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State Secretariat for Education, Research and Innovation SERI
Innovation Promotion Agency CTI
Swiss Federal Office of Energy SFOE

Science-Switzerland, December 2012 – January 2013

News on Swiss science, technology, education and innovation

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Switzerland signs Agreement on Scientific Cooperation with Russia

(SERI, December 13, 2012)

Federal Councillor Alain Berset travelled to Moscow between 16 and 18 December 2012. The head of the Federal Department of Home Affairs signed an agreement on scientific and technological cooperation between the Russian Federation and Switzerland with the Russian Minister for Education and Science and hold a number of bilateral discussions. The main areas of cooperation include engineering sciences, nanosystems and nanomaterials, life sciences, natural resources, energy and energy economics, transport, economic and social sciences, and humanities. The signing of this agreement marks a decisive step in the development of scientific relations between the two countries which wish to intensify cooperation between their institutions and researchers.
http://swissinnovation.org/news/web/2012/02-121213-0e.html

Switzerland strengthens Cooperation with the United States

(SERI, January 30, 2013)

State Secretary Mauro Dell'Ambrogio and Dr. Subra Suresh, Director of the American National Science Foundation NSF, signed a Letter of Intent in which Switzerland expressed its desire to become involved in the NSF Graduate Research Opportunities Worldwide programme. Federal Council Johann N. Schneider-Ammann was present at the signing in Davos. Launched in December 2012 by the NSF, the Graduate Research Opportunities Worldwide (GROW) program aims to promote international collaboration in the field of academic research. At the invitation of the NSF, Switzerland will become the ninth member of this network of academic excellence. The aim is to enable the NSF's best doctoral students to do a research internship of six months to a year at a Swiss university.
http://swissinnovation.org/news/web/2013/00-130130-94.html

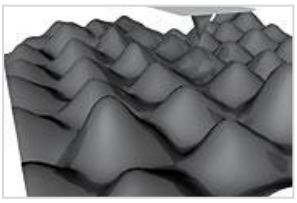
Human Brain Project Wins Top European Science Funding

(EPFL, January 28, 2013)

The European Commission has officially announced the selection of the Human Brain Project as one of its two FET Flagship projects. The new project will federate European efforts to address one of the greatest challenges of modern science: understanding the human brain. The project will be coordinated at the Ecole Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, by neuroscientist Henry Markram with co-directors Karlheinz Meier of Heidelberg University, Germany, and Richard Frackowiak of Centre Hospitalier Universitaire Vaudois and the University of Lausanne. The fact that three of the four FET flagship projects in the final round of the competition were largely initiated by researchers from ETH Zurich and the EPFL is a testimony to Swiss research.
http://swissinnovation.org/news/web/2013/00-130128-01.html

Other FET Flagship Project "Graphene" Featuring Swiss Institutions

(Swiss Government, January 28, 2013)



The Swiss Research community will also play a prominent role in the Swedish-coordinated flagship Graphene Project, which was the second proposal selected by the European Commission. Here, Swiss partners will include ETH Zurich, the University of Geneva, the University of Basel, the University of Zurich and the Swiss Federal Laboratories for Materials Science and Technology (EMPA).
http://swissinnovation.org/news/web/2013/00-130128-02.html

FET Flagship Candidate "Guardian Angels" Continues

(EPFL, January 29, 2013)

The Guardian Angels project, one of four finalists in the European FET Flagship initiative, will live on thanks to continued support from the partner institutions. The Zero-power technologies it develops will become a key innovation platform for European industry, large component manufacturers, system integrators, service providers and SMEs. It will act as a generator of start-up companies and new services for health, the environment, the ageing society, intelligent transportation, energy and human interaction.
http://swissinnovation.org/news/web/2013/00-130129-e5.html

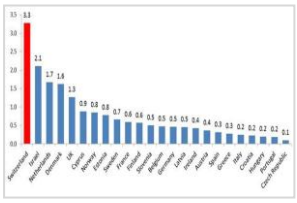
Tech Oscar for ETH Zurich

(ETH Zurich, January 08, 2013)

Top honor for ETH-Zurich professor and Disney director Markus Gross: he received a "Tech Oscar" from the Academy of Motion and Picture Arts and Sciences (AMPAS) along with three other computer scientists for a procedure they developed which leading special effects studios now use to simulate smoke and explosions in Hollywood films. In 2008 the researchers from ETH Zurich and Cornell University developed software that can calculate smoke and explosions in films swiftly and recreate them in lots of detail. The four scientists' primary aim was to publish their work and showcase it at the ACM SIGGRAPH, the leading conference for computer graphics. Now, they received the Technical Achievement Award from the "Academy" (AMPAS) for their Wavelet Turbulence software.
http://swissinnovation.org/news/web/2013/00-130108-b3.html

Many ERC Advanced Grants Go to Switzerland

(SERI, January 30, 2013)



The European Research Council (ERC) is awarding €680 million to 302 senior research leaders in 24 different countries across Europe in the latest competition for its prestigious 'Advanced Grants'. With up to €2.5 million per project, the funding allows these scientists to pursue their most ground-breaking ideas. As the largest countries in the EU, the UK, France and Germany host the greatest number of successful candidates (respectively 80, 39 and 38 grants). Switzerland ranks 5th with 26 grants. However, relative to population size the most successful researchers are based in Switzerland, Israel, the Netherlands and Denmark. Just over 15% of selected researchers are women, which is a rise from last year's 12%. The average age of researchers to be funded is 51 years. In 2012, advanced grants were awarded to the following institutions in Switzerland: ETH Zurich (12 grants), EPF Lausanne (5), University of Basel (2), University of Geneva (2), University of Bern (1), IBM Research GmbH (1), Swiss Tropical and Public Health Institute (1), University Hospital Lausanne (1) and Institute for Research in Biomedicine (1).
http://swissinnovation.org/news/web/2013/00-130130-3c.html

Swiss in European Research and Innovation Area Board

(Swiss Government, December 17, 2012)

The European Research and Innovation Area Board is a new organization established last year to help coordinate research and innovation in the European Union and other countries participating in the Research Framework Programme. Dr. Barbara Haering, a member of the ETH board and chair of the Swiss Graduate School of Public Administration, was appointed to the new board by the EU Commission and elected co-chair. She is highly praised for her many years of experience and her ability to create a bridge between science and politics.
http://swissinnovation.org/news/web/2012/01-121217-9f.html

1. Policy

New Strategy for Knowledge & Technology Transfer

(Swiss Government, December 18, 2012)

Swiss companies are to receive long-term support for innovative activities. The Commission for Technology and Innovation CTI has developed a new strategy for promoting Knowledge and Technology Transfer (KTT). National thematic networks (NTNs), innovation mentors (IMs) and physical and web-based platforms are ready to be introduced in early 2013. The national thematic networks help to form contacts between businesses and public research institutes. Innovation mentors are contact persons for small and medium businesses. They aim to create contacts and identify, specify and implement ways of encouraging innovation. The KTT platforms bring together representatives from the worlds of business and science and provide a physical and web-based interface between innovation mentors and the national thematic networks. Contacts can be made and maintained, and key issues can be discussed.
http://swissinnovation.org/news/web/2012/01-121218-65.html

Financial Provisions to Save CHF 700 million

(Swiss Government, December 19, 2012)

The Swiss Federal Council has adopted the financial strategy for 2014. The programme aims for yearly savings of approximately CHF 700 million in the period from 2014 to 2016. The goal is to keep the federal budget balanced in spite of increased costs, incurred by new policies such as the energy strategy 2050 or the increased means for education and research. However, the universities are also admonished to save money. The financial assistance to the cantonal universities is going to be reduced by CHF 7 million each year, and the support for the Swiss Federal Institutes of Technology is going to be slashed by CHF 24 million yearly.
http://swissinnovation.org/news/web/2012/01-121219-74.html

2. Education

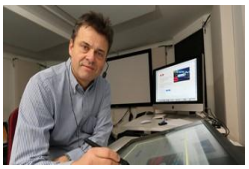
Increased Tuition Fees

(ETH Zurich, December 07, 2012)

ETH Zurich and EPFL will be increasing their annual tuition fee to 2500 Swiss francs in an effort to maintain teaching quality. This increase is needed due to an increase in the number of students without an equal increase in funding from the federal government. The additional fees will be used to create new teaching assistant positions and to provide additional scholarship funds. The planning of the fee increase was done in close and early cooperation with the student associations of both universities.
http://swissinnovation.org/news/web/2012/02-121207-9e.html

First Successful MOOC by EPFL

(EPFL, December 13, 2012)



53,000 enrolled students, close to 10,000 certificates issued: the first MOOC (Massive Online Open Course) offered this autumn by EPFL on the Coursera platform has been a success. The course organized by Martin Odersky, Professor in the Laboratory of Programming Methods at EPFL, had the subject of the computer programming language, Scala, which he created himself. Owing to the enormous popularity, the course will be renewed in Autumn 2013. However, this is just the beginning, as Odersky states: "The University of Helsinki in Finland has accepted my course credits in their curriculum, and we are in discussion with several other institutions. This permits us to imagine that we may one day earn a degree at several universities simultaneously. We are truly at the gates of a whole world of possibilities."
http://swissinnovation.org/news/web/2012/02-121213-3f.html

Perspectives for MINT Graduates

(Swiss Government, January 10, 2013)

In 2009, one year after graduation, graduates from an institution of higher education with a degree in a MINT (mathematics, informatics, natural sciences, and technics) field were better integrated in the labour market than graduates from other fields. Among MINT personnel, the unemployment rate based on ILO definition was 3.8% compared with 5.5% among graduates from other fields. MINT graduates were also more often in management

positions (MINT total: 24%; other fields: 16.6%). These are the results of a study conducted by the Federal Statistical Office (FSO) on the integration in the labour market of graduates from an institution of higher education.
http://swissinnovation.org/news/web/2013/02-130110-85.html

