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

Science-Switzerland, June – July 2013

News on Swiss science, technology, education and innovation

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Switzerland Again #1 in Global Innovation Index

(Insead, July 01, 2013)

The Global Innovation Index produced by INSEAD, WIPO and Cornell University measures 142 countries, using 84 indicators, which include the quality of universities, availability of microfinance and venture capital, to gauge innovation capabilities and measurable results. Switzerland keeps the top spot for the third year in a row. The top ten countries in the index remain the same as last year, but positions have shifted: The USA moved up from 10th place last year to number five this year, whereas Singapore has fallen out of the top 3, where it has resided for the past two years, to 8th position. There were encouraging signs from the developing markets with 18 emerging economies outperforming peers in their respective income groups, including China, and India but also Jordan, Kenya, Senegal or Montenegro.
http://swissinnovation.org/news/web/2013/00-130701-c1

PlanetSolar: Swiss Solar Boat visits Boston on its Scientific Mission

(swissnex Boston, June 23, 2013)

The world's largest solar-powered boat, the MS Tûranor PlanetSolar, successfully docked at Boston's Fan Pier. Currently conducting scientific climate change research along the Gulf Stream for the University of Geneva's DeepWater Expedition, the PlanetSolar boat was welcomed to Fan Pier by the swissnex Boston team and the city of Boston's chief of energy and environment, Mr. Brian Swett. The first boat to travel around the world exclusively powered by solar energy, the PlanetSolar features more than 537 m^2 of solar panels and produces zero CO_2 emissions. The PlanetSolar DeepWater expedition is allowing researchers from the University of Geneva to take advantage of the exclusive features of the solar boat. The researchers are taking physical and biological measurements along the Gulf Stream which will improve our understanding of the interactions between the ocean and the atmosphere. Boston is PlanetSolar's final American destination after making prior stops in Miami and New York.
http://swissinnovation.org/newsUS/web/2013/00-130623-39

Solar Impulse: Swiss Solar-Powered Plane Lands in New York

(EPFL, July 08, 2013)

Solar Impulse's US trip, which began in California in early May, ended at New York's John F Kennedy airport. During the final leg of the trip, which began at Dulles airport in Washington, DC, the plane's left wing developed an eight-foot tear. Still, the trip was "a huge success for renewable energy," says one of the pilots, Andre Borschberg. "The only thing that failed was a piece of fabric." EPFL has been a scientific partner to Solar Impulse since the plane's inception: The advice and technology provided by EPFL scientists has guided Solar Impulse throughout its adventure, and it has stimulated valuable research at EPFL. With Solar Impulse's milestone flight "Across America" from California to New York, EPFL and Solar Impulse look ahead to a continuing collaboration in the future and an around-the-world flight in 2015.
http://swissinnovation.org/news/web/2013/07-130708-30

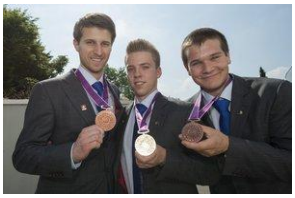
Swiss Philantropist Doubles his Donation to Harvard to $250 Million

(Harvard, July 01, 2013)

The Wyss Institute for Biologically Inspired Engineering at Harvard University announced that Hansjörg Wyss, the entrepreneur and philanthropist who enabled the Institute's creation in 2009 with a $125 million gift, has donated a second $125 million gift to the University to further advance the Institute's pioneering work. The Wyss Institute seeks to solve some of the world's most complex challenges in healthcare and the environment by drawing inspiration from Nature's design principles. They aim to uncover new knowledge about how nature builds, controls, and manufactures, but also to translate their discoveries into products that can have near-term impact. The Institute's faculty members have achieved an unparalleled publication record, with an average of one breakthrough publication in Science or Nature every month since its founding 52 months ago.
http://swissinnovation.org/news/web/2013/12-130701-cb

Young Swiss Professionals Are Vice World Champions

(SERI, July 08, 2013)



At this year's WorldSkills Competition the Swiss team achieved an outstanding second place in the national rankings, only beaten by South Korea, finishing as the best European nation. The 39 skilled young specialists from Switzerland picked up 9 gold medals, 3 silver medals and 5 bronze medals. After similar successes at previous skills competitions in Japan, Canada and the UK, the Swiss delegation once again achieved a leading place against strong competition from a total of 54 states. "This consistency shows that Switzerland's dual, labour market oriented system of vocational education and training is a successful model", said State Secretary Mauro Dell'Ambrogio.
http://swissinnovation.org/news/web/2013/02-130708-e9

swissnex – partimos pro Brasil!

(SERI, July 19, 2013)

The Federal Department of Foreign Affairs and the State Secretariat for Education, Research and Innovation (SERI) are planning to establish a swissnex consular annex in Brazil. Starting in October, Gioia Deucher, currently deputy director of swissnex San Francisco, will begin the development work in Rio de Janeiro. Synergies are expected to result from the future activities of swissnex and those pursued by Presence Switzerland (PRS) in Brazil during the FIFA World Cup 2014 and the 2016 Summer Olympics. swissnex seeks to bring together people from Brazil and Switzerland to share their pioneering spirit and creative ideas. At the same time, it assists Swiss higher education institutions and new startup companies in their efforts to develop their international activities.
http://swissinnovation.org/news/web/2013/01-130719-43

1. Policy

Swiss Government Spends $2.2 Billion on R&D

(Swiss Federal Statistical Office, July 16, 2013)

According to the latest results from the Federal Statistical Office, the Confederation's expenditure on research and development amounted to $2.2 billion in 2012, which represents an increase of 17% compared with the last data collected in 2010. This expenditure is mainly in the form of contributions towards research. The number of federal personnel taking part in research activities has grown by 5% and now stands at 1560.
http://swissinnovation.org/news/web/2013/01-130716-78

Support Grant and Higher Salaries for Young Researchers

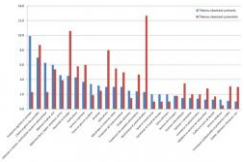
(SNSF, June 26, 2013)

The Swiss National Science Foundation's planning for 2013-2015 prioritizes measures to ensure that a sufficient number of young scientists come to the fore in Switzerland. On the one hand, the SNSF introduces the "120% support grant" for postdoctoral researchers to help them find the right balance between their academic career and family commitments by allowing them to hire a "support person" and reduce their own working hours. On the other hand, SNSF has decided to modify its salary policy as of 2014 and raise the salaries of doctoral students.
http://swissinnovation.org/news/web/2013/01-130626-4c

2. Education

Integrating Clean Technologies into Vocational Education and Training

(SERI, June 17, 2013)



To develop clean technologies, the relevant skills need to be integrated into existing professions. A study of 217 training plans, led by the Swiss Federal Institute for Vocational Education and Training (SFIVET), showed that vocational education and training already includes many clean technology skills. This is particularly the case in education relating to agriculture, chemistry, mechanical and civil engineering. Three quarters of training plans include waste sorting and recycling, as well as general themes like environmental guidelines and environmental protection. Environmental technology and energy efficiency also often feature. However, themes like "waste recovery", "renewable energy", "energy efficiency", and "renewable materials" have significant potential. The areas offering perhaps the greatest potential are "electronics and automation" and "electricity and energy".
http://swissinnovation.org/news/web/2013/02-130617-06

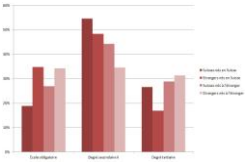
Swiss Universities Offer MOOCs

(CRUS, July 10, 2013)

EPFL is leading the way for Swiss universities to offer Massive Open Online Courses (MOOCs), which are courses taught interactively to very large audiences via the Internet. Other Swiss universities are considering providing similar offerings, but some are more hesitant than others. One benefit of these courses is that they bring education to people who haven't had access before, especially in developing countries, but many students use the courses for continuing education. EPFL MOOCs are available in both English and French, broadening their appeal to speakers of either language.
http://swissinnovation.org/news/web/2013/02-130710-24

Statistics on Swiss Educational Levels

(SERI, June 21, 2013)



About a third of foreign nationals (born in Switzerland or abroad) have only completed compulsory education (35% and 34% respectively), compared with only a quarter of foreign-born Swiss people (27%) and a fifth of Swiss people born in Switzerland (19%). Foreign nationals born abroad are most likely to have completed tertiary-level education and training (31%), compared with 29% of foreign-born Swiss people, 27% of Swiss people born in Switzerland and 17% of foreign nationals born in Switzerland. Whereas similar numbers of foreign national women and men born abroad complete tertiary education or training (30% and 33% respectively), the largest tertiary-level educational attainment gap is found between Swiss women and men born in Switzerland (19% versus 35%).
http://swissinnovation.org/news/web/2013/02-130621-2d

New Buildings for the ETH Domain

(Swiss Government, June 27, 2013)

The 2014 construction programme of the ETH domain for which the Federal Council is applying to Parliament provides for one new building each at ETH Zurich and Empa, as well as various full renovation projects: A new building for the newly created Department for Health Sciences and Technology will be constructed in ETH Zurich's city centre campus, right next to the University Hospital. This location will encourage close collaboration with other departments as well as the University of Zurich and the University Hospital. At Empa, the innovative NEST concept will be implemented: a residential, workplace and research building in which flexible uses and sustainable construction methods can be tested in practice. The research project examine issues regarding everything from energy to water to comfort during construction and subsequent use.
http://swissinnovation.org/news/web/2013/02-130627-8c

24th International Biology Olympiad at the University of Bern

(UNIBE, July 20, 2013)

Switzerland's brightest young biologists claimed two silver and two bronze medals at the International Biology Olympiad (IBO) organised by the University of Bern and Swiss Science Olympiads Association. Over 200 high school students from 43 countries participated in the week-long program, completing one theory and four practical exams to demonstrate their skills and knowledge. Many, for whom it was their first time in Switzerland, enjoyed learning about Swiss nature and culture on "Swiss Night" and at the closing ceremony. Participants

were impressed by the seamless organisation and high-tech approach to the hosting of the Olympiad (introduction of PC tablets and computerization of the theory exam), albeit being Switzerland's first time. The competition was organized by the Association of Swiss Scientific Olympiads (VSWO) and the University of Bern.
http://swissinnovation.org/news/web/2013/02-130720-da

Executive Master in Global Supply Chain Management

(EPFL, June 05, 2013)

The Executive Master Program (MAS) in Global Supply Chain Management provides participants with the know-how, competence and confidence necessary to plan and implement supply chain projects on strategic and operational levels. This course is designed for university graduates (Master's degree or equivalent) who wish to follow specialized courses in logistics. A continuing education program is also organized. This top-level Executive Program, offering 80 ECTS credits, is run at EPFL, one of the world's most prestigious schools with an extensive Alumni Network of more than 800 graduates representing 70 different nationalities from five continents. Its International Institute for the Management of Logistics (IML), founded in 1990, is an international reference for education in Supply Chain Management.
http://swissinnovation.org/news/web/2013/02-130605-5c

3. Life Science / Health Care

Realistic Ears Made of Bacterial Nanocellulose

(ETH Zurich, June 03, 2013)

