the ETH Zurich, other European universities and industrial partners was able to navigate on cobblestones through numerous pedestrians in Freiburg im Breisgau. The robot, named Obelix, is designed to support people outdoors, e.g. by showing the way to the railway station or to act as a sightseeing guide. To do this, the robot has to be able to move like a pedestrian, crossing the road on crosswalks and obeying the traffic lights as well as avoiding other walkers. The robot was tested in Freiburg, where he had to travel a way of about 4 km from the university to the historic center of the city. He solved the task within 90 minutes.

<http://swissinnovation.org/news/web/2012/07-120821-77.html>

(ETH Zurich, August 21, 2012)



### Researchers Uncover Clues to the Moon's Origins

New findings by the University of Bern and the ETH Zurich suggest that the moon may have been formed in a high-velocity hit-and-run collision, a theory which explains the presence of Earth-like elements on the moon. It is widely accepted that the Earth's moon formed 4.5 billion years ago from an impact between the Earth and a celestial object the size of Mars called Theia. While simulations of the collision done over past decades suggested that the moon would have mostly been formed by material from Theia, the oxygen isotopes found on

(swissinfo.ch, August 30, 2012)





the moon are exactly the same as those found on Earth. This mystery is known as the “lunar paradox”. The new model proposed by the scientists assumes higher velocities for the collision and offers an explanation for the lunar paradox.

<http://swissinnovation.org/news/web/2012/07-120830-1b.html>

### A Step Towards Total Autopilot for Planes

(EPFL, September 20, 2012)

Three EPFL laboratories, commissioned by Honeywell and operating under the auspices of EPFL's Transportation Center, are working on this possibility by developing collision-prediction, avoidance, and real-time vision algorithms. “It is a project that confirms EPFL's unique expertise in the transport research field. The multidisciplinary character of the project unites three laboratories from three different Schools who have teamed up with a large company like Honeywell to remain as close as possible to industrial requirements”, says Michaël Thémans, Associate Director of the Transportation Center.

<http://swissinnovation.org/news/web/2012/07-120920-84.html>



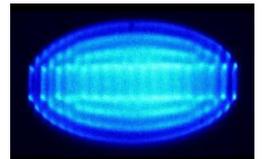
## 8. Physics / Chemistry / Math

### Controlled Chemical Reactions With Single Molecules

(UNIBAS, August 07, 2012)

Scientists of the University of Basel have succeeded in transferring a charge between two single localised molecules. In combination with a computer simulation, they demonstrated how Energy is converted during a chemical reaction. The results were published in the cover story of "Chemical Physics Letters". The precise control necessary was achieved by conducting the experiment in a vacuum with temperatures approximating the absolute zero point. The molecules with an electric charge were held in the field of an ion trap and fixed in a laser-cooled Coulomb crystal. The researchers further increased the precision by controlling both the vibrational energy and the rotational energy, allowing them to observe the charge transfer from a single nitrogen molecule to another.

<http://swissinnovation.org/news/web/2012/08-120807-5b.html>



### LHC Experiment Collects Record Amount of Data

(Cern, August 08, 2012)

A higher energy level, more computing power and better software allowed the LHCb experiment at CERN to collect a record amount of data this year. It has already surpassed the amount it collected in all of 2011 and is poised to double that amount by the end of 2012. In January through July, the LHCb detector collected 1 inverse femtobarn of data, which is a measurement of the number of particle collisions recorded in the detector. An inverse femtobarn is equivalent to 70 trillion particle-producing proton-proton collisions.

<http://swissinnovation.org/news/web/2012/08-120808-7a.html>



### Storing and Analyzing 25 PB of Data: A Worldwide Effort

(Cern, August 15, 2012)

Big science takes both big data and big cooperation. For the Large Hadron Collider (LHC) at CERN, storing, analyzing and accessing 25 petabytes of data each year requires a worldwide effort that spans more than 100 institutions in 36 countries. The LHC produces a million gigabytes of data every single second, too much for any single institution or computing center to handle. It's not realistic for one facility to house and analyze that much information, so to share the load, CERN outsources some of the data storage and processing to more than 150 computing centers all around the world via the Worldwide LHC Computing Grid.