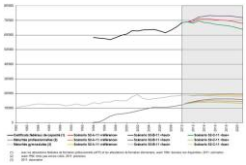
Demand for Internal Funding Increasing

(ETH Zurich, December 18, 2012)

The number of researchers at ETH Zurich is growing. The ETH Zurich Research Commission is also feeling the effects. More grant applications are being submitted. There is likely to be a particular shortage of funding for junior researchers. The Research Commission has never received so many grant applications from researchers: the number of requests is reaching a record high, says Nicholas Spencer, President of the Commission. One reason for this is growth: more Chairs will also mean more applications. The total number of funded research projects is not, however, increasing at the same rate. “For years we have continuously had around 250 active grants”, says Sonja Negovetic, Secretary of the Research Commission from the Scientific Coordination Staff Unit.
http://swissinnovation.org/news/web/2012/02-121218-9b.html

Scenarios for the Education System 2012–2021

(Swiss Government, January 16, 2013)



New scenarios presented by the Federal Statistical Office indicate that the number of Federal Vocational Education Training (VET) Diplomas, Federal VET Certificates and 2-year apprenticeship certificates should peak in 2013 (71,100, +3,1% since 2011), then fall by 4.5% between 2013 and 2021. The number of vocational baccalaureates could continue to rise until 2015 (15,100, +12.6% since 2011) before tailing off (-3,8% between 2015 and 2021). Given the growing trend of students to continue studies at universities of applied sciences (UAS) after the vocational baccalaureate, the number of UAS students is expected to increase markedly from 64,000 in 2011 to 76,500 in 2017, an average increase of 3% a year, before slowing down (+0.6% a year on average between 2017 and 2021 with 78,500 students in 2021). The number of academic baccalaureates (19,000 in 2011) is not expected to vary greatly in the next few years. As a consequence, after an average rise of 2% a year until 2014 (143,200), the number of students at tier-one universities is expected to increase more slowly due to projected demographic decline (+1% a year on average between 2014 and 2021 with 153,500 students in 2021).
http://swissinnovation.org/news/web/2013/02-130116-dc.html

3. Life Science / Health Care

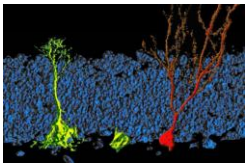
Better Nutrition Prevents Nosocomial Infections

(HUG, December 01, 2012)

Clinical research from the University Hospital Geneva shows that it's possible to reduce nosocomial infections in intensive care by 20% by improving the most vulnerable patient's nutrition. Most of these vulnerable patients cannot take food, and were usually given nutrients through a tube to the stomach. This technique has been shown to be insufficient to cover the patient's energetic needs. However, when combined with intravenous feeding, an optimal nutrition can be given to each individual. The results will lead to improved practices in intensive care units and a reduction of infections.
http://swissinnovation.org/news/web/2012/03-121201-26.html

Lipid Metabolism Regulates the Activity of Adult Neural Stem Cells

(ETH Zurich, December 04, 2012)



Neural stem cells generate thousands of new neurons every day in two regions of the adult brain. This process, called adult neurogenesis, is critical for a number of processes implicated in certain forms of learning and memory. Impaired adult neurogenesis has been associated with a number of diseases such as depression, epilepsy, and Alzheimer’s disease. A team led by Sebastian Jessberger, Professor of Neurosciences at the Brain Research Institute, has now identified a novel mechanism that plays a key role in adult neurogenesis and is required for the life-long activity of neural stem cells. Prof. Jessberger believes that “this finding will hopefully give us a new target to develop novel drugs against depression or neurodegenerative diseases”.
http://swissinnovation.org/news/web/2012/03-121204-2c.html

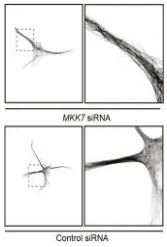
Stem Cells in Innovative Medicine Initiative

(Roche, December 05, 2012)

Swiss pharmaceutical company Roche has initiated the Innovative Medicine Initiative (IMI) to create a repository of 1500 pluripotent stem cell lines from 500 patients. The cells will be used to study a wide range of diseases. Recent Nobel Prize winning research showed that normal adult cells (e.g. skin cells) can be reprogrammed to become stem cells, which can then reproduce any other type of cell (e.g. liver cell). This allows the IMI to develop its cell lines from patients suffering from a disease of interest and have the cells contain the genes that may be responsible for that disease, making drug testing more effective.
http://swissinnovation.org/news/web/2012/11-121205-b8.html

Multitasking Proteins

(UNIBAS, December 05, 2012)



Apparently, proteins can have a variety of activities depending on the site of action. Researchers from the University of Basel found a protein usually found in the nucleus also in growing nerve cell processes. There the protein known as a stress regulator stabilizes the cytoskeleton. The newly discovered role of the protein MKK7 is extremely interesting because of MKK7 inhibitors are already used clinically to prevent stress reactions after nerve injury. Given the present results, it should now be examined whether MKK7-blockers also inhibit nerve regeneration. Apart from that, the results of the Basel researchers indicate that there are proteins capable of assuming different functions depending on the context.
http://swissinnovation.org/news/web/2012/03-121205-8a.html

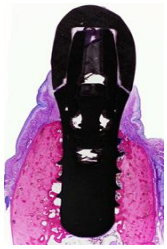
Bid for New Biotechnology Research Institute in Geneva

(EPFL, December 06, 2012)

A consortium consisting of EPFL, the University of Geneva, Dr. Hansjörg Wyss, and the Bertarelli family has bid on the former headquarters of Merck Serono in Geneva and plans to develop it into a new biotechnology research institute. The goals of the institute are to enhance the region's reputation as a centre of biotechnology research, and to assist in transferring technology from academia into industry. Ten new research chairs and 120 to 150 jobs will be created to study transplants, prosthetics, and tissue regeneration, among other areas.
http://swissinnovation.org/news/web/2012/03-121206-0c.html

Reliability of Dental Implants in Long-Term Study

(UNIBE, December 11, 2012)



Researchers of the Dental Medicinal Clinics Berne (ZMK) were able to demonstrate through a comprehensive long-term study that there are hardly any complications and there is a low risk to the patients in the routine treatment of dental implants. Dental implants for patients are a great advantage: set after a tooth loss, chewing function is restored and implants are less harmful to the healthy teeth than bridges. Since the late 1990ties, implants have been used routinely. In the study, ZMK found that the treatment with dental implants has a high reliability and a low complication rate.
http://swissinnovation.org/news/web/2012/03-121211-c2.html

Tiny Hole for Better Hearing

(UNIBE, December 13, 2012)

The Swiss National Science Foundation supports a research project by the University of Bern and the University Hospital with CHF 2.6 million. The project aims to create a procedure for minimally invasive hearing aid implantation targeting operations with children. This would be a big improvement over the conventional operation where the skull has to be cut in a big area in order to place an electrode behind the cochlea, a complicated procedure with a cosmetic impact. The project named "Image-guided micro surgery for hearing aid implantation" will use a robotic surgery and only make a tiny hole in the skull in order to place the electrode.
http://swissinnovation.org/news/web/2012/03-121213-71.html

Breast Cancer Drug

(Roche, December 08, 2012)

A recent study has shown that Roche's drug Perjeta significantly extends survival of HER2-positive metastatic breast cancer patients. The drug is used in combination with Herceptin and chemotherapy, and works by binding to

the HER2 receptor on the outside of cancer cells. Although the exact mechanism by which this helps fight the cancer is not known, it is suspected that the drug prevents HER2 from binding with other proteins to grow the cancer cells, and it may also signal the body to destroy them. Perjeta has been approved in the US and is in the process of receiving European approval.
http://swissinnovation.org/news/web/2012/03-121208-bc.html

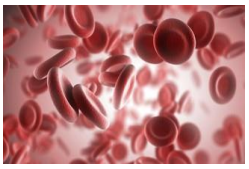
Super Hormone Cure for Metabolic Syndrome

(ETH Zurich, December 18, 2012)

Metabolic syndrome encompasses several common characteristics, including high blood pressure, high cholesterol, insulin resistance, and abdominal fat. This syndrome is increasingly common due to lifestyles without enough exercise and with too much unhealthy food. However, researchers at ETH Zurich have made progress on a cure that solves all the problems at once. A synthetic signalling pathway is used to generate a super hormone that inhibits the feeling of hunger and reduces blood sugar levels. The mechanism is started by the drug Guanabenz, which is approved to treat hypertension. The principle was shown to work in diseased mice and with some modification could work in humans as well.
http://swissinnovation.org/news/web/2012/03-121218-a3.html

Retraining White Blood Cells Could Cure Autoimmune Disease

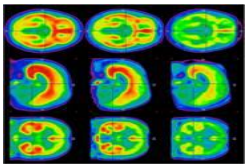
(EPFL, December 18, 2012)



EPFL scientists retrained white blood cells responsible for type I diabetes, a common autoimmune disease. Using a modified protein, they precisely targeted these white blood cells (T-lymphocytes, or T-cells) that were attacking pancreatic cells and causing the disease. When tested on laboratory mice, the therapy eliminated all signs of the pathology. This same method could be extremely promising in treating multiple sclerosis as well. The scientists have just launched a start-up Anokion SA on the Lausanne campus, and are planning to conduct clinical trials within the next two years.
http://swissinnovation.org/news/web/2012/03-121218-d7.html

Cerebral Consequences of Smoking

(UNIBE, December 19, 2012)



A group of scientists from the Universities of Bern, Zurich and the ETH Zurich found that the consequences of smoking had a stronger impact and lasted longer. These results could help with the development of new medicine. The researchers investigated the glutamate system, a neurotransmitter that plays a central role in nicotine and cocaine addiction. They used the newly developed method of positron emission tomography to measure the metabotropic glutamate receptor 5 (mGluR5). The study found that the amount of this protein was reduced by 20% on average in the brains of smokers. Even in the brains of ex-smokers who were abstinent for an average of 25 weeks, the reduction amounted to 10 - 20%.
http://swissinnovation.org/news/web/2012/03-121219-33.html