Like fingerprints, ears are unique to each individual. These complex structures are difficult to replace if lost through disease or accident. Since the auricle (outer ear) consists of cartilage without nerves or blood vessels, it cannot regenerate after injury. Ear reconstruction is especially challenging because patients want the replacement to resemble their original one in both looks and feel. ETH researchers have developed realistic auricle implants by testing and mapping the mechanical properties of ear cartilage, then reproducing them using biomaterial – a web of nanocellulose fibers spun by Gluconacetobacter xylinus bacteria. This flexible, well-tolerated material provides scaffolds for tissue regrowth and implants to support the new auricle. Clinical applications to reconstruct ears, and potentially other cartilage types, are expected soon.
http://swissinnovation.org/news/web/2013/03-130603-50

Similar Growth Control in Unicellular Organisms and Humans

(UNIFR, June 05, 2013)

Organisms adapt their growth according to the amount of nutrients available in the environment. A single-celled fungus does this using a molecular brake. The same mechanism is present in humans, acting as a suppressor of cancer tumors. At the cellular level, a key element in this process is the TORC1 protein complex. Found in all eukaryotic organisms, TORC1 is induced indirectly by various nutrients like amino acids. Once activated, TORC1 promotes cell growth by targeting different genes and proteins. Researchers at the University of Freiburg identified in yeast a complex of three proteins that slow cell growth (published in Science Signaling). Researchers at the Whitehead Institute in Massachusetts, USA identified the same inhibitory mechanism in human cells (published in Science).
http://swissinnovation.org/news/web/2013/03-130605-58

How the Brain Learns Different Melodies

(UNIBE, June 06, 2013)

Different melodies often have common passages, but we have no trouble in differentiating among them. Scientists at the University of Bern explain using a new mathematical model how such overlapping sequences can be learned by the brain's nerve cells and retrieved without confusion. Our brain can store and play back sequences of neural activity patterns in milliseconds. Through thousands of repetitions, connections between the motor neurons are "burned" at their synapses or contact points, which then trigger the desired movement. Hence Hebb's rule: "neurons that fire together, wire together". In the case of two sequences with pauses, foreground and background neurons behave differently. The team's model, described in Neuroscience, extends the Hebbian learning rule making it applicable to interrupted sequences.
http://swissinnovation.org/news/web/2013/03-130606-9b

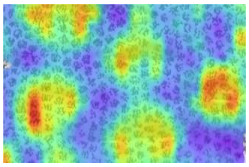
Origins of Medullary Thymic Epithelial Cells

(UNIBAS, June 06, 2013)

Medullary thymic epithelial cells (mTECs) allow the thymus to ensure that the body's T cells are able to distinguish between potentially harmful foreign antigens and those that are produced by the body itself. A Swiss-Japanese research team suggests that mTECs do not share a common progenitor with cortical-thymic TECs (cTECs) that produce T cells, but may actually evolve from them. Very little is presently known about how cTECs and mTECs develop, or how they relate to each other. A Swiss-Japanese research team now reports that mTECs derive from cells that already express β5t, a proteasome subunit that is densely concentrated in cTECs and no other cell types, including mTECs themselves. This finding suggests that mTECs may evolve from cTECs. This finding has not only implications for how mTECs develop, but also how they may have evolved.
http://swissinnovation.org/news/web/2013/03-130606-6c

Flexible Electronic Circuits for Artificial Skin

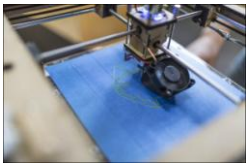
(EPFL, June 07, 2013)



EPFL scientists have made flexible electronic circuit boards using foam substrates. Their experiments on various pliable materials showed that elastomeric foams are suitable platforms for circuit building, because air bubbles in an elastic matrix enable elasticity to be modulated. Moreover, metallic films on foam substrates can be reversibly stretched without disrupting their electrical conductivity properties. This discovery, reported in Advanced Materials, could enable deformable and stretchable circuits to be created. The team aims to make circuit boards that are flexible enough to be integrated into artificial skin. Foam-based metallic pathways could form electrodes, sensors or interconnections for electronic skin. Connected to the nervous system, these electronic circuits could become a true sense organ, allowing people to experience touch and pain.
http://swissinnovation.org/news/web/2013/03-130607-60

3D Printing of Skin

(20min.ch, June 09, 2013)



Switzerland is helping to lead the revolution in three-dimensional printing for medical purposes. A team at the Zurich Children's Hospital is using a Swiss-developed printer to print skin for burn patients using the patient's own cells. The company that developed the printer is also bringing to market bone implants for use in dental surgery. 3D printers are also being used in many other fields and could transform manufacturing. They allow parts to be made anywhere, in very little time, and with easy customization.
http://swissinnovation.org/news/web/2013/03-130609-b9

Polymers Shield Enzymes to Help Digestive and Dietary Intolerances

(ETH Zurich, June 10, 2013)

Researchers from ETH Zurich have attached polymers to enzymes which may help treat food intolerances in the future. By stabilizing and protecting therapeutic enzymes from breaking down in the digestive tract, the enzymes attached to polymer chains remain active in the stomach and the small intestine for substantially longer periods of time than unconjugated enzymes. Enzymes shielded by polymers can work for up to three hours. However, the question remains why do these polymers work so well. One peculiarity has been discovered: "This polymer adheres particularly well to the mucous membrane in the stomach or intestinal wall" explains Jean-Christophe Leroux, professor of Drug Formulation and Delivery at the Institute of Pharmaceutical Sciences and head of the research project. Use for Coeliac disease is possible and by making new methods, patients with gluten restrictions could take enzymes to reciprocate for gluten absence.
http://swissinnovation.org/news/web/2013/03-130610-62

Measuring Cell-to-Cell Variability

(ETH Zurich, June 11, 2013)

Typically, measurements of cells produce an average value across a large number of cells. However, this method loses information about the cell-to-cell variability, which can be important in many cases. Researchers at ETH Zurich have devised a new method for isolating and measuring single cells. They use a glass slide that has many tiny holes drilled with a laser. They then draw the cell sample through the slide so that one or just a few cells remain in each hole. The researchers were able to test the effectiveness of their method using yeast with known properties.
http://swissinnovation.org/news/web/2013/03-130611-79

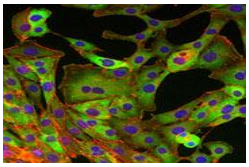
RNAi Breakthrough Discovery Awarded

(ETH Zurich, June 12, 2013)

The Rössler Prize was given to Olivier Voinnet, Professor of RNA Biology in the Department of Biology, ETH Zurich. The Frenchman, Olivier Voinnet, receives the CHF 200,000 research prize for his breakthrough discoveries in molecular and cell biology. As a PhD student, Olivier Voinnet worked on non-coding RNA molecules and discovered how plants use RNAi (RNA interference) to defend themselves against viral infection. The iRNAs originate from the virus itself, therefore plants can use them for protection against a pathogen in a sequence-specific manner. In 1997, Voinnet was able to demonstrate that RNAi can spread throughout the whole plant producing immunity to viruses which evolved proteins that could suppress RNAi. Voinnet would like to invest the prize money in RNAi's antiviral roles in mammalian cells just as it does in plants or invertebrates
http://swissinnovation.org/news/web/2013/03-130612-67

Master Regulator in Cancer Metastasis

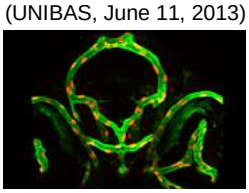
(UNIBAS, June 11, 2013)



Cancer metastatis is the process of cancer cells moving from the primary tumor to other organs in the body, and is one of the leading causes of cancer death. Epithelial-mesenchymal transition (EMT) is central to metastatis, and researchers at the University of Basel, working with the Friedrich Miescher Institute, have discovered a master regulator that activates EMT. The transcription factor Sox4 sets off a chain of events that leads to EMT. Medications to inhibit Sox4 are being developed, but still need to undergo clinical trials.
http://swissinnovation.org/news/web/2013/03-130611-19

Blood Vessel Fusion Observed in Zebrafish

(UNIBAS, June 11, 2013)



As the vascular system forms, the fusion of blood vessels follows a uniform process in which the splitting and rearrangement of endothelial cells plays a critical role. As reported in Developmental Cell, researchers at the Biozentrum, University of Basel, have demonstrated this in living zebrafish. Since its embryos are almost transparent, blood vessel generation can easily be observed. When new blood vessels are formed, the leading (tip) cells of two vessel sprouts first make contact then fuse, forming a common tube to establish blood flow. After fusing, they split. The team is now investigating how tip cells recognize each other and connect, which additional molecules control the fusion process and how tumors in an organism attach to the existing circulation.
http://swissinnovation.org/news/web/2013/03-130611-a6

Measuring Blood Pressure with a Wristband

(Empa, June 12, 2013)

High blood pressure is one of the most common causes of death worldwide, yet according to the World Health Organization (WHO) fewer than half of affected people measure their blood pressure regularly. Monitoring blood pressure is costly and tedious, usually involving a cumbersome measuring device or invasive monitoring. STBL Medical Research AG has developed an innovative wrist-worn device that offers a cheaper, simpler and more comfortable way of measuring blood pressure. It integrates a sensor, made at Empa from piezo-resistive fibers, that simultaneously measures the contact pressure, pulse and blood flow on the skin surface. It can be used both for medical purposes and as a blood pressure and heart rate monitor for leisure activities and sports. Trials are underway.
http://swissinnovation.org/news/web/2013/03-130612-8b

Genetic Sequencing of Medieval Leprosy Pathogen

(EPFL, June 14, 2013)

Using tiny amounts of material obtained from human remains buried in medieval graves, scientists have reconstructed genomes of five different strains of the leprosy pathogen, Mycobacterium leprae. The material contained less than 0.1% of bacterial DNA, requiring a new, extremely sensitive method for separating the two kinds of DNA and reconstituting the bacterial genome without using any contemporary strains as a basis. Scientists from EPFL participated in the research, whose results are published in the journal “Science”. The research makes important contributions to understanding leprosy, which was common in Medieval Europe but receded dramatically at the beginning of the 16th century. The genome sequencing methods developed as part of the research can help to develop new, more precise approaches to understanding epidemics, both historic and modern.
http://swissinnovation.org/news/web/2013/03-130614-1d

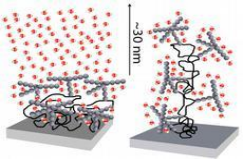
Effects of DNA Methylation

(UNIGE, June 18, 2013)

Methylation is an epigenetic process that modifies DNA. Scientists had established a correlation between methylation and the inhibition of a gene. However, as scientists at the University of Geneva recently discovered, DNA methylation is more complex than the correlation suggests. In some cases, the methylation has no effect on the expression of the affected gene. This new discovery will help improve medical decisions based on DNA analysis because it reveals not just a correlation between two variables but a verifiable causation.
http://swissinnovation.org/news/web/2013/03-130618-14

New Functionality Among Glycoproteins

(ETH Zurich, June 19, 2013)



ETH and Empa researchers have discovered that glycoproteins, which are sugar-protein hybrid molecules, may rearrange water molecules over long distances. This may have an influence on how cells sense each other. Nicholas Spencer, professor for Surface Science and Technology in the Department of Materials and Rowena Crockett at the Empa have discovered that glycoproteins make a random network of molecules above them. The smaller water molecule, only about 0.3 nanometers in size, makes it easier for the glycans to arrange them. The maximum distance which can be detected is in the range of tens of nanometers - far beyond any expected boundary values. Due to this observation, scientists think this long-range influence of glycans on water may explain why glycoproteins help synovial fluid lubricate joints so well. It is possible that the cells can communicate across water since the membranes are covered in glycans.
http://swissinnovation.org/news/web/2013/03-130619-f6