<http://swissinnovation.org/news/web/2012/08-120815-6d.html>



### Insights from LHC Experiments

(Cern, August 13, 2012)

Experiments using heavy ions at CERN's Large Hadron Collider (LHC) are advancing understanding of the primordial universe. Just after the big bang, quarks and gluons – basic building blocks of matter – were not confined in-



side composite particles such as protons and neutrons, as they are today. Instead, they moved freely in a state of matter known as "quark–gluon plasma". Collisions of lead ions in the LHC, the world's most powerful particle accelerator, recreate for a fleeting moment conditions similar to those of the early universe. By examining these collisions, the experiments have been able to make more precise measurements of the properties of matter under these extreme conditions.

<http://swissinnovation.org/news/web/2012/08-120813-4c.html>

### African School of Physics

Forty-nine students from 15 African countries plus one student from Iran are currently attending the African School of Physics 2012. The school is a unique opportunity for young African students to receive training in cutting-edge physics research. "Attending a school like this is an opportunity no student should miss. This school unlocks one's mind and we are so exposed to many exciting things happening in the world of physics. It's just amazing!" says Suzan Phumudzo Bvumbi from the University of Johannesburg, South Africa. The lecturers are experts from the US, South Africa, Ghana, France, Belgium, Sweden, Switzerland, Italy, the UK and CERN. The school receives support from a number of scientific institutions worldwide that want to support higher education in Africa.

<http://swissinnovation.org/news/web/2012/08-120821-34.html>

(Cern, August 21, 2012)



### 40 Year Old Proton-Synchrotron Booster of CERN

Originally designed to boost the performance of CERN's Proton Synchrotron in the early 1970s, the PS Booster is still operating in the LHC era with its highest availability and flexibility – far beyond its original specifications. It is a CERN tradition that new machines use existing accelerators as injectors, and the LHC is no exception. Clearly, all of the accelerators of the proton-injector chain had to undergo major upgrade programmes to be fit for the new machine. The ongoing consolidation and upgrade programme aims to operate the PSB throughout the lifetime of the LHC. This will ensure that it remains one of CERN's backbone accelerators for the foreseeable future.

<http://swissinnovation.org/news/web/2012/08-120823-b0.html>

(Cern, August 23, 2012)

### Smaller, Stronger Magnets for the HL-LHC

Magnet size is crucial to an accelerator as it determines the final circumference and power. This spring, Fermilab unveiled a 10.4 Tesla magnet that is shorter than the 8 Tesla magnets currently installed in the LHC. These new magnets will be a valuable asset to the HL-LHC. The success of the HL-LHC hinges on two essential conditions: the installation of more powerful magnets, and the addition of extra collimators. However, one of the key questions is how to insert additional collimators in a 27 km ring already full to bursting. The answer is to replace the current magnets by shorter but more powerful magnets. Fermilab unveiled a 10.4 Tesla 2 m long prototype magnet. Soon, an 11 m long magnet should see the light of day, improving on the existing 14 m long magnets.

<http://swissinnovation.org/news/web/2012/08-120828-62.html>

(Cern, August 28, 2012)

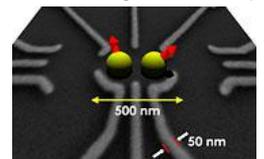


### Unexpected Cooling Phenomena for Quantum Computing

The team around professor Dominik Zumbühl, in cooperation with the IBM research lab in Rüschlikon and the ETH Zurich, has observed that an established law of nature is violated in nanostructures at extremely low temperatures. This discovery could have important implications for the construction of a quantum computer. The previously unknown aspect of physics is, how electron spins move tens of micrometers in a semiconductor with their orientations synchronously rotating along the path similar to a couple dancing the waltz, the famous Viennese ballroom dance where couples rotate. This is an important step in the development of spin-based transistors that are electrically programmable.

<http://swissinnovation.org/news/web/2012/08-120829-85.html>

(UNIBAS/IBM, August 29, 2012)





## Optical Fiber Sensors Embedded in Material

Researchers at EPFL are developing embedded sensors based on optical fibers. The fibers can currently measure temperatures and forces at a resolution of one centimeter along the fiber, which is a vast improvement over the meter resolution previously achieved. Applications in many areas are being investigated, including glacier research and satellites. The system works by creating resonance in the fiber with a laser, which in turn creates acoustic vibration. Changes in temperatures change the vibration, which can then be sensed and analyzed.