HIV Uses Trojan Horse to Penetrate the Immune System

(UNIL, December 19, 2012)

Prof. Amalio Tenti of the Institute of Microbiology, University of Lausanne and his team of scientists from Germany and Spain have discovered how the HIV enters the cells of the immune system, allowing it to spread in the body. This mechanism remained a mystery to the scientific community up to now. The virus does this by hijacking dendritic cells without infecting them, to be brought to the main target of the virus, the T cells. Since the dendritic cells play an essential role in the activation of the immune response by patrolling the human body and capturing the infectious agents before delivering them to the T cells for destruction, the HIV remains undetected until it infects the T cells.
http://swissinnovation.org/news/web/2012/03-121219-47.html

Protein Ligand Complex for Purification and Lab-On-A-Chip Applications

(ETH Zurich, December 20, 2012)

Commonly used protein affinity purification systems suffer from dynamic binding equilibria. Therefore, these systems are not suited for both the quantitative isolation of low-abundance protein complexes from cell extracts as well as the permanent and specific immobilization of a given target protein. The ETH Zurich developed a protein ligand

which allows for the affinity purification with an unsurpassed efficiency. The complex between the one-domain protein FimGt and a 15-residue peptide called DsF is the most stable noncovalent protein-ligand complex known to date, with a dissociation constant (KD) of 1.5 x 10^{-20} M.
http://swissinnovation.org/news/web/2012/03-121220-36.html

Climate Change Triggers Increased Biodiversity and Mass Extinction

(UZH, December 21, 2012)

After the largest known mass extinction 252 million years ago, the climate was initially cool, before becoming very warm and then cooling down again. Due to the cooler temperatures, the diversity of the marine fauna increased. In the beginning, the warmer climate combined with a high CO_2 content in the atmosphere led to many new short-lived species. However, in the longer term, the climate change had a negative impact on the biodiversity and caused the extinction of species, according to the findings of palaeontologists of the University of Zurich.
http://swissinnovation.org/news/web/2012/03-121221-49.html

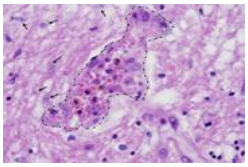
Device Detects Counterfeit Drugs

(swissinfo.ch, December 28, 2012)

Counterfeit drugs have become one of the main health problems in developing countries. A device developed by three Swiss universities that identifies fake drugs could save the lives of hundreds of thousands of people worldwide. The Fribourg institute joined forces with the Geneva University Hospitals and Geneva-Lausanne School of Pharmacy to develop a low-cost system that identifies whether a drug is real or fake in just a few minutes. The prototype of the ECB (budget capillary electrophoresis) was unveiled in 2008. The ECB is about ten times cheaper than conventional devices and the analysis of a drug takes 20 minutes on average. To date, the institutes have produced around ten ECB devices.
http://swissinnovation.org/news/web/2012/03-121228-2e.html

Stroke: Immune System Not Responsible for Neural Damage

(UNIBE, December 31, 2012)



A team of scientists with participation from the University of Berne has found that supposedly damaging immune cells are not responsible for the neural cell damage in the brain after a stroke. These so-called neutrophil granulocytes do not reach the neural cells in the brain. These results disprove a prevalent dogma and pave the ways for new treatments of strokes.
http://swissinnovation.org/news/web/2012/03-121231-e6.html

Healthier Breakfast Cereals

(Nestlé, January 01, 2013)

Cereal Partners Worldwide (CPW), Nestlé's 50/50 joint venture with General Mills, has committed to reducing the sugar content of 20 Nestlé breakfast cereal brands popular with children and teenagers to 9g or less per serving by the end of 2015. The changes will mean Nestlé breakfast cereals will have a sugar reduction of up to 30% across brands including Nesquik, Chocapic, Honey Cheerios, and Milo. The reductions in sugar will be made alongside other nutritional improvements. Specifically, whole grain will be the main ingredient in all the new recipes. The amount of calcium per serving will be increased to at least 15% of the recommended daily allowance (RDA), which varies in different parts of the world. In the European Union, 15% of the RDA for calcium is 120mg.
http://swissinnovation.org/news/web/2013/03-130101-94.html

Stabilized Cell Fibers Prevent Cancer Cell Division

(PSI, January 03, 2013)

Anti-cancer drugs used under the heading of "Chemotherapy" prevent cells from dividing. As the cells in a growing tumour divide more frequently than others, tumour cells in particular are highly damaged by chemotherapeutic drugs. Scientists at the Paul Scherrer Institute and ETH Zurich have now elucidated the mechanism of action for an entire class of these drugs. The scientists have shown in detail how these drugs are incorporated into a recess in the building blocks of microtubules, and reinforce the cohesion between these units. It has been

shown that structurally dissimilar drug molecules could bind to the same site and act in a similar manner. The information obtained about these structures is so accurate, that it opens the possibility to develop targeted drugs that are better adapted to fulfil their task.
http://swissinnovation.org/news/web/2013/03-130103-8d.html

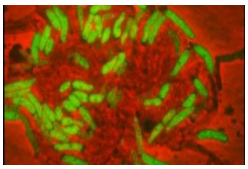
Neither Male nor Female

(UNIGE, January 03, 2013)

Researchers from University of Geneva have identified the key role played by insulin and the growth factors IGF1 and IGF2 in the development of embryos. Without these factors, at the moment of sexual determination, embryos will not differentiate sexually, becoming neither male nor female, and will not develop adrenal glands. This study will permit researcher to better understand sexual development and in the long term help patients suffering from sexual ambiguity.
http://swissinnovation.org/news/web/2013/03-130103-cc.html

Rethinking Bacterial Persistence

(EPFL, January 04, 2013)



EPFL scientists used microfluidics to observe the behavior of individual tuberculosis-like bacteria in the presence of antibiotics. Their observations call into question the prevailing theory of bacterial resistance, and they have proposed a new explanation for why some bacteria become resistant. It's often difficult to completely eliminate a bacterial infection with antibiotics; part of the population usually manages to survive. Up to now it has not been possible to track the growth of cells before and after their exposure to antibiotics, which makes any analysis of the phenomenon quite imprecise. The new method developed by researchers from the EPFL uses microfluidics to observe individual bacteria and lead to new insights on how antibiotic resistances develop.
http://swissinnovation.org/news/web/2013/03-130104-97.html

Protein Activity Monitored in Living Cells

(EPFL, January 07, 2013)

For the first time, scientists have used a near-infrared, light-sensitive biocompatible molecule to mark and observe the activity of proteins inside living cells. Proteins are the building blocks of all life, responsible for innumerable functions in cells, including communication, structural maintenance and mobility. But they're quite difficult to study. One method is to observe their distribution and work they do inside living cells. Now EPFL scientists have used a molecule that can penetrate the cell membrane, attach to proteins and then shine when exposed to near-infrared light. This development will make it possible to probe living tissues without damaging them and will reveal, in real time, the biochemical processes that are taking place.
http://swissinnovation.org/news/web/2013/03-130107-07.html

New Professor for Bee Health

(UNIBE, January 08, 2013)

Peter Neuman, a lecturer at the Centre for Bee Research of Agroscope, was appointed the Vinetum Professorship for bee health at the University of Berne. The Vinetum Foundation based in Biel provides CHF 5 million for the professorship during the next 10 years. Peter Neumann is an established expert in the field of bee health and will investigate the mass extinction of entire bee colonies in Europe. He is particularly concerned with the bee pathology, especially with varroa mites, small hive beetles, bacteria, and viruses, as well as the bowel disease, "Nosemose".
http://swissinnovation.org/news/web/2013/03-130108-5d.html

Mongoose Produce Sounds like Humans

(UZH, January 10, 2013)

Animals are more eloquent than previously thought. The monosyllabic cry of the banded mongoose is structured and therefore comparable to the system of vowels and consonants of the human language. Behavioural biologists of the University of Zurich were the first to prove that animals are communicating with smaller units of sound than syllables. The researchers studied wild banded mongoose in a research lab in Uganda. They used both behavioural analysis as well as an acoustic analysis of the cries. They found that even the

short monosyllabic sounds with duration between 50 and 150ms were combined of several timed utterances carrying information about the identity and current activity of the mongoose.
http://swissinnovation.org/news/web/2013/03-130110-bf.html

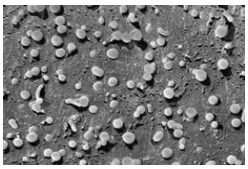
Childhood Trauma Affects Adult Brain

(EPFL, January 13, 2013)

An EPFL team led by Professor Carmen Sandi, member of the National Centers for Competence in Research SYNAPSY, has demonstrated for the first time a correlation between psychological trauma and specific changes in the brain that are related to aggressive behaviour. In rats, the experience of pre-adolescent trauma led to aggressive behaviour accompanied by structural and functional changes in the brain – the same changes that have been observed in violent human beings. In other words, psychological wounds inflicted in childhood leave a lasting biological trace that persists in the adult brain.
http://swissinnovation.org/news/web/2013/03-130113-6b.html

Lipid Vesicles to Replace Mouse Experiments

(ETH Zurich, January 14, 2013)



Researchers from ETH Zurich have filed a patent application for a method to test the biological activity of one of the strongest toxins known, the botulin neurotoxin (BoNT). If the procedure is adopted by the pharmaceutical industry, it could save the lives of more than half a million mice per year. With the brand name 'Botox', the toxin has been used on a grand scale to smooth out face wrinkles. However, as it is produced by bacteria, it has a varying concentration. Consequently, the regulatory authorities require the toxicity of every batch of a therapeutic agent containing BoNT to be tested with the mouse LD50 test, which determines the dosage at which half of the animals die. A new test system developed at the ETH Zurich works without laboratory animals.
http://swissinnovation.org/news/web/2013/03-130114-55.html