Newly Discovered Protein Makes Faster Transmissions in Brain

(UNIBAS, June 20, 2013)

New findings about the mSYDI protein have been published in the journal 'Neuron' by the research group of Professor Perter Scheiffele at the University Basel. The team has discovered a new mechanism that confirms faster signal transmissions. When a neuron is activated, it opens vesicles at the edge of the synapse, the so-called active zone, and sends the messenger to the neighboring cell. Peter Scheiffele's group has identified a previously unknown protein called mSYD1, which regulates the accumulation of vesicles in the active zone. These results bring a new insight into the mechanisms underlying the creation of neural networks. MSYD1 is located within a group of genes which are inactive in patients with a developmental disorder such as autism. Further, work now includes the exploration of how the inactivation of mSYD1 affects the behavior of mice which could bridge the missing link in the fundamental processes of autistic disorders.
http://swissinnovation.org/news/web/2013/03-130620-45

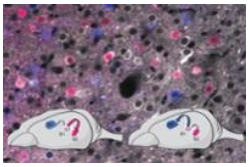
Self-Assembling Materials Made from DNA-coated Colloids

(EPFL, June 24, 2013)

Novel self-assembling materials have been made using DNA-coated colloids in experiments by EPFL and University of Cambridge scientists. A colloid is a substance spread out evenly inside another substance, e.g. milk, paints and fog. Among their unique properties, colloids can aggregate spontaneously into well-defined structures, driven simply by local interactions between the colloid's particles. In biological colloids, like DNA, self-assembly is a precursor to self-organization, which underlies many cellular structures. Nature Communications reports that the research team has discovered a technique to precisely control and direct the self-assembly of two different colloids by exploiting the selectivity of DNA base-pairing. This is of major interest in industry, since controlling self-assembly could foster new technologies, like smart drug-delivery patches or light-reacting paints.
http://swissinnovation.org/news/web/2013/03-130624-0a

Problem-Solving Governs Processing of Sensory Stimuli

(UZH, June 24, 2013)



Researchers at the University of Zurich have discovered that goal-directed behavior can affect how sensory stimuli are processed by the brain. They trained mice to perform two different tasks using their whiskers in the dark and then mapped the path of signals in the brain. For one task, involving identifying surface texture, signals were sent from the primary somatosensory cortex to the secondary somatosensory cortex. For a second task, involving identifying the orientation of a rod, signals were instead sent to the motor cortex. When no task was involved, brain patterns looked the same, regardless of stimulus. This research may lead to a better understanding of cognitive disorders.
http://swissinnovation.org/news/web/2013/03-130624-88

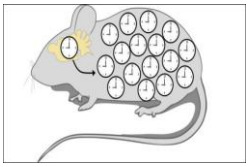
Gene Variations Identified as Risk Factors in Trisomy 21

(UNIGE, June 26, 2013)

Down's syndrome (trisomy 21) is often accompanied by conditions like Alzheimer's disease, leukemia, or cardiac impairment that affect the general population. Researchers at the Faculty of Medicine of the University of Geneva have identified two genomic variations associated with trisomy 21 that determine the risk of congenital heart disease in people with Down's syndrome. These results, published in Genome Research, build on the team's previous research on chronic myeloid leukemia, published in the journal Blood. While the presence of a third gene on the No. 21 chromosome, characterizing Down's syndrome, increases the risk of heart disease, gene variations (polymorphisms), genetic and environmental factors also contribute. Two types of polymorphism play key roles: single-nucleotide polymorphisms (SNP) and copy number variation (CNV).
http://swissinnovation.org/news/web/2013/03-130626-4b

Glow-In-The-Dark Mice Help Investigating the Central Clock of the Brain

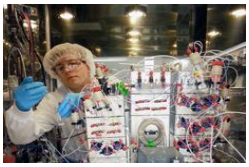
(UNIGE, June 30, 2013)



Many of our physiological functions such as sleep, activity or hunger regularly fluctuate throughout the day. They are given their rhythm by a central clock in the brain which sends signals to local oscillators that are present in virtually every cell. Researchers from the University of Geneva have for the first time directly tracked this cycle in live mice using so-called Luciferase genes from the firefly. A cage equipped with mirrors and a light sensor allowed them to follow the activity levels of different circadian genes over the course of several months. The new technology not only allows to reduce drastically the number of mice needed for this type of experiment, but it is further applicable to many areas of biomedical research.
http://swissinnovation.org/news/web/2013/03-130630-66

New Marker Substance for Cancer Cells

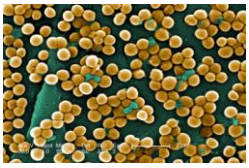
(ETH Zurich, July 02, 2013)



Scientists from ETH Zurich have developed a new substance that enables certain tumour types to be rendered visible in high resolution using positron emission tomography (PET). The new tracer binds to the folic acid receptor, which is interesting because this receptor accumulates on the cell surface in many cancer types. The tracer does do not only provide means to assess the scale and location of a tumor. It additionally allows to characterize the tumor cells precisely, enabling doctors to predict the probability that a patient will respond to a particular form of therapy. The substance has successfully been tested in mice. Now the researchers are planning clinical trials in humans.
http://swissinnovation.org/news/web/2013/03-130702-14

Development of Staphylococcus Aureus Vaccine

(startupticker, July 03, 2013)



A consortium comprising Imaxio, the Jenner Institute at Oxford University, the European Vaccine Initiative and the Swiss startup Preclin Biosystems has been awarded EUR 5.5 million by EU to develop a Staphylococcus aureus vaccine. Funding will be used to complete pre-clinical tests as well as a Phase I clinical trial in humans in 2016. The bacterium S. aureus causes a range of serious infections in humans and is responsible for approximately 16,000 deaths annually in Europe and 19,000 in the US. The emergence of highly antibiotic resistant S. aureus strains is posing a serious public health threat around the world and an increasing economic burden. Recent vaccine candidates have not proven effective in large human clinical studies.
http://swissinnovation.org/news/web/2013/03-130703-4e

Cellular Mechanism Involving Quality Protein Checks

(UNIBE, July 07, 2013)

A team of researchers from the University of Berne's Department of Chemistry have found a new insight into cellular control mechanisms which prevent the production of defective proteins in our cells, referred to as "nonsense-mediated mRNA decay" (NMD). Currently, in collaboration with bioinformatics specialists from the Biozentrum Basel, biochemist David Zünd, a doctoral student on Oliver Mühlemann's team, has demonstrated the contribution of a key protein: in the NMD process, the protein UPF1 (up-frameshift1) is recruited by all mRNAs, irrespective of whether they are in working order or damaged. These findings could help develop new therapeutic approaches towards genetic diseases. The research results have been published in two articles in the journal Nature Structural & Molecular Biology.
http://swissinnovation.org/news/web/2013/03-130707-fc

Live Fast, Die Young – Even in Mice

(UZH, July 04, 2013)

Female mice with a high life expectancy are less active and less explorative. They also eat less than their fellow females with a lower life expectancy, according to a recent study performed by behavioral biologists from the University of Zurich. “For the first time, we report personality traits associated with a selfish genetic element that influences life expectancy”, says Yannick Auclair, one of the study authors. With their experiments, they tested predictions of “life-history theory” on how individuals invest optimally in growth and reproduction. According to this theory, individuals with a greater life expectancy will express reactive personality traits and will be shy, less active and less explorative than individuals with a lower survival expectation.
http://swissinnovation.org/news/web/2013/03-130704-07

National Program to Counter Antibiotic Resistance

(news.admin.ch, July 08, 2013)

Antibiotics are essential for use against bacterial infections, both in human and in veterinary medicine. Without them, modern medicine would be unthinkable - dangerous diseases such as pneumonia or sepsis could hardly be cured. With the increase in use of antibiotics, the number of antibiotic-resistant bacteria is also increasing, posing huge challenges in public health, food safety and animal health. The Swiss Federal Council now wants to bundle the activities and set up a joint strategy to counter antibiotic resistances. Measures to reduce the inappropriate use of antibiotics and to monitor and decrease the occurrence of resistant bacteria are already underway.
http://swissinnovation.org/news/web/2013/03-130708-a0

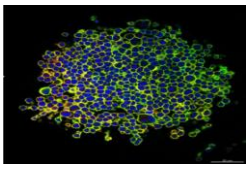
Selectin Antagonists May Help Treat Inflammation

(UNIBAS, July 10, 2013)

Uni Basel researchers have identified a new class of selectin antagonists as lead structures for anti-inflammatory drugs, as published in the Journal of the American Chemical Society. The selectins (C-type lectins) are biologically important, since they present attractive therapeutic targets in diseases involving cell adhesion, extravasation of cells from the bloodstream, or the migration of specific lymphocytes. Sialyl Lewisx (sLex) is the carbohydrate epitope recognized by E-selectin. The sLex/E-selectin interaction has low affinity and a short half-life, which makes it difficult to develop selectin antagonists for therapeutic applications. Using nuclear magnetic resonance, the researchers identified fragments binding to a second site near the sLex binding site. With GlycoMimetics Inc., the team has successfully promoted a selectin antagonist to clinical trials.
http://swissinnovation.org/news/web/2013/03-130710-67

3D Microtissues Help Big Pharma in New Drug Development

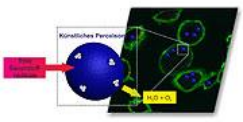
(startupticker, July 12, 2013)



Big pharma companies Roche and Pfizer have presented results highlighting the advantages of the 3D microtissues of Swiss startup InSphero. At the annual meeting of the Society of Toxicology, Pfizer showed how InSphero's tissues deliver excellent results predicting liver toxicity. Roche was for the first time able to reproduce the working mechanism of a complex, antibody-based anti-tumor drug thanks to the organotypic microtissues by InSphero. "These are just two example of how our technology can aid pharma companies in the development of new substances", explains Dr. Jan Lichtenberg, CEO and Co-Founder of InSphero.
http://swissinnovation.org/news/web/2013/03-130712-4a

Artificial Organelles Transform Free Radicals into Water and Oxygen

(UNIBAS, July 16, 2013)



Researchers from the University of Basel have produced artificial organelles that can contribute to the degradation of toxic oxygen compounds. The research group led by Prof. Cornelia Palivan, Department of Chemistry at University of Basel, has managed to imitate the organelle with an artificial peroxisomesa. This process is based on a system using polymeric nanocapsules in which two different types of enzymes are included freeing oxygen radicals which convert to water and oxygen. The results reveal that the artificial peroxisomes are absorbed by the cell and have very efficient support from their peroxisomes in the natural detoxification process. With this novel research, development of new drugs are possible with an implant directly into the cell. The results were published in the journal "Nano Letters."
http://swissinnovation.org/news/web/2013/03-130716-1b

Better Cardio Treatments Designed Using Pig Hearts

(20min.ch, July 12, 2013)

Metallic grids inserted into human patients to keep a narrowed artery open are called stents. They prevent a heart attack from occurring by allowing blood to flow freely again. However, in two out of five cases a bottleneck forms in spite of the stent. ETH Zurich researchers have investigated the causes for this using pig hearts. Liquid resin is first pumped into the blood vessels. When it subsequently hardens, detail of even the smallest vessel is preserved. The three-dimensional blood vessel sculpture together with the stent is then scanned. It serves as a model to simulate natural blood flow on a computer.
http://swissinnovation.org/news/web/2013/03-130712-bc