<http://swissinnovation.org/news/web/2012/08-120829-db.html>

(EPFL, August 29, 2012)

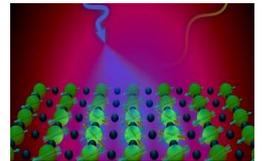


## Using Magnetism to Understand Superconductivity

Research being done in EPFL's Laboratory for Quantum Magnetism (LQM) could give physicists a tool to use in their search for new superconducting materials. There are some ceramics that are excellent insulators at room temperature but that become perfect conductors when submerged in liquid nitrogen. However, this phenomenon, known as "high temperature" superconductivity, is not at all well understood by physicists. They theorize that at these temperatures, the collective quantum magnetic properties of the atoms in the material might come into play. But studying the magnetic properties of these materials at this minuscule scale would require years of effort. Scientists from Brookhaven National Laboratory (BNL), Switzerland's Paul Scherrer Institut (PSI), and EPFL have unveiled the phenomena at work at this atomic scale.

<http://swissinnovation.org/news/web/2012/08-120905-16.html>

(EPFL, September 05, 2012)



## First Results on Neutrino Properties

The international project of the "Enriched Xenon Observatory" (EXO-200) includes over 80 researchers from around the globe in the search for the quantum properties of the neutrino particle. Physicists assumed that neutrinos would act differently than other particles, and were trying to observe that in the EXO-200. However, the scientists did not detect any divergent behaviour and have also found indications that the mass of neutrinos is extremely low. The Swiss scientists were involved in building the cooling system, choosing the construction materials and participated in the analysis of the data through a control room situated in Bern.

<http://swissinnovation.org/news/web/2012/08-120905-7a.html>

(UNIBE, September 05, 2012)



## Germanium Lasers for Faster Computer Chips

Paul Scherrer Institute (PSI) researchers have investigated how they could make the semiconductor Germanium emit laser light. As a laser material, Germanium together with Silicon could form the basis for innovative computer chips in which information would be transferred partially in the form of light. This technology would revolutionise data streaming within chips and give a boost to the performance of electronics. The researchers have demonstrated that Germanium must be put under strain by an external force in order to turn it into a laser material. The decisive investigations were carried out by the scientists at the Swiss Light Source (SLS) at PSI and their results have recently appeared in the scientific journal 'Physical Review Letters'.

<http://swissinnovation.org/news/web/2012/08-120910-10.html>

(PSI, September 10, 2012)



## New Particle Discovered

Experiments at the Large Hadron Collider (LHC) at CERN, which are being used to search for the Higgs boson have unveiled a new particle with a mass of 125 GeV. Both the ATLAS and CMS experiments made the discovery independently.

<http://swissinnovation.org/news/web/2012/08-120910-57.html>

(Cern, September 10, 2012)



## 9. Architecture / Design

### Awards for Swiss Architecture in Brasil

(ETH Zurich, August 24, 2012)

The two architecture professors of the ETH Zurich, Alfredo Brillembourg and Hubert Klumpner have been awarded with the Global Holcim Award Silver for their building in the favela Paraisópolis in São Paulo. In the previous year they had already received the Golden Regional Holcim Award for the same project. It includes a terraced public space with areas for urban agriculture, a water management system, a public amphitheater, a music school, a small concert hall, sports facilities, public spaces and transport infrastructure. It prevents further erosion and dangerous mudslides on the steep slopes and provides social and cultural infrastructure. The two architects also received the Golden Lion during the 13th architectural biennale in Venice for a similar building, the "Torre David /Gran Horizonte" in Caracas, the capital of Venezuela.



<http://swissinnovation.org/news/web/2012/09-120824-36.html>

### Europe's Longest Building to Become Energy Efficient

(EPFL, August 27, 2012)

From above, it almost looks like part of the Great Wall of China. Lignon, a massive architectural complex built between 1963 and 1972, is now part of Geneva's cultural heritage. With a length of 1.5 km, it is the longest building in Europe and houses some 6,500 people. But the entire architectural design, audacious at the time, no longer meets contemporary energy consumption standards. The government of Geneva and the Lignon property owners' group thus approached EPFL to study options that would improve the building's energy consumption while still preserving its unique character. The resulting suggestions will enable the complex to reach a level of energy efficiency compatible with the Minergie standard, as well as reducing CO2 emissions by thousands of tons.