Modern Cancer Research Centre

(UNIL, January 15, 2013)

On the site of the CHUV University Hospital in Lausanne, a new hub of the Swiss Cancer Centre will be built in 2016. Called AGORA, its governance is a joint affair between CHUV, University of Lausanne, EPFL, and the ISREC Foundation. It will unite 400 researchers and clinicians on an area of 11'500m2. The building concept is modern: flexible spaces, interdisciplinary communication areas, and sustainability in energy and lighting are key points of its design.
http://swissinnovation.org/news/web/2013/02-130115-17.html

Potential Treatment for Muscular Dystrophy

(UNIGE, January 15, 2013)

Researchers from University of Geneva have discovered that tamoxifen, a drug used to treat breast cancer, is also effective against Duchene's muscular dystrophy in mice. Up until now, no treatment was able to reduce the symptoms of this handicapping disease, characterised by progressive wasting of the muscles, paralysis, and finally respiratory and cardiac failure. Administered to mice orally for one year, the drug provided the mice with an exceptional improvement in muscle strength in the heart and diaphragm. In the experiment, a wire was dangled and the mice tried to climb up it. Treated mice were able to grip and climb the wire for a few seconds longer than the dystrophic animals.
http://swissinnovation.org/news/web/2013/03-130115-4f.html

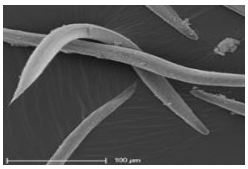
Fire Ant: The Gene Dictating Social Behaviour

(UNIL, January 17, 2013)

Why can members of the same species of insects display differing social behaviours? The answer to that question has been found for the first time by scientists from the University of Lucerne and the Swiss Institute of Bioinformatics. They successfully linked the differences of organization in a colony of ants with a specific chromosome. They sequenced the genome of the fire ant (Solenopsis Invicta) in 2011 and have subjected the genes to their scientific scrutiny since then. They were able to explain why some colonies only have one queen, and other colonies have several by referring to a "social chromosome" of the ants.
http://swissinnovation.org/news/web/2013/03-130117-48.html

Eelworms to Fight against Pests

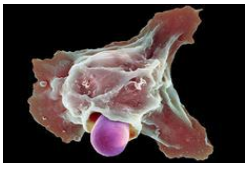
(UNINE, January 17, 2013)



The Research Laboratory for Chemical Ecology (FARCE), University of Neuchâtel has been awarded a grant of CHF 500'000 from the Swiss National Fund for Scientific Research to participate in the National Research Program 68 "Sustainable use of soil resources". Directed by Ted Turlings laboratory FARCE seek to better understand the potential of entomophagous nematodes, tiny underground worms, for the fight against insect pests of plants.
http://swissinnovation.org/news/web/2013/03-130117-43.html

New Defenders against Fungal Infections

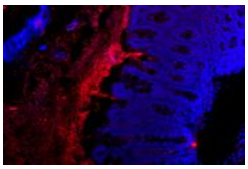
(ETH Zurich, January 17, 2013)



To combat fungal infections, mammals depend on Interleukin 17 (IL-17), which enables the neutrophil white blood cells to attack the fungi. Researchers at the ETH Zurich found, that the substance is not produced by the T helper cells, but rather in the newly discovered Innate Lymphoid Cells (ILC). The T helper cells which were previously believed to produce IL-17 react too slowly to effectively combat a fungal infection. This is an important step in the understanding of the defence mechanisms of mammals against fungal infections, which are currently not as well documented as other infectious diseases.
http://swissinnovation.org/news/web/2013/03-130117-37.html

Good Bacteria Prevent Diabetes

(UNIBE, January 18, 2013)



Research groups led by Professor Jayne Danska at the Sick Children's Hospital of the University of Toronto and Professor Andrew Macpherson in the Clinic for Visceral Surgery and Medicine at the Inselspital and the University of Bern have shown that the influence of the intestinal bacteria extends even deeper inside the body to influence the likelihood of getting diabetes. In children and young people, diabetes is caused by the immune cells of the body damaging the special cells in the pancreas that produce the hormone insulin. With the help of the special facilities of the University of Bern (Genaxen Foundation) and in Canada, these teams have been able to show that the intestinal bacteria, especially in male mice, can produce biochemicals and hormones that stop diabetes developing.
http://swissinnovation.org/news/web/2013/03-130118-20.html

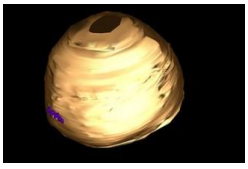
First Treatment for Sight-Threatening Vitreomacular Traction and Macular Hole

(Novartis, January 18, 2013)

Alcon, the global leader in eye care and a division of Novartis, announces the positive opinion from the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency) for Jetrea (ocriplasmin), for the treatment of vitreomacular traction (VMT), including when associated with macular hole of diameter less than or equal to 400 microns. VMT is an age-related progressive condition that may lead to visual distortion, decreased visual acuity and central blindness, if left untreated. It is estimated that 250,000 to 300,000 patients in Europe suffer from this sight-threatening condition.
http://swissinnovation.org/news/web/2013/03-130118-b6.html

Targeted Release of Drugs with Magnetic Nanovehicle

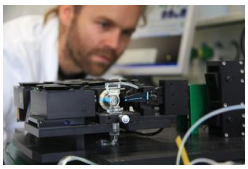
(EPFL, January 25, 2013)



Researchers have discovered a method that allows for the controlled release of an active agent on the basis of a magnetic nanovehicle. The research, conducted by EPFL, the Adolphe Merkle Institute and the University Hospital of Geneva, opens up new possibilities for the development of targeted drugs by using a nanovehicle to transport and release them in a controlled manner. This nanocontainer is a liposome, which takes the shape of a vesicle. It has a diameter of 100 to 200 nanometers. The drug is released by integrating into the liposome membrane superparamagnetic iron oxide nanoparticles (SPION), which only become magnetic in the presence of an external magnetic field. Once they are in the field, the membrane of the vesicle becomes permeable and the drug is released.
http://swissinnovation.org/news/web/2013/03-130125-25.html

Drinking Water Unexpectedly Rich in Microbial Life

(Eawag, January 30, 2013)



Flow cytometry (FCM) can now be officially used for the quantification of microbial cells in drinking water. The new analytical method – developed at Eawag and extensively tested both in Switzerland and abroad – has been incorporated into the Swiss Food Compendium (SLMB) by the Federal Office of Public Health (FOPH). FCM provides much more realistic results than the conventional method, in which bacterial colonies are grown on agar plates. The results demonstrate that even good-quality drinking water harbours 100 to 10,000 times more living cells than the conventional plate count method would suggest.
http://swissinnovation.org/news/web/2013/03-130130-b0.html

BEEBOOK: Reference Book for International Bee Research

(UNIBE, January 31, 2013)

The "COLOSS BEEBOOK – Standard Methods for Apis mellifera research" has just been published by Peter Neumann (University of Berne), Vincent Dietemann (Swiss Centre for Bee Research of Agroscope) and Jamie Ellis (University of Florida). The COLOSS (Prevention of honey bee COlony LOSSes) network aims to explain and prevent massive honey bee colony losses. It was funded by the European Union COST Programme. The COLOSS BEEBOOK is a unique venture that aims to standardise methods for studying the honey bee. It is a practical manual compiling standard methods in all fields of research on the honey bee, Apis mellifera, and will become the definitive, but evolving, research manual, composed of 33 peer-reviewed chapters authored by more than 200 of the world's leading honey bee experts.
http://swissinnovation.org/news/web/2013/03-130131-38.html

4. Nano / Micro Technology / Material Science

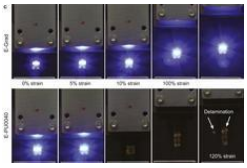
Paternity Test for Counterfeit Products

(ETH Zurich, December 05, 2012)

Worldwide, billions are generated with sales of counterfeit products. An ETH Zurich spin-off, Genuine ID" promises a remedy. The entrepreneurs have developed a method to detect counterfeit materials, which works like a paternity test. During the manufacture of product, a synthetic DNA is added to the raw material. While the DNA is created artificially, it behaves like an organic DNA. It is possible to identify the origin of the material through a DNA analysis. To protect the DNA from alteration or destruction, it is embedded in tiny glass beads. The method only requires 10mg of glass beads per ton of raw material.
http://swissinnovation.org/news/web/2012/04-121205-ac.html

Hard, Compliant Material

(ETH Zurich, December 11, 2012)



Electronic components mounted on flexible and high-tension surfaces need to be protected from the underlying material. Researchers at ETH Zurich have developed a material that is hard on one side and flexible on the other, thus providing the needed interface. The material is built up from layered polyurethane with varying levels of nano- and micro-particles mixed in. The hardness gradient achieved exceeds even that found in nature. With this material, the researchers were able to demonstrate how a light emitting diode would continue to operate even as its substrate was stretched to more than 150%, whereas traditional substrates could only stretch to around 110%.
http://swissinnovation.org/news/web/2012/04-121211-9f.html

Towards "Solar Cement"

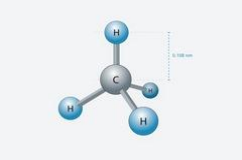
(PSI, January 14, 2013)

Cement holds the world's buildings together. The binding agent for concrete and other construction materials is, if assessed by global production volumes, one of the world's most important assets. However, cement production consumes vast amounts of energy – and this is largely obtained by the combustion of fossil fuels. Scientists at the Paul Scherrer Institute and the globally-active Swiss cement manufacturer Holcim want to change this. Together, they are developing a process that can create a high-quality environmentally-friendly fuel for

the cement kilns of the future from carbon-rich waste using concentrated solar energy. In a collaboration project run over several years between Holcim and the ETH, Zurich, PSI-researchers have taken the first step towards the production of "solar cement".
http://swissinnovation.org/news/web/2013/04-130114-68.html