New Method to Visualise Bacterial Communication

(UNIBAS, July 18, 2013)

By tagging the signal molecules secreted by bacteria using a novel fluorescent marker developed at the University of Basel, researchers are now able to elucidate the communication pathways in bacteria. Also known as “Quorum Sensing”, this represents a significant step towards understanding important processes in bacteria populations such as the coordinated release of virulence factors or assembly to form biofilms. In their particular study, the researchers demonstrated that their method could have direct implications on immune-compromised or cystic fibrosis patients in which such biofilms can form to cause lung infections. The applications of visualising cell-cell communication in live cells are potentially endless.
http://swissinnovation.org/news/web/2013/03-130718-3f

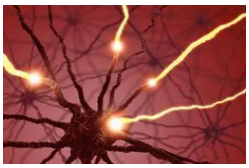
New Test Improves Lung Cancer Diagnosis

(Roche, July 18, 2013)

Roche announced the global launch (except US) of a new test able to distinguish between the two main forms of lung cancer: non-small cell (NSCLC) which can be cured surgically in its early stages, and small cell lung cancer (SCLC) which requires chemotherapy and radiation. Because it is commonly diagnosed late in patients, SCLC's prognosis is typically poor due to its aggressive nature. However, thanks to Roche's new Elecsys Progastrin-releasing peptide (ProGRP) test, early-stage SCLC can now be identified, differentially diagnosed from NSCLC, and be treated accordingly. The first of its kind, the test is administered using serum or plasma, and relies on elevated levels of the ProGRP biomarker in the blood - a trait characteristic of SCLC patients. Although studies show it to be superior as a standalone test to the current standard neuron-specific enolase (NSE) test, ProGP, when used in combination with NSE, can enhance diagnostic accuracy considerably in lung cancer patients, of which there are approximately 1.35 million new cases each year.
http://swissinnovation.org/news/web/2013/03-130718-9c

Measuring Neuronal Signal Speed Using Microelectronic Chips

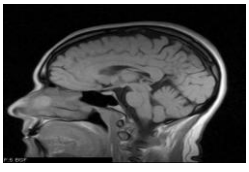
(ETH Zurich, July 19, 2013)



Large variations in the speed of signals within an axon, the cable-like extension of the nerve cell that transfers electrical pulses to and from the brain, have been measured using a microelectrode array chip. Exactly why such variations in velocity pattern exist remains to be elucidated. However, Professor Andreas Hierlemann of ETH Zurich’s Biosystems Science and Engineering Group is optimistic about the potential of the chip they have been developing over the last ten years. The chip’s ability to measure details of axonal signal conduction at extremely high resolution may lead to a further understanding of how neurons adapt to new information and their processing abilities.
http://swissinnovation.org/news/web/2013/03-130719-da

High-Tech Tomograph for Research and Clinical Applications

(UZH, July 24, 2013)



The University of Zurich and the University Hospital of Zurich are procuring a novel device for advanced imaging in oncology, neurology and cardiac diagnosis that integrates positron emission tomography (PET) and magnetic resonance imaging (MRI). The combination of these two techniques lets doctors assess for example the position and size of a tumor and obtain information about its metabolic activity and malignancy at the same time. The enhanced contrast in MRI images is particularly useful for imaging of the brain and the abdominal organs. Moreover, the new device allows to reduce radiation doses by up to 75%. The high-tech tomograph will be in operation at the Life Science Schlieren site.
http://swissinnovation.org/news/web/2013/03-130724-22

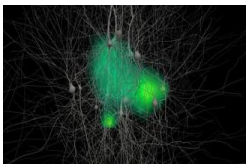
Brain Disorder Increases Risk for Psychosis

(UNIBAS, July 23, 2013)

Researchers from the University of Basel have found that abnormalities in the connectivity of the brain hemispheres are present in psychosis patients and may even predate the onset of psychosis. Using fMRI on patients performing exercises of the working memory, they observed that in both psychosis patients and patients at risk for psychosis, connectivity between hemispheres is less than in healthy subjects. Patients treated with antipsychotic drugs had intermediary connectivity values, and also exhibited improved the performance in working memory tasks. "Our results could make it possible to use the connectivity of the hemispheres as a physiological marker that indicates a developing psychosis", says Professor Stefan Borgwardt, senior author of the study.
http://swissinnovation.org/news/web/2013/03-130723-fe

The Origin of Brain Waves

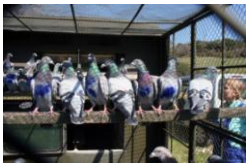
(EPFL, July 25, 2013)



Researchers from EPFL's Blue Brain project, together with other brain researchers, are creating a detailed simulation of a brain. They are analyzing individual neurons in great detail and then simulating networks of neurons. A computer simulation of 12,000 neurons shows similar brain wave patterns as measured in the brains of rats. According to the simulation, the phenomenon arises due to the flow of ions that electrically charge the neurons to fire electrical 'spikes'. This research will lead to a better understanding of the brain and neurological diseases.
http://swissinnovation.org/news/web/2013/03-130725-4b

Pigeons fly home with a map in their heads

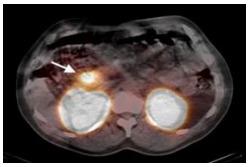
(UZH, July 25, 2013)



A doctoral student at the University of Zurich has carried out experiments explaining how homing pigeons navigate. For the experiment, the pigeons were fed every day in a loft 30 km away from their home loft and had to fly home after being fed. Then, the scientist brought the pigeons, equipped with a GPS tracker, to a third place unknown to them. Half of the pigeons were allowed to eat as much as they wanted before flying home, the other half was sent out hungry. While the satiated pigeons flew to their home loft, the hungry pigeons chose to fly to the feeding loft. Based on this procedure, the researchers concludes that pigeons have a type of cognitive navigational map in their heads and have cognitive capabilities to determine their location choose between several targets.
http://swissinnovation.org/news/web/2013/03-130725-b4

Locating Pancreatic Tumors: A New, Better Method

(PSI, July 29, 2013)



Exploiting the keyhole phenomenon of receptors on the surface of insulinomas, researchers have developed a radioactive marker able to locate these small tumors more accurately than traditional imaging methods. Commonly found in the pancreas, insulinomas produce insulin uncontrollably which can lead to hypoglycemia and induce comas. Since surgical removal is the only form of treatment, locating these tumors accurately is critical. The marker, which binds to receptors on the tumor making it therefore visible using a special camera, enabled researchers at the Inselspital Bern, Basel University Hospital, and the Paul Scherrer Institute to successfully locate 95% of insulinomas compared to just 47% using CT or MRI in a group of 30 patients. Professor Emanuel Christ of the Inselspital Bern believes that their new method could replace CT and MRI altogether in the future.
http://swissinnovation.org/news/web/2013/03-130729-1d

Family Risk Not Limited to one Type of Cancer

(20min.ch, July 26, 2013)

It has been long known that cancer risk factors run in families, however, it was believed that this only concerns cancers at the same site. A large study with 23'000 participants in Switzerland and Italy suggests that cancer cases in the family also increase the risk of close relatives to develop other cancers. Some of the effects might be caused by common environmental factors such as smoking, but study author Eva Negri said: "Our results indicate that there must also be genetic factors in many types of cancer that affect several different organs." The risk seemed to be highest when the cancer was diagnosed in patients aged 60 and under.
http://swissinnovation.org/news/web/2013/03-130726-16

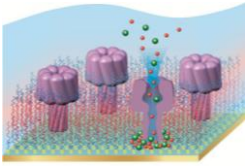
Shigella Vaccine Research

(startupticker, July 29, 2013)

The Gram-negative bacterium Shigella is a major causative agent of Shigellosis, a diarrheal disease mostly affecting children under five in low-income countries. Infection causes an estimated 1.1 million deaths annually. GlycoVaxyn AG, a leader in the development of innovative conjugate vaccines, has won the Wellcome Trust's Strategic Translation Award, worth CHF 5.1 million, to finance its program to develop a Shigella bioconjugate vaccine. It has also signed collaborations with GlaxoSmithKline Biologicals (GSK) and Janssen Pharmaceuticals (JPI). The funding will enable human safety and challenge studies in healthy adults to confirm the efficacy of a monovalent Shigella flexneri 2a vaccine, before testing a multivalent vaccine in field studies in children. Clinical trials are scheduled to start in 2014 in the USA.
http://swissinnovation.org/news/web/2013/03-130729-e0

Natural Channel Protein Inserted in Artificial Membrane

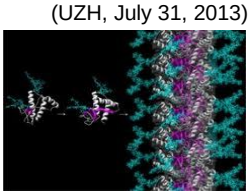
(UNIBAS, July 30, 2013)



A research team from the University of Basel inserted a natural channel protein into a completely artificial polymer membrane. The bilayer membrane attached to a gold surface mimics the membranes in cells, but is much more robust. The researchers showed that the inserted channels were able to transport ions and could be precisely regulated in the artificial environment. Supported membrane systems like this hold great promise for applications in sensing, for example for trace analysis, and in drug discovery, to observe the interaction between a drug and it's target protein.
http://swissinnovation.org/news/web/2013/03-130730-0d

Mechanism of Prion Neurotoxicity

(UZH, July 31, 2013)

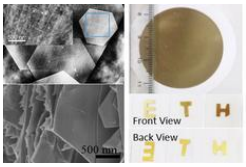


Prion proteins are the infectious pathogens that cause Mad Cow Disease and Creutzfeldt-Jakob disease. They occur when a normal prion protein becomes deformed and clumped. Neuropathologists from the University of Zurich and University Hospital Zurich have found that it is the flexible tail of the prion protein that triggers cell death. Under normal conditions, this tail is very important in order to maintain the functioning of nerve cells. In the case of a prion infection, the pathogenic prion protein interacts with a portion of the globular part of the protein and - like a switch - cause a lethal mechanism is triggered that can lead to very fast cell death, mediated by the flexible tail.
http://swissinnovation.org/news/web/2013/00-130731-06

4. Nano / Micro Technology / Material Science

New Hybrid Gold for Interesting Application

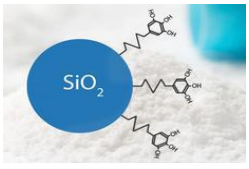
(ETH Zurich, June 18, 2013)



Raffaele Mezzenga, a professor of food and soft materials at ETH Zurich and his team have created an unusual hybrid material which is a wafer-thin, paper-like mixture of graphene and protein fibres which look like a gold leaf. Researchers made the fibres by stretching them naturally from milk globular proteins, the so-called beta-lactoglobulin, and with the aid of heat and acid. The researchers added gold in the form of a salt to the acidic solution of the fibres. The gold grows as a so-called monocrystal and the gold ions form a crystal lattice completely devoid of any defects. Mezzenga sees an initial application in gastronomy, allowing use as an additive in foods because the new hybrid material is made of gold and dietary proteins. The hybrid material could also be used for acidity measurements in sensors. The "paper" is conductive depending on its composition giving it a possible application in microelectronics.
http://swissinnovation.org/news/web/2013/04-130618-a5

New Nanomaterial Combats Oxidation in Antioxidants

(ETH Zurich, June 17, 2013)