<http://swissinnovation.org/news/web/2012/09-120827-b7.html>

## 10. Economy, Social Sciences & Humanities

### Evaluating the Significance of Banks

(ETH Zurich, August 02, 2012)

"Too central to fail" instead of "too big to fail": whether banks pose a risk to the financial system when they get into distress has more to do with their level of networking than with their size. Economic researchers at ETH Zurich have developed a method to deduce the "systemic importance" of banks from their complex connections within financial networks.

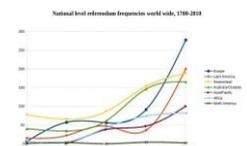


<http://swissinnovation.org/news/web/2012/10-120802-cc.html>

### Civil Society Profits Most from Direct Democracy

(UZH, August 16, 2012)

As more countries adopt forms of direct democracy, the amount of votings increases. The most successful initiators of such votes are not oppositional parties, who win in 24.9% of the cases, but rather civil societies with a success rate of 38.4%, as scientists of the University of Zurich discovered. Ruling parties win 31.1% of the votes they initiate.



<http://swissinnovation.org/news/web/2012/10-120816-a7.html>

### Football and Integration

(UNINE, August 27, 2012)

A new study by the International Center for the Study of Sports and the Universities of Neuchatel and Lausanne shows that immigrant participation in football clubs helps with the integration of these populations into Swiss society. The study looked at twelve Albanian and Portuguese football clubs in the Swiss-German and French speaking parts of Switzerland and found that they helped create new relationships across social boundaries. Tensions among players of the different social groups existed but tended to decrease with time.

<http://swissinnovation.org/news/web/2012/10-120827-ab.html>



## Center for Democracy Studies

(Centre for Democracy Studies, September 11, 2012)

Is there direct democracy in Japan? How is democracy evolving in Latin America? And how to help the government of Mongolia to get the country more decentralized and democratic? The Centre for Democracy Studies in Aarau (Zentrum für Demokratie Aarau/ZDA) is working on a wide range of issues. Established in 2009 and linked to the University of Zurich, its about 50 researchers (law and political science) investigate in democracy issues all around the world.

<http://swissinnovation.org/news/web/2012/10-120911-0c.html>

## Roche Ranks First in Sustainability Index - Again

(Roche, September 13, 2012)

Roche took the first place for the healthcare industry in the Dow Jones sustainability index for the fourth time in a row. The index rates enterprises on the basis of their ecologic, social and economic development. The basis of this evaluation were the recent strategic decisions of Roche, such as to focus on medical innovation and personalized medicine as well as the programs for the development of future executives and the decision to have special pricing strategies for developing companies.

<http://swissinnovation.org/news/web/2012/03-120913-7f.html>

## Cogito-Prize for Research Combining Astronomy and Archaeology

(UZH, September 13, 2012)

The astronomer and archaeologist Rita Gautschi is the first woman to receive the Cogito-Prize. She was awarded the prize for her research using solar and lunar eclipses to verify the antique chronologies. She used approximately one hundred eclipses recorded in neo-babylonian sources to evaluate the reliability of antique observations and calculated the time deviation caused by the variation in day length.

<http://swissinnovation.org/news/web/2012/10-120913-3f.html>



## 11. Technology Transfer / IPR / Patents

### Five Years of Venture Kick Supporting Innovative Start-Ups

(Venture Kick, September 26, 2012)

The privately funded initiative venture kick, which supports innovative start-up projects, celebrates its birthday. Five years ago, a jury pool of investors and experts met for the first time to carefully evaluate promising business ideas from Swiss universities. Each month, eight projects get the chance to present themselves to a jury. The four most promising receive a grant and automatically qualify for the second round held three months later, where the two best teams receive another grant. In the third and final round, taking place six months later, the winner for a final grant is chosen. The privately funded initiative aims to double the number of spin-offs by speeding up the founding process and turning start-ups to be more attractive for investors. Since the start of the initiative in the fall of 2007, more than 245 project teams have been awarded more than CHF 9 Million in grants. This has led to the creation of nearly 200 companies, over 1600 new jobs and about CHF 300 Million in financing volumes.