Advantages of SwissFEL

(PSI, January 17, 2013)



SwissFEL will generate very short pulses of intense X-ray light with laser-like properties, and will therefore provide new insights into a wide variety of materials. The particles involved in a chemical reaction can be "photographed" by SwissFEL whilst they are in motion – similar to photographing an athlete using a camera with a short exposure time. Because these pulses are composed of X-rays, the position of individual atoms can be visualised. Thus, SwissFEL will help us understand in detail how one substance is transformed into another during a chemical reaction. Highest priority will be given to catalytic reactions, as these have numerous industrial applications. This research will point the way towards more energy-efficient industrial processes and environmentally-friendly energy carriers. The SwissFEL should come online in 2016.
http://swissinnovation.org/news/web/2013/04-130117-25.html

Self-Assembling Magnetic Nano-Chessboard

(PSI, January 31, 2013)

Researchers from the Paul Scherrer Institute and the Indian Institute of Science Education and Research (Pune, India) have managed to 'turn off' the magnetization of every second molecule in an array of magnetized molecules and thereby create a 'magnetic chessboard'. The magnetic molecules were so constructed that they were able to find their places in the nano-chessboard by themselves. Thus the nano-chessboard effectively built itself together. The researchers were able to manipulate the quantum state of just a part of the molecules in a specific way. Being able to specifically alter the state of individual quantum objects is an important prerequisite for the development of quantum computers.
http://swissinnovation.org/news/web/2013/04-130131-25.html

5. Information & Communications Technology

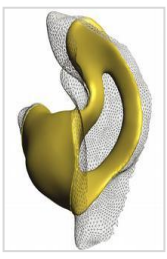
Swiss Facial Recognition Technology Pre-Installed on Computers

(AlpICT, December 07, 2012)

The new Fujitsu ESPRIMO X desktop range will be equipped with the facial recognition solution developed by Keylemon. This is the result of partnership signed between start-up from Valais and the computer manufacturer. Gilles Florey, KeyLemon's founder and CEO has confirmed that the facial recognition solution basic functions to launch work sessions will be offered at no cost on the new range of Windows 8 powered computers. It is Fujitsu who contacted KeyLemon, as Gilles Florey explains "They were looking for facial recognition applications and as we were well placed on Internet and they found us quite easily."
http://swissinnovation.org/news/web/2012/05-121207-a6.html

3D Technology for Better Hearing

(ETH Zurich, December 14, 2012)



With Sonova one of the world's largest hearing aid manufacturers draws on ETH expertise. Phonak, the Swiss subsidiary of Sonova and the computer science professor Olga Sorkine join forces in the production of tailor-made hearing aids. Sorkine paved new ways of modelling made to measure products: ear cushions (yellow) can be edited interactively on the screen and adjusted to the ear canal (black triangle grid). This is necessary, because the earplugs need to be moulded individually. Because every ear is different, earplugs were originally made by hand. The process was expensive, took a long time, and each piece was unique. Only with the help of the ETH Zurich, Phonak was able to create new modelling software for the digitalization of the individualized production chain Sonova uses.
http://swissinnovation.org/news/web/2012/05-121214-7d.html

1991: WWW Spreads beyond CERN

(Cern, December 21, 2012)

In the December, 21 years ago, physicists at the Stanford Linear Accelerator Centre (SLAC) in California installed the first web server outside of Europe. The move marked the beginning of the global reach of the World Wide Web, a key point in the history of digital communications. Tim Berners-Lee and Robert Cailliau developed the world's first browser, "WorldWideWeb" at CERN in 1990. In November that year, they presented a new coding language called hypertext to CERN colleagues. A month later, Berners-Lee and Cailliau used WorldWideWeb software for the first communication between a web client and a server over the internet. The machine at SLAC used the same software to serve several pages, including a phonebook and preprints of papers on high-energy physics.
http://swissinnovation.org/news/web/2012/05-121221-61.html

Mind-Control for Machines

(EPFL, January 23, 2013)

More than a hundred patients suffering from severe motor impairments have voluntarily participated in the development of non-invasive brain-machine interfaces. The main purpose of these machines is to allow the patients either regain some of their mobility or improve their social relationships. The TOBI project (Tools for brain-computer interaction) is financed by the European Commission under the Seventh Framework Programme for Research (FP7) and is coordinated by EPFL. Three of the technologies developed within the framework of TOBI were publicly presented at the closing seminar of the research program that took place in Sion from 23 to 25 January 2013: Robotino, for helping rebuild social ties when bedridden, Braintree, for writing texts and internet surfing, and functional electrical stimulation.
http://swissinnovation.org/news/web/2013/05-130123-46.html

6. Energy / Environment

2013 Watt d'Or Awards for Energy Efficient Projects

(swissnex Boston, January 01, 2013)

For the seventh year, the award for best energy projects in Switzerland was given to the winners of the 2013 Watt d'Or. Practical showcase projects in the following categories were chosen such as society, energy technologies, renewable energies, energy-efficient mobility, buildings and space. Switzerland's energy sector is on the move and discussions on the future energy supply, as well as studies concerning energy perspectives, are currently in progress at all levels. And these are of course essential for creating a firm basis for making future decisions relating to energy policy. Active players research and develop energy technologies for the future, bring innovative products onto the market, are pioneers in the use of new technologies, create solutions that unite energy and environment awareness with comfort requirements, aesthetics and economic interests. Through their activities they form a bridge between theory and practice.
http://swissinnovation.org/news/web/2013/06-130101-39.html

New Research Chair for Lakes

(Eawag, December 03, 2012)

EPFL, the Swiss Federal Institute of Aquatic Science and Technology (Eawag), and Ferring Pharmaceuticals are creating a new research chair to study lakes, a discipline, called limnology, that was born on Lake Geneva 100 years ago. Lakes are very different environments than oceans and thus require different study. They are also very important, but threatened, resources to populations everywhere. The initial research performed under this chair will involve surveys of Lake Geneva and Lake Baikal. Alfred Wüest, the head of the Eawag Aquatic Physics group, has been nominated for the chair.
http://swissinnovation.org/news/web/2012/06-121203-d1.html

EPFL Heating System Beneficial for Lake Ecosystem

(EPFL, December 05, 2012)

A recently conducted study also shows that the streams surrounding EPFL can handle future campus growth. Since 1985, the EPFL has relied on water from Lake Geneva to heat and cool their buildings. Once used, this water is injected back into the nearby streams. For his Master's project at the Ecological Engineering Laboratory, Jon-

athan Sidler studied the impact of this alternative heating approach on the health of the stream ecosystems, which contribute to the mating grounds of one of the largest lake trout populations in Western Europe. He came to the surprising conclusion that injecting lake water into the streams improves their overall ecological quality and their attractiveness to the fish.
http://swissinnovation.org/news/web/2012/06-121205-89.html

Stained Glass Solar Windows

(EPFL, December 11, 2012)

Dye sensitized solar cells, invented at EPFL by Michael Graetzel, are semi-transparent panels that can be integrated as windows in a facade, making them practical for architectural use. For the first time in a commercial building, such cells will be integrated into one facade of EPFL's new convention centre. The cells will be made in orange and red, and will produce 8000 kWh of electricity per year. Although the technology does not produce a lot of power, the cells are produced relatively efficiently without any high-temperature processes. This first installation will help mature the manufacturing process and reduce the cost of cells.
http://swissinnovation.org/news/web/2012/06-121211-d5.html

Rapid Action to Retain Options

(ETH Zurich, December 17, 2012)

The sooner we reduce emissions of greenhouse gases the easier we limit the climate change and reduce the costs of climate mitigation. This is the conclusion of a broad based study by Joeri Rogelj from the Institute for Atmospheric and Climate Science in cooperation with teams of researchers in Austria and the US. “We have the greatest number of choices, if we reduce greenhouse gas emissions from currently 50 gigatons carbon dioxide equivalent to 41 to 47 gigatons by 2020”, says Rogelj. If we were to continue with business as usual, these emissions would increase to approximately 60 gigatons by 2020, according to other studies.
http://swissinnovation.org/news/web/2012/06-121217-6a.html

Water Conservation Projects

(swissinfo.ch, December 19, 2012)

Eawag (Swiss Federal Institute of Aquatic Science and Technology) is researching ways to conserve water, despite Switzerland having more than enough rainfall for its current needs. One project in this area is the NoMix toilet, which separates urine from other waste. This helps simplify the waste water purification process and allows the urine to be reused for fertilization with reduced processing, while also reducing cost. Another project is the "self" house that aims to collect rainwater and use it directly for certain purposes, such as flushing toilets and watering gardens. Neither project has seen widespread use because of cost factors, but project leaders see a future for the technology they developed.
http://swissinnovation.org/news/web/2012/06-121219-01.html

EU Solar Project Led by Empa

(Empa, January 07, 2013)

The EU research project, “TREASORES”, got started on November 1. The 14 project partners will receive some nine million euros over the next three years for the development of favourably priced production technologies for large-scale organic electronics, for example for light panels and solar cells. TREASORES is being led by Frank Nüesch, Head of Empa’s “functional polymers” department. The project is part of the 7th EU Framework Programme. The plan is to make photovoltaic or light elements using the so-called “roll-to-roll” procedure. Thereby, a flexible carrier material made of inexpensive plastic is uncoiled from rolls and furnished practically “ad infinitum” with organically active layers that have a paint and polymer base.
http://swissinnovation.org/news/web/2013/06-130107-f4.html

The First Plus-Energy Hotel in the Swiss Alps

(muottasmuragl.ch, January 10, 2013)

During its recent renovation, the Berghotel Muottas Muragl was made significantly more efficient to not only meet the Minergie standard but also produce energy, on average, over the course of a year. The hotel was significantly expanded in size, but its energy requirements were reduced 64%. Photovoltaic cells, solar collectors, and geothermal loops were installed to collect the energy needed. Waste heat is recovered from the machine room, and

any excess heat is stored in the geothermal loop to help regenerate its thermal mass. Excess electricity is put back into the grid. These innovative features won the hotel the Swiss Solar Award and the PlusEnergieBau Solar Award.
http://swissinnovation.org/news/web/2013/06-130110-8f.html