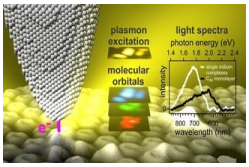


To protect molecules from oxidation, a new nanomaterial has been developed creating a substantially longer shelf life compared to other substances used in the past. Researchers under Yiannis Deligiannakis, a visiting professor at the Institute of Process Engineering, have modified a special nanoantioxidant making it more stable and easier to store than its conventional counterparts. This nanoantioxidant is bounded by a silicon dioxide nanoparticle

and gallic acid. “Gallic acid is one of the molecules with the best antioxidant activity,” explains Georgios Sotiriou, a postdoc at the Institute of Process Engineering. However, like other antioxidants, gallic acid molecules eventually lose their effect, especially since they latch onto other gallic acid molecules and thus deactivate each other. By combining them with the silicon dioxide, however, the researchers were able to suppress this process. Additionally, the nanoantioxidant is temperature-resistant and could thus protect pasteurized food or polymers that are produced at high temperatures. The researchers have patented their product and are in the process of discussing the possibility of licensing specific industrial partners.
http://swissinnovation.org/news/web/2013/04-130617-4e

Breakthrough in Plasmonics

(EPFL, June 20, 2013)



A plasmon is a wave that is generated by light impacting a metal surface, and it can be used to transmit information. This phenomenon has the potential to change computation and communication devices by combining the advantage of a metal transmission surface (versus a more complex optical fiber) and the speed of optical transmission. The result could be processors that are significantly faster than current-generation ones. Researchers at the Max Planck-EPFL Center for Molecular Nanoscience and Technology have discovered that plasmons can be controlled down to smaller than the level of individual molecules by using the molecular orbits, an important advancement in the use of plasmonics.
http://swissinnovation.org/news/web/2013/04-130620-42

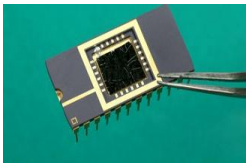
Fluorine-Free and Water-Resistant Jacket

(ETH Zurich, June 24, 2013)

Much water-resistant but breathable clothing uses textiles that are made with fluorine. When fluorine is bound in the material, it isn't dangerous, but it is highly reactive and dangerous on its own during manufacturing or disposal. Researchers at ETH Zurich test new nanoporous materials made without fluorine for clothing and found the results to be comparable to traditional textiles. The material is as breathable but more water-resistant. The master student working on this project took it one step further and fabricated an entire jacket with this material to test its practical usability.
http://swissinnovation.org/news/web/2013/04-130624-4b

Ultrasensitive Molybdenum-based Image Sensor

(EPFL, June 26, 2013)



Molybdenite (MoS2) could replace silicon in the fabrication of photographic image sensors. The material's amazing semi-conducting properties were discovered in 2011 by an EPFL team which has been exploring its potential in various technological applications ever since. This promising material has now been integrated in a prototype of an image sensor. This sensor, described in an article appearing in Nature Nanotechnology, has five times the light sensitivity of current technology. This level of sensitivity would open up the huge area of low-light or night photography, without resorting to “noise”-generating amplification techniques, slowing down the shutter speed or using a flash.
http://swissinnovation.org/news/web/2013/04-130626-99

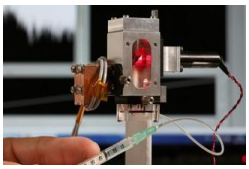
Material Scientists Help to Resurrect 19th Century Brass Instruments

(Empa, June 27, 2013)

In the course of a CTI project, Empa scientists have analyzed historical brass instruments from the romantic period in order to discover what materials were used in their manufacture and how exactly they were made. Together with musicians from the Bern University of the Arts and an instrument manufacturer from Basel, the experimental findings were implemented in the construction of replica instruments - with great success: "The difference in playing characteristics and tonal quality is greater than we expected", says Rainer Egger who has decades of experience in instrument making. This has already been demonstrated in concert by the Symphony Orchestra of Biel. To study the tonal differences in more detail and reveal the link between materials and playing characteristics, the scientists plan to launch another project.
http://swissinnovation.org/news/web/2013/04-130627-ee

New Nanodevice Speeds up Antibiotic Tests

(EPFL, July 03, 2013)



Researchers at EPFL have built a matchbox-sized device that can test for the presence of bacteria in a couple of minutes, instead of up to several weeks. A nano-lever vibrates in the presence of bacterial activity, while a laser reads the vibration and translates it into an electrical signal that can be easily read—the absence of a signal signifies the absence of bacteria. Thanks to this method, it is quick and easy to determine if a bacteria has been effectively treated by an antibiotic, a crucial medical tool especially for resistant strains. “This method is fast and accurate. And it can be a precious tool for both doctors looking for the right dosage of antibiotics and for researchers to determine which treatments are the most effective,” explains Giovanni Dietler, Professor at the Laboratory of Physics of Living Matter at EPFL.
http://swissinnovation.org/news/web/2013/04-130703-01

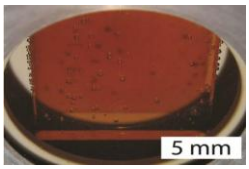
Telescopic Contact Lenses

(ICTjournal, July 05, 2013)

Researchers at the EPFL have developed telescopic contact lenses capable of magnifying sight by up to 2.8 times. This could be particularly useful for people with macular degeneration (impaired central vision), who currently require a magnifying glass to see. The new lenses, designed by a research team from the EPFL and the University of California at San Diego, enable you to switch automatically between a normal view and a view magnified up to 2.8 times. To do so, users need simply wear a pair of 3D glasses similar to those used to watch TV. This research program was funded by the US agency responsible for Defense Advanced Research Projects (DARPA). The lenses are currently undergoing testing in the US.
http://swissinnovation.org/news/web/2013/04-130705-1f

Nano-Rust Enables Solar Hydrogen Production

(EPFL, July 09, 2013)



Water and some nano-structured iron oxide is all it takes to produce bubbles of solar hydrogen. Using transmission electron microscopy techniques, researchers from EPFL and Technion were able to precisely characterize the movement of the electrons through the nanostructures and to identify the most suitable production process. "The whole point of our approach is to use an exceptionally abundant, stable and cheap material: rust," adds Scott C. Warren, first author of the article published in Nature Materials. The long-term goal is to produce hydrogen – the fuel of the future – in an environmentally friendly and especially competitive way. The researchers are aiming at about $ 6.5 per kilo, which is about a third of today's price.
http://swissinnovation.org/news/web/2013/04-130709-59

More Efficient Dye-sensitized Solar Cells

(EPFL, July 11, 2013)

Dye-sensitized solar cells have many advantages over their silicon-based counterparts They offer transparency, low cost, and high power conversion efficiencies also under cloudy and artificial light conditions. However, so far their overall efficiency has been lower than silicon-based solar cells. In a Nature publication, EPFL scientists have developed a state solid version of the DSSC that is fabricated by a new two-step process raising their efficiency up to a record 15% without sacrificing stability. The authors believe that it will open a new era of DSSC development, featuring stability and efficiencies that equal or even surpass today's best thin-film photovoltaic devices.
http://swissinnovation.org/news/web/2013/04-130711-d4

Varying Ferromagnetism in a Single Material

(PSI, July 12, 2013)

Researchers at the Paul Scherrer Institute have managed to grow a material that is simultaneously ferromagnetic and antiferromagnetic. They grew layers of LuMnO3 on a crystal and found that close to the crystal the material exhibited ferromagnetism, but became antiferromagnetic farther away. The material's structure adapts itself to that of the underlying crystal, which creates this gradient. While varying ferromagnetism has previously been created by layering materials, this is the first time the feat was achieved in a single material. This has implications for the design of compact digital storage media.
http://swissinnovation.org/news/web/2013/04-130712-65

5. Information & Communications Technology

Intelligent Test Robot to Exterminate Internet Bugs

(EPFL, June 03, 2013)

Bugs on websites are annoying for users and and can bring extensive financial consequences for large companies. Testing websites still poses problems to web developers because existing tools are incomplete and full of loopholes.The EPFL startup BugBuster has invented the first intelligent tool that finds out on its own how to interact with an application whose code it tests according to various possible scenarios. It automatically notifies the developers about the problems it found as screen captures. With this functionality, the tool is able to test almost every function on a website, saving web designers a lot of time - and it's easy as the push of a button: Simply enter the URL onto the company's website and press "start."
http://swissinnovation.org/news/web/2013/05-130603-b6

Swiss in-appCommerce Endorsed by Microsoft

(startupticker.ch, June 24, 2013)

Microsoft's new Windows Partner Directory endorsed Swiss Lotaris in-appCommerce service as an alternative to the default Microsoft eCommerce engine in the Windows Store. This special listing makes great visibility to millions of developers worldwide. Lotaris in-appCommerce for Windows 8 enables direct user relationships and maximizes revenues with a full range of app licensing and payment functions providing a more developer-friendly ecosystem around its Windows Store. "We are extremely pleased to be selected by Microsoft as the only partner to provide a comprehensive commerce service to the Windows Store developer community" said Lotaris CEO, Mr. Robert Tibbs. "Microsoft has demonstrated commitment towards Lotaris, and the reverse is true as we committed to extend our technology to address Windows 8."
http://swissinnovation.org/news/web/2013/05-130624-12

PSI Invention to Reduce Nitrogen Oxide Emissions

(PSI, June 27, 2013)

The supply of a vapor saturated gas mixture plays a crucial role in many industrial processes, for example to reduce the emission of nitrogen oxides during diesel combustion. However, obtaining a gas mixture with exactly one hundred per cent vapor saturation remains a highly challenging technical task. A scientist at the PSI has come up with an invention which enables this to be implemented industrially in the future via a simple, flexible and robust technique. The technique is now put into practice in collaboration with engine manufacturer Wärtsilä. The inventor's aim is ambitious: in around five years' time, he wants all of Wärtsilä's diesel engines to be emitting far less nitrogen oxides over the world's oceans, with the help of his invention.
http://swissinnovation.org/news/web/2013/05-130627-dc

Software to Construct Everything with Legos

(EPFL, July 01, 2013)

If you remain a big kid at heart or, more practically speaking, if you enjoy architectural challenges, an algorithm developed at EPFL should enable all your artistic fantasies through the famous small Lego pieces.The software developed by Romain Testuz in his Masters semester thesis automatically transforms a three-dimensional image into bricks and simplifies the challenge of construction by proposing a comprehensive plan of the parts to be used on each floor. With it, any shape is possible. "The first challenge was to find research that had been conducted on this subject and to understand what wasn't working in pursuit of a better solution", explains Romain. He then spent the next several months with pockets full of Legos to resolve these problems and confirm the new model.
http://swissinnovation.org/news/web/2013/05-130701-10

Software to Trace Paths Through a Music Jungle

(EPFL, July 05, 2013)

A software developed by researchers at EPFL offers an innovative approach to playlist making and to rediscovering forgotten songs. The program called Genezik proposes to guide listeners in the exploration of new musical avenues and help them rediscover their own music and forgotten pieces. What makes this program original is its ability to determine which pieces of music go together, allowing it to create musical paths, for example gently taking the listener from good old Aretha Franklin to Daft Punk, or even from a Mozart piece to Metallica. After choosing a single song, it creates a coherent route among tracks whose properties have been determined to be similar with regards to scientifically established parameters. This is one of the inventions that EPFL presented during the Montreux Jazz Festival.
http://swissinnovation.org/news/web/2013/05-130705-fe