<http://swissinnovation.org/news/web/2012/11-120926-a0.html>



### Swiss Technology Transfer Association

<http://www.switt.ch>

### Swiss Federal Institute of Intellectual Property

<https://www.ige.ch/en.html>



## 12. General Interest

### Newly Elected CERN Council President

(Cern, September 20, 2012)

The Council elected Professor Agnieszka Zalewska as its 21st President for a period of one year renewable twice, with a mandate starting on 1 January 2013. Professor Zalewska takes over from Michel Spiro who comes to the conclusion of his three-year term at the end of December. "The coming years will be fascinating, but demanding, as we prepare the LHC for running at higher energies and implement the updated European Strategy for Particle Physics," said Zalewska. "CERN and its Council will become my only priority, and I would like to thank the Council members and outgoing President for the confidence they have placed in me."

<http://swissinnovation.org/news/web/2012/12-120920-29.html>



## 13. Calls for Grants/Awards

### Call for Research Projects

(Fondation Leenaards, September 20, 2012)

The Leenaards Foundation supports projects aiming to improve the quality of life of senior citizens. To foster reflection centered around the way older people and those near to them understand, perceive, and act on their well being, the foundation is calling for research projects for the third consecutive year. 500 000 CHF per year is reserved for original, innovative projects of high scientific quality. The research may address the whole of the medical, psychological, social, economic, and environmental factors determining the quality of life of older people.



<http://swissinnovation.org/news/web/2012/13-120920-14.html>

### EU Seventh Framework Programme (FP7)

The seventh EU Framework Programme on Science Research and Innovation.

<http://tiny.cc/ku72lw>

## Upcoming Science and Technology Related Events

### 1st Swiss Intl. Conf. on Industrial Microbiology (Microscon)

Oct 16-17, 2012

<http://www.microscon.com>

Life Sciences

Arte Kongresshotel Olten

### TEDxZurich 2012

Oct 19-21, 2012

<http://www.tedxzurich.com>

Media

TV Studios of SRF / tpc

### Emerge Conference 2012

Oct 17-19, 2012

<http://www.emerge-conference.com>

Economy

University of St.Gallen

### UXconference 2012

Oct 27, 2012

<http://www.uxcon.com/en>

ICT / Design

USI, Lugano

### GDG DevFest Zurich

Oct 19-21, 2012

<http://tiny.cc/7f62lw>

ICT

Googleplex Zurich

### New Responses to Non-Communicable Diseases

Oct 29, 2012

<http://tiny.cc/8my2lw>

Life Sciences

Rocco Forte Le Richemond, Geneva



### Global Energy 2012 Conference & Exhibition (GEG2012)

Oct 31, 2012

<http://www.globalenergygeneva.com>

Energy

Hotel President Wilson, Geneva

### Application Security Forum 2012

Nov 6-8, 2012

<http://2012.appsec-forum.ch>

ICT

Yverdon

### Cloud & Big Data Summit 2012

Nov 21-22, 2012

<http://tiny.cc/2x62lw>

ICT

Rolex Learning Center, EPFL

### Government Debt Crises: Politics, Economics, and History

Dec 14-15, 2012

<http://tiny.cc/6g72lw>

Policy

Graduate Institute, Geneva

### BIONETICS 2012, 7th International ICST Conference on Bio-Inspired Models of Network, Information, and (BIONETICS 2012)

Dec 12, 2012

<http://bionetics.org/2012/show/home>

Life Sciences

Lugano Congress Center, Lugano

### Clinical Trial Supply Europe

Jan 30, 2013

<http://tiny.cc/buy2lw>

Life Sciences

Congress Center Basel, Basel

### ICT for Sustainability 2013 (ICT4S 2013)

Feb 14-16, 2013

<http://www.ict4s.org>

ICT

ETH Zurich

### GOTO Zürich 2013

Apr 10-11, 2013

<http://gotocon.com/zurich-2013>

ICT

Zurich Marriott Hotel

### Art Basel 2013

Jun 13-16, 2013

<http://basel.artbasel.com>

Art

Basel

### Congress of the International Association for the Psychology of Religion (IAPR)

Aug 27-30, 2013

<http://www3.unil.ch/wpmu/iapr2013>

Medical / Religion

University of Lausanne

### XX WFN World Congress on Parkinsons Disease and Related Disorders

Dec 08, 2013

<http://www2.kenes.com/parkinson/Pages/Home.aspx>

Life Sciences

Palexpo Geneva Congress Center, Geneva

## Science-Switzerland Back Numbers

<http://www.swissinnovation.org/Science-Switzerland>

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