Animation of Bird Migration

(ETH Zurich, January 08, 2013)

Every autumn, millions of migratory birds leave the northern hemisphere to spend the winter in warmer areas in the southern hemisphere. They cover vast distances, sometimes from the North Pole to the South Pole and back - a natural spectacle that fascinated people since time immemorial. Amongst those was Nicolás Miranda, student of the Master of Advanced Studies in Architecture and Information (MAS AI) at ETH analysed the migrations of six species of migratory birds as a project of the second module of the MAS course. The result is an animation that accentuates the amazing journey of these birds.
http://swissinnovation.org/news/web/2013/03-130108-73.html

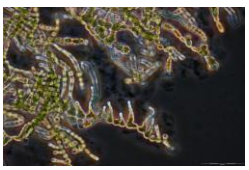
Energy Prize for Fuel Cell Powered Post Bus

(Empa, January 11, 2013)

PostBus Switzerland Ltd, Empa and the Paul Scherrer Institute (PSI), who were jointly responsible for developing the fuel cell-powered post bus, won the prestigious 2013 "Watt d'Or" award in the category "Energy-efficient Mobility" on 10th January in Bern. For over a year now, five new post buses have been operating in Brugg in the canton of Aargau. They are refuelled with hydrogen at a new filling station. The hydrogen is produced at the post bus depot in an electrolyser using "natural" electricity, i.e. electricity from renewable sources. By doing this, PostBus Switzerland Ltd is seeking to reduce the energy consumption of its post buses and make its operations more environmentally friendly.
http://swissinnovation.org/news/web/2013/06-130111-00.html

Great Oxidation through Multicellularity

(UZH, January 14, 2013)



The occurrence of free oxygen in the earth's atmosphere led to the Great Oxidation Event, 2.3 billion years ago. The Great Oxidation Event is known as the single most important climate event in the history of the earth. It was triggered by the oxygen-producing cyanobacteria, which evolved into multicellular bacteria at the time. Evolutionary biologists from the Universities of Zurich and Gothenburg have shown that this development caused an increase of the oxygen in the atmosphere and had a significant impact on todays live on earth.
http://swissinnovation.org/news/web/2013/06-130114-c0.html

Shrubs Disrupting Primary Carbon Stocking Ecosystem

(EPFL, January 17, 2013)

A group of scientists from WSL (Swiss Federal Institute for Forest, Snow and Landscape Research) and EPFL described why on the long run peat lands may not be able to continue fulfilling their role as the most effective carbon stocking ecosystems. They studied the mechanisms behind a phenomenon known as shrub encroachment of peat lands: Complex plant-microbe interactions are at the root of this worldwide vegetation change. Peat lands (bogs, turf moors) are among the most important ecosystems worldwide for the storage of atmospheric carbon and thus for containing the climate warming process. In the last decades the peat (Sphagnum) mosses, whose decay produces the peat (turf), have come under pressure by vascular plants, mostly small shrubs. The scientists explained why vascular plants are at an advantage over peat mosses in a warmer climate.
http://swissinnovation.org/news/web/2013/06-130117-67.html

New World Record for Flexible Thin-Film Solar Cell Efficiency

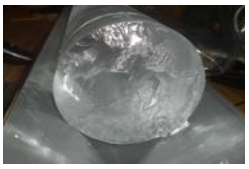
(Empa, January 18, 2013)

In a remarkable feat, scientists at Empa, the Swiss Federal Laboratories for Materials Science and Technology, have developed thin film solar cells on flexible polymer foils with a new record efficiency of 20.4% for converting sunlight into electricity. The cells are based on CIGS semiconducting material (copper indium gallium (di)selenide) known for its potential to provide cost-effective solar electricity. The technology is currently awaiting scale-up for industrial applications. The team at Empa's Laboratory for Thin Film and Photovoltaics, led by

Ayodhya N. Tiwari, has achieved a record 20.4% energy conversion efficiency for thin film CIGS solar cells on flexible polymer substrates, a building on the previous record of 18.7% achieved by the same team in May 2011.
http://swissinnovation.org/news/web/2013/06-130118-ed.html

Significantly Higher Temperatures 120,000 Years Ago

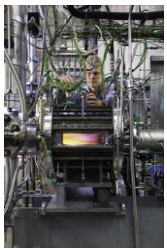
(UNIBE, January 23, 2013)



New insights into the last interglacial period in Greenland, mainly on the temperature and thickness of the ice, could serve as a guide on how the Greenland ice sheet could develop in the future. Scientists of the University of Berne contributed to the surprising measurements. 120,000 to 128,000 years ago, the temperatures in Northern Greenland were 5-8 degrees Celsius higher than today. The thickness of the ice sheet was only slightly lower than today, despite a 4-8 meters higher sea level. These data indicate that the Greenland ice sheet was responsible for less than half of the sea-level rise.
http://swissinnovation.org/news/web/2013/06-130123-ef.html

CO_2 Efficient Gas and Steam Power Plants

(PSI, January 24, 2013)

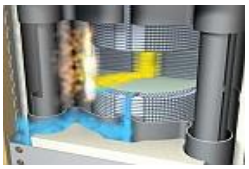


In many European countries, gas and steam power plants (CCGT plants), also known as combined cycle power plants, are included as options for a safe energy supply. In the 2050 Federal Government Energy Strategy, they are mentioned as a possible replacement for the nuclear power plants. Combined cycle power plants convert natural gas into electricity using a combination of gas and steam turbines, with very high efficiencies of around 60%. Furthermore, they are ideally suited for compensating production fluctuations from wind and solar power plants. However, their CO_2 emissions, whilst the lowest of all conventional power plants using fossil fuels, are still significant. Researchers at the Paul Scherrer Institute are working on a solution for this within the framework of a European Union project.
http://swissinnovation.org/news/web/2013/06-130124-e8.html

7. Engineering / Robotics / Space

Thermoelectric Turbo for Fuel Cells

(Empa, December 10, 2012)



Scientists at Empa (Swiss Federal Laboratories for Materials Science and Technology) together with Hexis AG, are undertaking a project to develop high-temperature thermoelectric converters (TECs) to work with solid oxide fuel cells. These fuel cells give off waste heat that can be harvested and converted into electricity, but their operating temperature is much higher than current TECs can withstand. Even more ambitiously, rather than putting the new TECs on the outside of fuel cells, the team wants to make the TECs an integral part of the fuel cell electrodes. The goal is to increase efficiency by 10%.
http://swissinnovation.org/news/web/2012/07-121210-2c.html

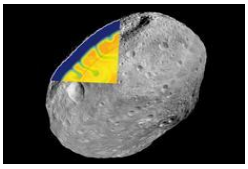
Become a "Citizen Scientist"

(ETH Zurich, January 21, 2013)

Hundreds of thousands of people are already supporting Prof. Kevin Schawinski and the department of astrophysics at ETH Zurich. Shawinski has pioneered enlisting "Citizen Scientists" with the "Galaxy Zoo"-project. The project has been running since 2007 and lead to the discovery of new celestial objects like the quasar "Hanny's Voorwerp", named after the Dutch teacher Hanny van Arkel, one of the project's participants. With the help of more than 100'000 volunteers, some 30 scientific articles have been published and more are in the pipeline. Meanwhile, interested people can head to zooniverse.org to see which scientific projects are searching for more volunteers.
http://swissinnovation.org/news/web/2013/07-130121-e3.html

Asteroid with Active Past

(ETH Zurich, January 22, 2013)



While studying a meteorite from Vesta, geoscientists found evidence that planet-like dynamic processes also occurred in the asteroid. Simulations by scientist Gregor Golabek from ETH Zurich confirmed this assumption. Based on images taken by the NASA mission "Dawn", the beholder cannot help but dismiss the asteroid Vesta as "dead" rock. However, the latest findings reveal that the asteroid with a mean diameter of about 516 kilometers has had an active past. Using mineralogical and crystallographic analyses of the meteorite Northwest Africa 5480, a so-called diogenite which came from Vesta, researchers from the Goethe University Frankfurt found evidence that similar dynamic processes to those that occur in planets initially took place inside Vesta. Numerical simulations by geophysicist Gregor Golabek using ETH Zurich's Brutus Cluster reinforce this hypothesis.
http://swissinnovation.org/news/web/2013/07-130122-d9.html

Space Transporter "Albert Einstein"

(Swiss Government, January 30, 2013)

The fourth European ATV (Automated Transfer Vehicle) space transporter is currently in the final integration stage. The satellite is to be launched on April 18 on board an Ariane 5. The European Space Agency ESA has named ATV4 Albert Einstein at the proposal of the Swiss Delegation. The assembly of the individual elements of the ATVs is carried out by Astrium GmbH in Bremen, which is the main contractor for the production of these spacecraft. The Swiss aeronautics industry plays an important part in the development and production of the ATVs. RUAG Space in Zurich manufactures the main structure and APCO Technologies in Aigle manufactures the micrometeoroid protection panel system for the service module. Syderal in Gals makes electronic components to regulate the temperature of the satellite.
http://swissinnovation.org/news/web/2013/07-130130-c5.html

8. Physics / Chemistry / Math

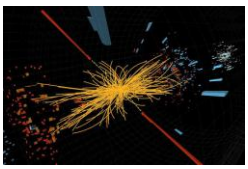
CERN Granted of Observer Status to the United Nations General Assembly

(Cern, December 14, 2012)

The United Nations General Assembly in New York adopted a resolution granting CERN observer status. This status gives the Organization the right to participate in the work of the General Assembly and to attend its sessions as an observer. The resolution to grant observer status to CERN was submitted by the Organization's two Host States, Switzerland and France, and was supported by its eighteen other Member States as well as by several non-Member States. The main factor behind it was that CERN's activities cover areas of considerable interest to the General Assembly. CERN and the United Nations are both actively involved in disseminating knowledge in the fields of science and technology, particularly with a view to development.
http://swissinnovation.org/news/web/2012/12-121214-20.html