Crowd Behavior Research with Mobile App

(ETH Zurich, July 08, 2013)

Researchers from ETH Zurich developed a mobile app to gather people's positional data to model crowd behaviors. During Switzerland's biggest city festival, the "Züri Fäscht" taking place in Zurich every three years, over 27'000 users used the app and provided the researchers with a dataset of 23 million GPS location points. As a first result, the researchers found that the hotspots and potentially congested areas they identified using the mobile data corresponded very well to the observations of the police - although only a fraction of the 2.3 million festival guest were using the app. A more detailed analysis of the complex dataset will include modelling the flow of visitors through the city. The researchers hope to find ways to predict crowd dynamics accurately enough to avoid potentially dangerous congestions.
http://swissinnovation.org/news/web/2013/05-130708-8b

Swiss Data Storage Booms

(20min.ch, July 10, 2013)

Following the revealment of the NSA's data hunger, Swiss data centers are facing more requests for their services - although data storage in Switzerland is about 25% more expensive than in the neighboring EU countries. "Our customers know that money can be replaced - but sensitive data can not", says Mateo Meier of Artmotion, a data center in Zurich. Switzerland's know-how, political stability and adequate infrastructure are ideal conditions to store data securely, he says. However, the political framework could soon change, as the Federal Council has drafted a bill to allow data to be accessed upon suspects - not requiring the authorization by a judge anymore.
http://swissinnovation.org/news/web/2013/05-130710-d4

Mexican Parliament Uses Swiss Startup's Software

(computerworld.ch, July 10, 2013)

Parliamentarians need easy and quick access to news, background information, documents, past parliament decisions and much more. A new mobile information platform provides all this to Mexico's parliamentarians and parliament staff in real time. In the development of the system, the Launch Base program of the Swiss app specialists Terria Mobile was of central importance. It offers powerful data infrastructure, analysis and control functions, as well as mechanisms for direct updates and a high level of security."We are extremely pleased that Terria Mobile and LaunchBase are in appreciated abroad", said Robin Wirz, CEO of Terria Mobile and participant of swissnex Boston's 2013 venture leaders program.
http://swissinnovation.org/news/web/2013/05-130710-ae

Rescue In The Mountains - Even Without Cell Phone Coverage

(tagesanzeiger.ch, July 10, 2013)

The new mobile app Uepaa! allows hikers and mountaineers to call for rescue even when they're in a region without cell phone coverage. The app uses wireless LAN to connect the mobile phones of it's users: Whenever hikers get closer than 400 meters, their phones exchange their latest GPS positions and other relevant information like the color of the hiker's clothes. When an accident happens, an alarm can be transmitted from a dead spot via other phones back to an area with cell phone reception. For this principle to work, the app needs to have many active users - and Uepaa! seems to be moving in the right direction: A few days after launch, the app was #2 in the Swiss stores for iPhone and Android apps.
http://swissinnovation.org/news/web/2013/05-130710-50

First Swiss-made Computer with Ubuntu Pre-installed

(startupticker, July 12, 2013)

why! open computing SA, founded by environmentally-aware former Vaud state councilor François Marthaler, has launched the first Swiss-made computer with Ubuntu pre-installed. The company aims to make laptops that last 10 years or more, countering trends towards programmed obsolescence in IT. With its repository and hundreds of free software packages, Ubuntu allows anybody to bypass proprietary operating systems and benefit from the tremendous potential of new information technologies and communication at minimal cost. To extend computer lifespans, why! uses easily dismantleable computers and offers customers repair guides and low-cost spare parts. Since GNU/Linux and free software mainly benefit local economies, why! provides a directory of Swiss companies that offer local user support. It proposes an Ubuntu-compatible laptop, desktop and peripherals.
http://swissinnovation.org/news/web/2013/05-130712-c1

Artificial Neural Circuits

(UZH, July 22, 2013)

Researchers at the University of Zurich and ETH Zurich, together with other colleagues, developed a chip that mimics how the brain processes information, but differs from traditional computational approaches, such as artificial neural networks. The neuromorphic chips implement models of neurons and synapses, and are configured into structures similar to those found in mammalian brains to perform tasks in real-time. So far, sensorimotor tasks requiring memory and decision making were demonstrated, but more advanced demonstrations are planned, possibly including sensory components.
http://swissinnovation.org/news/web/2013/05-130722-68

Improving Cloud Computing for Small and Medium Enterprises

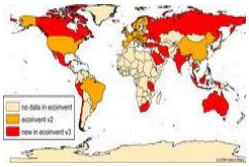
(startupticker, July 26, 2013)

CloudBroker, a spin-off company of the ETH Zürich, is participating in CloudSME – a project aimed at developing cloud-based solutions that will enable small and medium enterprises (SMEs) in the European manufacturing and engineering industries to take up simulation technologies. These technologies would significantly improve efficiency and reduce costs, but are typically off limits to SMEs because of high licensing costs and lack of technical expertise. CloudSME aims to develop a platform that will change the way these SMEs use simulations and provide new business opportunities to SMEs, as well as to the providers of simulation software and cloud services. The project has 16 partners and will receive 4.5 million Euros from the European Commission.
http://swissinnovation.org/news/web/2013/05-130726-e6

6. Energy / Environment

World's Leading Life Cycle Assessment Database

(PSI, June 04, 2013)



Ecoinvent, the ultimate inventory database for life cycle assessment projects regarding environmental impacts, has enabled companies to access data which supports their product development, policy decision making, and consumer product information requests. Life cycle assessment (LCA) data plays a vital role in the development of Switzerland's climate strategy concerning the transition to renewable energy sources and in the 'Green Economy' action plan adopted in March 2013. The LCA method examines the environmental compatibility of its entire life cycle: from the extraction in the mine of the raw materials necessary for its production, to the use of land and water, to its final destination as waste. The database plans to expand by allowing its users to act as data providers. The integration of datasets from all over the world will contribute toward a mega internationalized life cycle inventory database.
http://swissinnovation.org/news/web/2013/06-130604-b6

CO2 Vacuum Cleaner Filters 1000 tons/y out of the Air

(ETH Zurich, July 01, 2013)

ETH-Zurich spin-off Climeworks is looking to filter carbon dioxide out of the ambient air and sell it to major customers such as greenhouses at competitive prices. In the past four years, Climeworks has developed its equipment from the lab scale of a few grams to adsorb several kilos of CO2 per day. The first pilot plant is now up and running: "We were able to markedly improve the system's design and energy efficiency", explains Co-Founder Christoph Gebald. The equipment is expected to filter up to 1,000 tons of carbon dioxide out of the air a year by 2014. Unlike other cleantech start-ups, Climeworks' business model is not based on climate compensation payments for CO2 sequestration. Instead, the company expects to draw its profits from the sale of the gas to large-scale consumers such as greenhouses.
http://swissinnovation.org/news/web/2013/06-130701-84

Insects' Trophic Interactions in Non-Native Environments

(EAWAG, July 02, 2013)

Researchers at Cornell University and Eawag discovered a general and flexible method to understand how insects may use non-native plants in their diet. The method could accurately predict the use of >400 non-native plants as larval hostplants by 900 different herbivorous butterfly and moth species native to Europe. The specificity and incidence of interactions between newly introduced plants and the native insect population are important for two main

reasons: On the one hand, native insects can limit the success of unwanted invasive plants, on the other hand they can also cause economic damage to introduced crops.
http://swissinnovation.org/news/web/2013/06-130702-ab

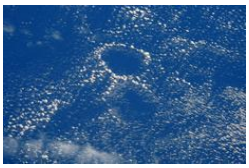
65,000 Simulations Lead to 6 New Climate Targets

(UNIBE, July 03, 2013)

"Neither sufficient nor suitable" is how researchers at the University of Bern's Oeschger Centre for Climate Change Research perceive the current goal of limiting the increase in global mean temperature to two degrees Celcius relative to preindustrial times. Fearing dangerous anthropogenic damage to our ecosystem, Professor Joos, Professor Stocker, and Dr. Steinacher are adamant that the reduction of CO2 emissions must double compared to the reduction target set for the two-degree maximum increase in temperature. Recently publishing in Nature, the researchers propose six specific global and regional climate targets based on roughly 65,000 simulations made by a unique and state-of-the-art Earth System Model developed at the University. They hope policy makers will take a quantitative approach to linking climate targets to greenhouse gas emissions in efforts to stop rising sea levels, agricultural production loss, and the acidification of oceans among many other environmental concerns.
http://swissinnovation.org/news/web/2013/06-130703-c7

Middle-sized Ocean Eddies Impact Weather

(ETH, July 08, 2013)



Ocean currents have a big impact on weather and climate. Without the Gulf Stream, for example, the climate of Northern and Western Europe would be cooler. Scientists at ETH Zurich uncovered that also relatively small swirling motions in the ocean, so called eddies, impact weather. A large number of such eddies exists in all oceans at any time, featuring diameters of about one hundred kilometers. The scientists analysed comprehensive satellite data collected over nearly a decade, containing information for more than 600'000 transient eddies. It turned out that depending on the temperature, eddies can locally lead to either more or less wind, clouds and rain. Although the effect is small, the effect of the eddies increases the variability of the atmosphere and hence may influence extreme weather events locally.
http://swissinnovation.org/news/web/2013/06-130708-c8

Predicting the Melting of Permafrost

(UNIFR, July 09, 2013)

Permafrost, constantly frozen soil, is important for the stability of hill slopes, and therefore also for the safety of villages and traffic routes in the Swiss alps. Geographers from the University of Fribourg have developed a computational model predicting at which point in time a particular permafrost zone will start to melt due to climate change. The timing of this process is strongly dependent on local conditions, such as air temperatures, ice content of the soil but also whether the area in question is covered by snow. Among other regions, the researchers investigated the permafrost at Schilthorn, a 2970 m peak in the Bernese alps. They expect the permafrost in this region popular for hiking to start melting as soon as in ten to twenty years.
http://swissinnovation.org/news/web/2013/06-130709-15

Agroscope Rediscovers Long-lost Plant Varieties

(news.admin.ch, July 08, 2013)

Agroscope manages the Swiss cultured plant collection, thereby preserving the seed of thousands of ancient and modern varieties for the future of biodiversity. This library also serves as a resource for breeding future varieties. It has enabled ancient Swiss oat, rye, barley and flax varieties that were extinct in Switzerland but still existed in foreign collections, e.g. in St. Petersburg, to be rediscovered. Agroscope's national gene bank collects, preserves and supplies more than 10,085 ancient and modern plants in the form of seeds. Sources constitute institutions committed to conserving biodiversity, including producers, private individuals and private breeders. Other libraries include the Svalbard Global Seed Vault in Norway, which ensures international secure storage for genetic resources from other countries.
http://swissinnovation.org/news/web/2013/06-130708-b2

Electric Delivery Truck

(20min.ch, July 10, 2013)

The Swiss company E-Force One is creating an 18-ton all-electric delivery truck that will go into initial use this fall. The company based its technology on previous all-electric vehicles it developed. The two initial customers are Co-

op, a large national grocery store and retailer, and Feldschlösschen, a Swiss beer brewer. Both will use the trucks for local deliveries. Coop has made the commitment to become CO2-neutral in the next ten years, and Feldschlösschen has a similar commitment. Initial trials will be small, but fleets may expand to hundreds of trucks.
http://swissinnovation.org/news/web/2013/06-130710-b7

Advanced Warning of Landslides

(20min.ch, July 12, 2013)

As global temperatures continue to rise and glaciers melt, there is an increased risk of landslides. Switzerland has recently experienced several in the Alps. To help this matter, engineers from ETH Zurich, together with geographers and geologists, have installed GPS sensors on mountainsides to monitor movement. If large movement is detected, a landslide warning is issued. The GPS sensors monitor movement with millimeter accuracy and precision in order to detect even slight movements.
http://swissinnovation.org/news/web/2013/06-130712-79

Cassava Crop Genetically Modified to Help 300 Million Africans

(swissinfo.ch, July 15, 2013)

Swiss researchers are ready to start field trials in Africa of a new genetically-modified, virus-resistant, strain of the plant Cassava, which will help over 300 million Africans. Cassava is vital source of food and commerce in Africa. The Cassava plant is susceptible to the devastating cassava brown streak disease (CBSD), but Hervé Vanderschuren of Zurich's Federal Institute of Technology (ETHZ) proposes a measure to do field trials of the transgenic cassava which will teach best practices among farmers, while placing natural combatants such as mites that will fight the 'whitefly', a spreader of the cassava mosaic disease (CMD). The Global Cassava Partnership believes that "game-changing" technologies are needed, and that "this case is used for humanitarian purposes, not to make money or exploit people in any way. But there is no magic bullet and this is just one element in the roadmap."
http://swissinnovation.org/news/web/2013/06-130715-3e

Understanding Successful Plants

(UNIBE, July 16, 2013)

Why are some plant species rare and others common? What makes a plant invasive? To answer these questions, researchers at the Institute of Plant Sciences in Bern, in collaboration with the University of Konstanz, studied over 90 different species in both the field and in greenhouses. According to Mark van Kleunen and his team, species characteristics such as quick germination and growth, and in particular the ability to defend against herbivores, have a larger impact on plant survival than previously thought. Their results agree with general theories on plant community assembly and can have critical implications for the early detection and prevention of future plant invasions in Switzerland.
http://swissinnovation.org/news/web/2013/06-130716-17

New Data Shows Planktonic Organism Behavior in Ecosystems

(20min.ch, July 19, 2013)

A recently released article in the journal "Earth System Science Data" provides information about microorganisms ranging from phytoplankton and bacteria to krill. Meike Vogt, senior scientist at the Institute of Biogeochemistry and Pollutant Dynamics at ETH Zurich, collaborated on the project with her British colleagues at the University of East Anglia. "The data helps us understand how planktonic organisms are organized in ecosystems." Researchers aim to have the data examined on what role plankton plays in different oceanic regions thereby acting as a driver of the earth's various biogeochemical cycles. Likewise, climate scientists have a more solid foundation on this data which can validate their models. If these scientists succeed in mapping ecological diversity more precisely then more accurate predictions regarding the role of the ocean as a carbon sink can be determined.
http://swissinnovation.org/news/web/2013/06-130719-85

Earthquakes Release Methane, Impacting Climate Change

(ETH Zurich, July 29, 2013)

Earthquakes significantly influence the release of the greenhouse gas methane from the seabed, where it occurs as frozen methane hydrate. Researchers at the University of Bremen and the Alfred Wegener Institute in Bremerhaven conclude this from studying methane sources at the bottom of the Indian Ocean off the coast of Pakistan.

Where the Arabian and Eurasian tectonic plates collide with each other, methane gas bubbles up from under the ground. Scientists have shown that these sources have only been active in recent decades, probably since 1945 when an earthquake measuring 8.1 on the Richter scale occurred in the region, forming cracks that weakened seabed stability. Climate calculations should therefore also take into account methane released by temporary sources like earthquakes.
http://swissinnovation.org/news/web/2013/06-130729-e1

7. Engineering / Robotics / Space

Robot Guide at Airport

(20min.ch, June 03, 2013)

The Airport of Geneva and Bluebotics have developed an innovative robot. The robot moves around in the airport and is looking for contacts. It helps travellers looking for a trolley, a money exchange or toilets. The robot accompanies the travellers to the location and at the same time it helps to carry forward the reflections on the concept of the service. The robot is innovative in two ways. The first innovation is the navigation system. Similar system exist however they need cables on the floor or other references. The Bluebotics navigation system doesn't need anything. The second innovation is the application. It's the first robot which helps passengers in an airport to access different services.
http://swissinnovation.org/news/web/2013/07-130603-04

Innovative Modular Aircraft

(EPFL, June 10, 2013)

Researchers at EPFL have developed a new aircraft concept, dubbed Clip-Air, that allows passenger and cargo capsules to be easily attached and detached from the wing and support structure. This architecture allows aircraft to be easily reconfigured with various passenger and cargo capsules. It is also envisioned that the capsules could easily travel beyond the airport, for example into the city center, thereby making transfers easier. Finally, the design allows for more flexible and efficient operation and fleet management. A model of the aircraft concept is being displayed at the Paris Air Show.
http://swissinnovation.org/news/web/2013/07-130610-d3

Light, Fast Cat-Like Robot

(EPFL, June 17, 2013)

EPFL Biorobotics Laboratory's four-legged "cheetah-cub robot" has the same advantages as its feline model: it is small, light and fast. During tests, it demonstrated its ability to run nearly seven times its body length in one second, making it the fastest robot in its category. Although not as agile as a real cat, it still has excellent auto-stabilization characteristics when running at full speed or over a course that included disturbances such as small steps. Its particularity is the design of its legs, whose design faithfully reproduces feline morphology. The number of segments – three on each leg – and their proportions are the same as they are on a cat. Springs are used to reproduce tendons, and actuators – small motors that convert energy into movement – are used to replace the muscles.
http://swissinnovation.org/news/web/2013/07-130617-4a

Partnership in Commercial Space Industry

(20min.ch, June 18, 2013)

At the International Aeronautics and Space Show in Le Bourget (Paris), Thales Alenia Space announced the signing of the agreement with the Start-up Swiss Space System (S3) for the development of the pressurized compartment intended to house scientific experiments and astronauts of the SOAR (Sub-Orbital Aircraft Reusable) suborbital vehicle. Swiss Space Systems is a young Swiss aerospace company whose goal, from now until 2018, is the development, construction, certification and operation of suborbital spacecraft for launching small satellites up to a weight of 250 kg. This agreement will allow S3 to further develop the project, also proposing research applications in the areas of microgravity and suborbital passenger transportation. The S3 project takes advantage of the prestigious collaboration of ESA's Astronaut Center and of other important aerospace industries.
http://swissinnovation.org/news/web/2013/07-130618-85

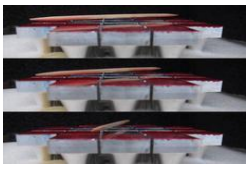
Driver Fatigue Detection Device

(EPFL, July 15, 2013)

A student at EPFL has been working with car manufacturer Peugeot to develop a driver fatigue detection algorithm. The algorithm uses video of the driver to measure and analyze the percentage of time the driver's eyelids are closed, defined as covering more than 80% of the pupil. Together with other driver measurements, such as yawning, fatigue can be predicted. The algorithm needs to be robust to varying lighting and environmental conditions, and it needs to run on the limited capacity of a vehicle computer. Peugeot will help test the algorithm in realistic conditions.
http://swissinnovation.org/news/web/2013/07-130715-a7

Surfing on Acoustic Waves

(ETH, July 16, 2013)



ETH researchers are able to make objects fly in mid-air and even rotate a toothpick in the air by letting them ride on acoustic waves. This is not simply an amusing trick: moving objects such as particles or droplets of a liquid freely in mid-air makes it possible to investigate processes while avoiding any disruptive contact with a surface. For instance, some chemical reactions and biological processes are compromised by surfaces, and certain substances disintegrate on contact with a surface. Until now, scientists have been able to generate such a "contact-free" levitational state only with the help of magnets, electrical fields or in liquids with the help of buoyancy, but this limited the selection of materials that can be handled massively.
http://swissinnovation.org/news/web/2013/07-130716-0a

New World Record for Human-Powered Vehicle

(ETH Zurich, July 29, 2013)

One hour, two people, 83 km. This new world record for longest distance travelled in one hour by a tandem was achieved by Cieo, a Focus Project Team from the ETH Zürich comprised of mechanical engineering students whose dream was to build the most streamlined and aerodynamic tandem possible. Their human-powered vehicle, made of an ultra-light shell with specially mounted seats, took one year to design and build, and represents a potential solution for human mobility in the face of increased energy consumption and waning natural resources. Led by ETH student Lukas Moy, Cieo plans to enter its tandem in international competitions, as well as beat their world record in the future.
http://swissinnovation.org/news/web/2013/07-130729-42

Microdroplet Control for Better Experiments

(ETH Zurich, July 30, 2013)

Microdroplets are used in experiments, but they typically evaporate quickly, making experimentation difficult. Researchers at ETH Zurich now have a new way to control these microdroplets. Using technology from nanoscale 3D printers, they create droplets by placing even smaller droplets at the desired site. As the main droplet evaporates, additional liquid can be added in minuscule quantities to control its size and concentration. This generally applicable approach represents an improvement over previous approaches that used specially-designed microfluidic chips.
http://swissinnovation.org/news/web/2013/07-130730-b9

Counterfeit Combates with Miniaturized Authentication Imaging System

(EPFL, July 31, 2013)

In order to prevent counterfeit forgeries, EPFL researchers have proposed a new miniaturized authentication system. By using both moiré patterns and microlithography techniques, forgeries can be easily detected with the naked eye and impossible to recreate with an existing printer or scanner technology. Two EPFL research teams, led by professors Roger D. Hersch and Jürgen Brügger, have combined their respective specialties: the moiré pattern technique together with microlithography, a circuit manufacturing technique using engraving at a micrometer scale. The researchers obtained a dynamic and minuscule image that offers an interesting alternative to holograms. Despite their small size (about 0.5 × 0.5 cm), the patterns are easily recognizable with the naked eye. Consequently, an infrared microscope is not required to authenticate. In addition, this method offers the possibility of showing complex and high resolution images of nearly 10,000 dpi.
http://swissinnovation.org/news/web/2013/07-130731-05

8. Physics / Chemistry / Math

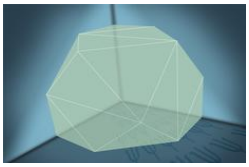
Alternative Imaging Technique for Safety Authorities Based on Fast Neutrons

(PSI, June 06, 2013)

Scientists at the Paul Scherrer Institute (PSI) have developed a more flexible and cost-effective alternative imaging technique based on fast neutrons. Scientists at the Thermal-Hydraulics Laboratory are working on an imaging system comprised of compact neutron sources and neutron detectors with the possibly of production with low cost materials like polyethylene plastic. By generating fast neurons, the PSI-scientists addressed this by using deuterium atoms, a heavier isotope (form) of hydrogen, where scientists seek to knock out the extra neutron at high speed. In the detector, developed by the PSI researchers, a plastic (polyethylene) film serves as the prime element in the detection chain, where the neutrons transfer a part of their energy to protons by colliding with hydrogen atoms (protons) of the plastic. With the ability to determine the chemical composition of a sample, scientists working with safety authorities now have a very useful tool. Dangerous materials hidden in a suitcase or container can now be identified by more than just their physical shape.
http://swissinnovation.org/news/web/2013/08-130606-87