New Horizons in Physics Prize Awarded to ETH Zurich

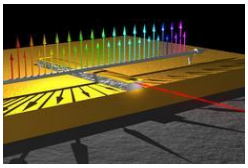
(ETH Zurich & Cern, December 13, 2012)



Two $3,000,000 special Fundamental Physics Prizes have been awarded to Stephen Hawking and to seven scientists who led the effort to discover a Higgs-like particle at CERN's Large Hadron Collider. The winner of the 2013 Fundamental Physics Prize will be announced at a ceremony at CERN on 20 March 20. The winners of the New Horizons in Physics Prize was also announced: Niklas Beisert from the ETH Zurich will receive $100,000 for the development of powerful exact methods to describe a quantum gauge theory and its associated string theory.
http://swissinnovation.org/news/web/2012/13-121213-5b.html

Cutting Light with a Comb

(ETH Zurich, December 13, 2012)



Quantum physicists from ETH Zurich have discovered special properties in a laser, thanks to which portable devices can be built to analyse gases and liquids accurately and reliably in the future. Together with his colleagues from the group of Jérôme Faist, professor of quantum electronics, Hugi has now discovered special properties in a very small, broadband laser, thanks to which it should be possible to build small, yet accurate, analysis devices – so-

called spectrometers – with such lasers in the future. This could lead to portable measuring devices for wastewater or a device that an airport's security force can use to analyse the air in the event of a terrorist threat.
http://swissinnovation.org/news/web/2012/08-121213-d4.html

First LHC Protons Run Ends with New Milestone

(Cern, December 17, 2012)

CERN completed the first LHC proton run. The remarkable first three-year run of the world's most powerful particle accelerator was crowned by a new performance milestone. The space between proton bunches in the beams was halved to further increase beam intensity. The luminosity, a crucial parameter measuring the rate of collisions of an accelerator, has reached a value of 7.7x1033cm-2s-1, more than twice the maximum value obtained in 2011 (3.5x1033cm-2s-1). The collision energy was increased from 7 TeV in 2011 to 8 TeV in 2012. This year-on-year improvement in performance has allowed the LHC experiments to obtain important results quicker than expected, most notably the discovery of a Higgs-like particle in July 2012.
http://swissinnovation.org/news/web/2012/08-121217-46.html

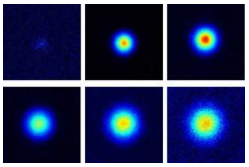
TIME Honours Fabiola Gianotti and the Higgs-Like Boson

(Cern, December 19, 2012)

The TIME magazine has named Barack Obama 2012 Person of the Year, but a look at the shortlist throws up some satisfying nuggets: ATLAS spokesperson Fabiola Gianotti was named runner-up for her leading role in the endeavour to discover the Higgs-like boson, and the boson itself made Particle of the Year. In an in-depth piece on her career and background, TIME senior science editor Jeffrey Kluger praises Gianotti for her leadership in managing the 3000 people that make up the ATLAS collaboration. And though it raised a few eyebrows when the Higgs-like particle made the list of nominees for Person of the Year, Kluger deftly argues that the boson should at least be Particle of the Year.
http://swissinnovation.org/news/web/2012/12-121219-40.html

Anderson Localization Experiment

(UZH, December 20, 2012)



Anderson localization is a phenomenon that says waves in a disordered medium do not diffuse. This phenomenon was first described theoretically in 1958, but has not been shown experimentally until now. Researchers at the universities of Zurich and Konstanz devised an experiment where they measured the progression of light waves in time steps of one billionth of a second. They were able to show that light stops diffusing after about four billionth of a second. They were also able to calculate the critical density of particles in a medium before the phenomenon comes into effect, determining that the distance between particles needs to be on the order of one wavelength or less.
http://swissinnovation.org/news/web/2012/08-121220-58.html

ALMA Sheds Light on Planet-Forming Gas Streams

(UNIGE, January 03, 2013)

Astronomers using the Atacama Large Millimeter/submillimeter Array (ALMA) telescope have seen a key stage in the birth of giant planets for the first time. Vast streams of gas are flowing across a gap in the disc of material around a young star. These are the first direct observations of such streams, which are expected to be created by giant planets guzzling gas as they grow. "Astronomers have been predicting that these streams must exist, but this is the first time we've been able to see them directly," says Simon Casassus (Universidad de Chile, Chile), who led the new study. From Switzerland, the Observatory de Genève was directly involved in the study.
http://swissinnovation.org/news/web/2013/08-130103-66.html

Faraway Galaxies and Dark Matter

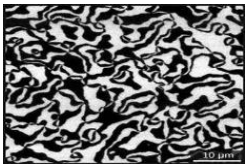
(UNIGE, January 07, 2013)

Astrophysicists from University of Geneva, combining data from two space telescopes Rosat and Planck, have made progress in researching dark matter in faraway clusters of galaxies. Observing X-rays and data from cosmic background radiation respectively, the scientists found that the galaxies have a similar ratio of dark matter to ordinary matter as at the dawn of our universe. Answers to how this ration evolved over time might be found using

space telescopes like XXL and eRosita, which should be launched in 2014. These two telescopes will observe galaxy clusters of different ages and compare their proportions of dark matter and ordinary matter.
http://swissinnovation.org/news/web/2013/08-130107-3c.html

Big Bang under the Microscope

(ETH Zurich, January 04, 2013)



Scientists have replaced the telescope by the microscope: Using the similarities between the structure of a crystal and the state of the cosmos in the early universe, they have explored a yet unconfirmed phenomenon, the formation of cosmic strings. These are believed to have formed as the universe expanded shortly after the Big Bang. Two ETH Zurich research groups have tackled a fundamental question of cosmology using a small crystal of a material called yttrium manganite. The crystal first attracted the researchers' attention because of its so-called multiferroic behaviour, in which the electric charges and magnetic dipoles arrange themselves spontaneously. The scientists discovered that, very surprisingly, the spontaneous arrangement of the electric charges follows the same rules that describe the universe during its early expansion.
http://swissinnovation.org/news/web/2013/08-130104-2b.html

Lead-Proton Run on LHC at CERN

(Cern, January 16, 2013)

For its last run before a two-year shutdown, the Large Hadron Collider (LHC) is going to go beyond its design specification and collide protons with lead ions. The LHC accelerates two counter-rotating beams of particles and brings them into collision inside detectors. The two beam pipes are contained within a single magnetic structure, where both beams experience the same strength of magnetic field. But lead ions are 208 times as heavy and have 82 times more positive charge than protons, so they respond differently to the effects of the magnets. These effects are particularly pronounced at the injection energy of 450 GeV, where in one minute protons lap the 27-kilometer LHC some 674,729 times – about eight times more often than the heavier lead nuclei. If CERN manages to collide protons and lead ions, it would be the first time this experiment is successful.
http://swissinnovation.org/news/web/2013/08-130116-77.html

Unexplained Proton Size Discrepancy

(PSI, January 25, 2013)

Recent measurements of the size of protons in muonic hydrogen differ from measurements on regular hydrogen, and an experiment by a Swiss and German team confirms this unexplained discrepancy. The new measurement, which was made at the Paul Scherrer Institute using laser spectroscopy, is more precise than previous measurements. The experiment was also able to measure the magnetic radius of the proton, a first for laser spectroscopy. The discrepancy has spurred discussions about the reason behind it, and whether it indicates new physics, or simply errors in previous experiments. Follow-on projects will refine results by making measurements on helium as well.
http://swissinnovation.org/news/web/2013/08-130125-bf.html

Superconductivity Leading to High Luminosity at CERN

(Cern, January 28, 2013)

As the LHC nears the end of its first long run – from March 2010 to March 2013 – work towards the proposed first major upgrade is gathering speed. Around 2020, the LHC could extend its potential for discovery through a fivefold increase in luminosity beyond the design value, in a new configuration called the High Luminosity LHC (HL-LHC). The HL-LHC will require a number of new high-field superconducting magnets and compact, ultra-precise superconducting radiofrequency cavities to manipulate the beams near to where they collide, as well as new 300-meter long high-power superconducting links. Superconductivity, which allows electric current to flow without losing energy, is the core technology for the LHC. The past year has seen some major developments in superconducting technologies for the HL-LHC.
http://swissinnovation.org/news/web/2013/08-130128-9d.html

9. Architecture / Design

Graduates of HEAD Geneva Selected at International Festival of Fashion

(HEAD, January 02, 2013)

For the second consecutive year, two graduates of HEAD Geneva have been selected at the International Festival of Fashion and Photography in Hyères. Camille Kunz and Xenia Laffely have successfully passed the first round by presenting the collections they were awarded their degrees for: "The Boy vanishes pour la première" and "Tu n'auras pas d'autre icône que moi et tu mangeras ton père pour la seconde". The two collections of the young fashion designers have already been awarded during the presentation of Fashion Design at HEAD Geneva. Camille Kunz is the winner of the Fashion Angels HEAD, and Xenia Laffely received the 2012 award of Excellence in Design Fashion from the Hans Wilsdorf Foundation.
http://swissinnovation.org/news/web/2013/09-130102-75.html

10. Economy, Social Sciences & Humanities

Decreasing Wage Discrimination

(Swiss Government, December 21, 2012)

In 2010, almost 2 out of 3 jobs with a gross wage of less than CHF 3500 per month were held by women. Across the whole economy, the pay gap between the sexes continued to narrow gradually between 2008 and 2010. The amount of the wage gap due to discrimination against women also showed a decreasing trend in the private sector, falling on average from CHF 745 per month in 2008 to CHF 677 in 2010.
http://swissinnovation.org/news/web/2012/10-121221-69.html

Most Important Historical Bernese Newspaper Online

(UNIBE, January 10, 2013)

The "Gazette de Berne", the most important newspaper of Berne in the 18th century, is accessible online. The library of the University of Berne provides this service online through "DigiBern". 40'000 pages can be browsed and searched interactively. The journal was published twice a week from 1689 to 1798, a single issue containing four or eight pages. The news are mostly composed of the news from foreign cities, as the events from Switzerland and Berne were subject to a magisterial censorship. Together with the "Intelligenzblatt für die Stadt Bern", which was published from 1834 to 1922, two centuries of Bernese newspapers are accessible online. The next project is the digitalization of the issues of "Der Bund" dating from 1850 to 1994.
http://swissinnovation.org/news/web/2013/10-130110-c4.html

New Tool for Measuring Financial Risk

(UNIL, January 14, 2013)

The Faculty of Business Studies at the University of Lausanne launches alert system to measure systemic risk in the European banking. Called "Centre for Risk Management," the barometer was developed in collaboration with the Stern School of Business at New York University .The Centre for Risk Management of Lausanne (CRML) was created to develop independent and transparent tools to facilitate the understanding of financial risk affecting banks, insurance companies, pension funds, regulators central banks, and others. The centre will focus its activities on effective practices and the promotion of responsible governance. Additionally, the centre will provide warnings to financial institutions, according to heat maps, based on annual economic data, such as debt and deficit, the trade balance, GDP growth and inflation.
http://swissinnovation.org/news/web/2013/10-130114-5d.html

Eastern Europe: Growth Rings Linked to Climate and Cultural History

(UNIBE, January 15, 2013)

In the last millennium, wars and epidemics occurred in combination with cold spells in Eastern Europe. Furthermore, the temperatures in the region are currently higher than at any point in the past. These are the results of an international study under the leadership of Ulf Büntgen from the Swiss Federal Institute for Forest, Snow and Landscape (WSL) and the University of Berne. On the basis of 545 wood samples, the annual temperature fluctuations were reconstructed back to the year 1040 AD.
http://swissinnovation.org/news/web/2013/10-130115-3f.html

11. Technology Transfer / IPR / Patents

Laboratory Technician Training in Africa

(Roche, December 04, 2012)

Swiss pharmaceutical company Roche is partnering with the US President's Emergency Plan for AIDS Relief (PEPFAR) to increase the training of laboratory technicians in African regions with high prevalence of disease. This effort is important because laboratory tests are often needed to properly diagnose diseases such as HIV. The collaboration will, over five years, create a certification for technicians, develop improved training curricula, and improve the quality of laboratory services.
http://swissinnovation.org/news/web/2012/11-121204-0a.html

New Academic Cluster on Energy and Health

(EPFL, December 19, 2012)

The Council of State of the canton of Valais and EPFL have signed an agreement for the creation of the EPFL Valais academic cluster. An architectural design competition for the future University campus will soon be launched. The campus will house the first EPFL's research chairs in 2014 and the first HES transfers in 2015. The agreement confirms the creation of eleven research chairs in energy and health. Additionally, it has enhanced the original project as it now incorporates an experimental research platform named Energypolis as well as the creation of an infrastructure for technology transfer in Valais with the support of the Ark Foundation.
http://swissinnovation.org/news/web/2012/02-121219-4b.html

22 Spin-Offs from ETH Zurich in 2012

(ETH Zurich, January 07, 2013)

As concrete figures reflect, researchers are taking the plunge and striking out on their own more and more frequently. For many talented young scientists, founding their own firm constitutes an attractive alternative to a scientific career or working in the private sector. Members of ETH Zurich founded twenty-two spin-offs last year. The number of company foundations has thus remained constantly high in the last five years. "We can now reap the fruits of all the development work we have put in recent years," says Roland Siegwart, Vice-President of Research and Corporate Relations. The "ETH Zurich spin-off" label is well established – due in no small part to many successful young companies that have emerged from the university in recent years. Together, the spin-offs received over ten million Swiss Francs in investments.
http://swissinnovation.org/news/web/2013/11-130107-69.html

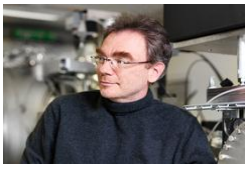
Successful Empa Spin-Off

(Empa, January 17, 2013)

The first product to hit the Swiss market from Empa and ETH Zurich spin-off compliant concept is surpassing all expectations. The successful market launch of the electronic healthcare assistant also impressed investors. Following a successful round of financing, the company's investors now include Lausanne-based pharmaceutical development group Debiopharm, Zürcher Kantonalbank (Cantonal Bank of Zurich) and Empa. As a result, compliant concept can continue to grow and expand abroad. For the first time, it is possible to obtain objective information about sleep patterns and mobility. As well as benefiting those in need of care, the new possibilities offered by this product are of particular assistance to nurses and caretakers. The "Mobility Monitor" supports nurses and caretakers in their decision-making processes and contributes to the efficient planning, design and documentation of care.
http://swissinnovation.org/news/web/2013/11-130117-f3.html

Start-Ups Glycemicon and Koring Win VentureKick Competition

(Venture Kick, January 28, 2013)



Two innovative pharmaceutical start-ups have won 130'000 CHF each in Start capital. Glycemicon, from the Zurich canton, has developed a medication for the prevention and treatment of type 2 diabetes. Koring, a company from Basel, created an implant capable of preventing the formation of a Hernia in patients equipped with a stoma (artificial intestinal exit). venture kick, who initiated this enterprise fostering model has already paid out more than 9.6 million CHF to encourage University based Start-up projects.
http://swissinnovation.org/news/web/2013/11-130128-8e.html

Swiss Technology Transfer Association
http://www.switt.ch/html/home.php

Swiss Federal Institute of Intellectual Property
https://www.ige.ch/en.html

12. General Interest

New Dinosaur Species Named After Swiss

(swissinfo.ch, December 16, 2012)

A new dinosaur species discovered twenty years ago by a Swiss team digging in the US state of Wyoming has been named after the team's leader, Hans-Jakob Siber. The fossil was recently assembled and displayed at the Aathal dinosaur museum in Zurich and is bringing more international renown to the museum. The skeleton, with fourteen intact vertebrae, is one of the most well preserved dinosaur necks ever found. However, at the time of the dig only about half the bones had been found, so it wasn't even clear at first that a new species, now named *Kaatedocus siberi*, had been discovered.
http://swissinnovation.org/news/web/2012/12-121216-58.html

EmpaNews available for iPad

(Empa, December 20, 2012)

The research magazine "EmpaNews" is now available as an iPad app, complete with videos from the research activities, interactive graphics and links to the research projects. The digital magazine is available in German and English. Empa developed the app together with the multimedia publishing house "Neidhart+Schön AG", which is based in Zurich. Two issues are already published.
http://swissinnovation.org/news/web/2012/12-121220-55.html

13. Calls for Grants/Awards

Apply for Google Science Fair 2013 in Partnership with CERN

(Cern, January 01, 2013)

The third annual Google Science Fair has been announced in partnership with CERN, National Geographic, LEGO and Scientific American. The Google Science Fair is the largest online science fair in the world. It is an international competition that encourages students between the ages of 13 to 18 all over the world to perform science experiments or create engineering projects to submit online, in order to compete for prizes, scholarships and once-in-a-lifetime experiences. CERN, in collaboration with Fermilab, is offering the prize of experiencing a week as an international particle physicist, shadowing a physicist mentor at Fermilab and then travelling with their mentor to CERN. The competition is open until 30 April.
http://swissinnovation.org/news/web/2013/13-130101-8e.html

English Master Program in Health Sciences at the University of Lucerne

(UNILU, January 30, 2013)

The University of Lucerne will offer a new, completely English Master program in Health Sciences starting September 2013. The Master program offers students from a wide range of disciplines the necessary knowledge and skills for a comprehensive understanding of health from a biopsychosocial perspective. Students will have the possibility to specialize in majors of interest, as well as to apply for a paid internship with a collaborating partner organization of the Department of Health Sciences and Health Policy of the University of Lucerne.
http://swissinnovation.org/news/web/2013/13-130130-ac.html

Win a 10-Day Start-Up Development Program in Boston

(Venture Kick, January 31, 2013)

Every year 20 excellent entrepreneurs have the unique chance of travelling with other top start-ups to Boston as part of the official Swiss national start-up team. You will have the opportunity of following an intensive ten-day busi-

ness development course, and meet successful North American start-ups and venture capitalists. Included is a four-day entrepreneurship course offered by the famous Babson College. Apply by March 1st, 2013: http://www.venturelab.ch/ventureleaders
http://swissinnovation.org/news/web/2013/13-130131-f4.html

Upcoming Science and Technology Related Events

Scientific Symposium, Sphères
March 8, 2013
http://www.robotsontour.com
ICT
Sphères, Zurich

"Robots on Tour" – Robots from all over the world
March 9, 2013
http://www.robotsontour.com
ICT
Puls 5, Zurich

3rd World Tourism Forum Lucerne
April 17-19, 2013
http://wtflucerne.org/
Tourism
Lucerne

GOTO Zürich 2013
Apr 10-11, 2013
http://gotocon.com/zurich-2013
ICT
Zurich Marriott Hotel

Sustainable Post-Disaster Reconstruction: From Recovery to Risk Reduction
May 26 - 30, 2013
http://i-recconference2013.ch
Various
Centro Stefano Franscini, Ascona

Art Basel 2013
Jun 13-16, 2013
http://basel.artbasel.com
Art
Basel

Congress: Intl. Association for the Psychology of Religion
Aug 27-30, 2013
http://www3.unil.ch/wpmu/iapr2013
Medical / Religion
University of Lausanne

CERN Open Day
Sep 28-29, 2013
http://outreach.web.cern.ch/outreach/visites/index.html
Particle Physics
CERN, Geneva

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

Switzerland.

swissnex boston
Consulate of Switzerland