Classification of Quantum Entanglement

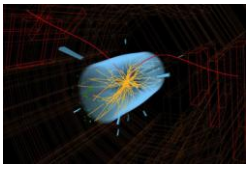
(ETH Zurich, June 07, 2013)



Quantum entanglement is the phenomenon that two or more particles can influence each other over arbitrary distances. This phenomenon will have a large impact on many fields, including information security and computation. However, the number of types of entanglement is very large and until now has not been accurately classified. Now, a group at ETH Zurich has been working to develop a system for classification that equates entanglement states to geometric polytopes. Their system allows entanglement states to be determined based on a few measurements of a particle. The system can be used to determine the usefulness of a given entanglement state for a specific application.
http://swissinnovation.org/news/web/2013/08-130607-1a

Results from CERN Support Standard Model

(CERN, July 19, 2013)



Researchers at CERN's Large Hadron collider have reported the first definitive observation of one of the rarest processes in fundamental physics: The decay of a particle called a Bs meson into two muons. The new measurements show that only a handful of Bs particles per billion decay into pairs of muons. Because this process is so rare, it is an extremely sensitive test for the Standard model, the very successful theory in particle physic. Any divergence from the Standard Model's prediction would be a clear sign of something new. The results offer strong support for the Standard Model: “This is a process that particle physicists have been trying to find for 25 years,” says CERN spokesperson Joe Incandela.
http://swissinnovation.org/news/web/2013/00-130719-f5

Spintronics to Improve Efficiency of Electronic Devices

(UNIFR, June 19, 2013)

Physicists at the University of Freiburg and the Queen Mary University of London have advanced the understanding of organic semiconductors, which may help create more efficient electronic devices. The current race towards electronic miniaturization is reaching a limit due to current techniques and concepts based on the electric charge of the electron. Spin-based electronics, or "spintronics", may open up new opportunities. Spin is a quantum property of a particle and spin consistency is important when designing electronic equipment to store or process information. As published in Physical Review Letters, the researchers identified the key role of spin-orbit interaction and ways of improving spin control that could help produce less energy-demanding portable devices with lower manufacturing costs and improved mechanical properties.
http://swissinnovation.org/news/web/2013/08-130619-c6

Nucleus Stability with Varying Number of Neutrons

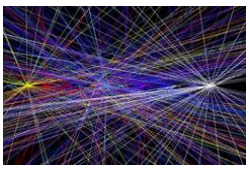
(CERN, June 19, 2013)

The classical shell model of nuclear physics shows that atoms with specific 'magic' numbers (2, 8, 20, etc.) of protons and electrons have greater stability and are more tightly bound. More recent developments show that the number of neutrons in a nucleus also affect stability and follow a similar magic number pattern. Scientists running

the ISOLTRAP experiment at the European Center for Nuclear Research (CERN) have been experimenting with isotopes of calcium and have been able to verify theoretical results for a range of exotic isotopes, up to calcium-52.
http://swissinnovation.org/news/web/2013/08-130619-47

PSI Pixel Detector in the CERN CMS Experiment

(PSI, June 20, 2013)



The CMS experiment at the European Center for Nuclear Research (CERN) is searching for evidence of the Higgs particle. Although its discovery has been announced, more data is still being collected to increase the certainty of the discovery. One central instrument to this experiment is the pixel detector developed by the Paul Scherrer Institute (PSI). This detector is the innermost detector in a set of detectors around the particle collision site. It locates particles to within one-thousandth of a millimeter, important for reconstructing the collision and the decay of potential Higgs particles. PSI also played a role in calculating the complex physics behind Higgs particle decay.
http://swissinnovation.org/news/web/2013/08-130620-95

High Performance Cleanrooms at PSI

(PSI, July 01, 2013)

For highly sensitive fabrication processes for components such as x-ray lenses and detectors, the Paul Scherrer Institute is operating three cleanrooms. In there, only one particle per two liters of air can be found - a hundred thousand times less than in a conventional room. Quite an effort, given that a person who is not moving gives off 100,000 particles per minute, the majority of which are tiny flakes of skin. Consequently, special overalls with head and foot covers are mandatory, pencils and normal paper are forbidden and a powerful ventilation system replaces the air in the room completely every two minutes.
http://swissinnovation.org/news/web/2013/08-130701-33

Construction of X-FEL Started at PSI

(PSI, July 03, 2013)

In a festive ceremony, the Paul Scherrer Institute laid the cornerstone for its new research facility SwissFEL. The X-ray free electron laser is based on a novel technology holding exceptional promises for diverse areas of scientific research. The pulses generated by SwissFEL can be used to observe extremely fast processes such as the formation of new molecules in chemical reactions, but also to elucidate the structure of proteins or the inner complexity of technologically relevant materials. The new facility, 740 meters long, is expected to be operational in 2016. The costs of SwissFEL, over $ 280 million, are covered by the Swiss government and the Canton of Aargau.
http://swissinnovation.org/news/web/2013/08-130703-d4

Linking Quantum Physics and Game Theory

(UNIGE, July 09, 2013)

Physicists at the University of Geneva and the University of Bristol have identified a close relationship between some concepts underlying quantum physics and game theory, bringing together two seemingly unrelated worlds. Game theory often features in economics, political science, biology or philosophy. It uses mathematical concepts to model options that put players in a given situation and predict the likelihood of possible outcomes, whereas quantum physics focuses on events occurring on the atomic scale. The researchers discovered i.a. that quantum nonlocality offers new ways for players to optimize their performance. They were able to characterize games for which quantum resources are a real advantage in terms of classical theoretical resources. The findings are published in Nature Communications.
http://swissinnovation.org/news/web/2013/08-130709-b8

Hotlabs for Research on New Neutron Beam Sources

(PSI, July 11, 2013)

The hotlab facilities at Paul Scherrer Institute allow researchers to safely study radioactive materials from nuclear power plants or research projects behind walls of concrete and lead that are up to a meter thick. The researchers regularly analyze the spent fuel elements from Swiss nuclear power plants to find possible damage from oxidation or embrittlement. Their findings help to improve the efficiency and safety of the power plants. The facilities are also

used for international research projects like the Megawatt Pilot Project (MEGAPIE), which aims to get approval for a new high-performance liquid lead-bismuth target for the generation of an intense neutron beam. The main goals are to demonstrate the safe operation and disposal of the new neutron beam source and to further analyze its properties.
http://swissinnovation.org/news/web/2013/08-130711-b2

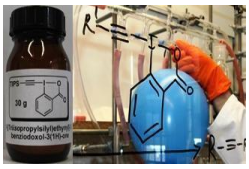
Radiation Detection for Internal Security

(ETH Zurich, July 15, 2013)

The detectors developed by ETH spin-off Arktis Radiation Detectors Ltd can reliably sense radioactive material even if it is shielded with a lead jacket. They react not only to highly radioactive material such as caesium and americium, which are considered possible source materials for dirty bombs, but also to the plutonium and uranium needed for atomic bombs, which have comparatively weaker radiation emissions and thus are difficult to detect. The technology originates from particle physics research conducted at ETH Zurich. The company has attracted considerable attention, and even has the US Department of Homeland Security as a research investor and is currently collaborating with seven partners – including a group led by ETH professor André Rubbia – as part of a project financed by the European Union to enhance one of the company's recently developed detectors and to expand its range of products.
http://swissinnovation.org/news/web/2013/08-130715-de

Fast Method for Clicking Molecules together at Room Temperature

(EPFL, July 24, 2013)



Thiols are sulfur-containing chemical groups widespread in the proteins of the human body and other molecules in biology, medicine and materials science. That makes them ideal targets for connecting molecules like drugs or polymers with these molecules. Methods that achieve this have been termed 'click-chemistry'. Thus far, these methods have been too difficult to be of any use outside the lab. EPFL scientists have found a way to make this connection in five minutes and at room temperature, paving the way to commercial, medical and perhaps industrial applications. The researchers have made the new compound called TIPS-EBX commercially available in collaboration with Sigma-Aldrich.
http://swissinnovation.org/news/web/2013/08-130724-01

Safe Flame Retardants Make Way for Progress

(Empa, July 22, 2013)

Empa researchers have found an alternative way to produce non-harmful flame retardants with synthetic materials. Tri(chloropropyl) phosphate (TCPP) or some polybrominated diphenyl ethers (PBDE) are most likely harmful to our health, the environment, and may have hormone-like effects that could be carcinogenic. Thus, Empa researchers have developed a project in tandem with the Swiss company FoamPartner which is sponsored by the Commission for Technology and Innovation (CTI.) By synthesizing several substances and adding them to the polyurethane foam, an increased concentration can be obtained. Initial results indicate that the flame retardants do not have negative effects on the foam manufacturing process. As a result, conventional agents that are harmful to health and the environment may soon be a thing of the past. Research results have been accepted by the professional journal Industrial & Engineering Chemistry Research and authorized for publication.
http://swissinnovation.org/news/web/2013/08-130722-82

Quantum Physics on the Macroscopic Level

(UNIGE, July 25, 2013)

Quantum physics relates to the world of the infinitely small. Researchers at the University of Geneva, who have long tried to observe quantum properties on a greater or macroscopic level, have succeeded in entangling two optical fibers populated by 500 light particles (photons). This achievement, published in Nature Physics, provides a partial answer to the fundamental question of whether quantum properties can survive at the macroscopic level. Physical rules that apply at the atomic level are not automatically transferable to the macroscopic world because, as the size of a quantum system increases, it interacts more with the surrounding environment, rapidly losing its quantum properties (aka quantum decoherence). This successful large-scale entanglement could open up many applications offered by quantum physics.
http://swissinnovation.org/news/web/2013/08-130725-9b

9. Architecture / Design

New Colorful Administration Building at EPFL

(EPFL, June 05, 2013)

A grand opening ceremony took place at the new EPFL's central administration building with Patrick Aebischer, EPFL president, Dominique Perrault, founder of the Dominique Perrault Architecture agency, and Henry Muhr, CEO of Steiner SA. With nearly 5100 square meters, this facility will house the school's central services (human resources, financial services, planning and logistics vice presidency ...) as well as a post office and a coffee shop/restaurant. The transformation totaled 14 million francs and was supported by the Swiss Federal government through the Board of the Swiss Federal Institutes of Technology as part of its real estate maintenance initiatives.
http://swissinnovation.org/news/web/2013/09-130605-ed

Computer Algorithm Through Signaled Microphones Determines Spatial Dimensions

(EPFL, June 18, 2013)

At EPFL, a team from the Audiovisual Communications Laboratory (LCAV), under the direction of Professor Martin Vetterli, has developed a computer algorithm that can measure the dimensions of a room using just a few microphones. While the microphone picks up sounds from the source, an algorithm is generated comparing the signals from each microphone. By using "Euclidean distance matrices," the system can tell whether the echo is rebounding for the first or second time, and determine the unique "signature" of each of the walls. However, in an empty room or "clean" sound source, their results confirmed the validity of the approach. With this research, there are a variety of possible applications in areas such as architetual acoustics, forensic science, and mobile devices.
http://swissinnovation.org/news/web/2013/09-130618-2b

Feeling of the Floor Covering

(swiss-architects, July 10, 2013)

Architects can influence how people move through buildings by twitching small details - for example through the sole of the foot. The feeling of the floor covering can change if people walk through a room quickly or whether they feel comfortable pausing, which would be desirable for example for a museum. In a new Microsoft building in Wallisellen close to Zurich, the topic of floor feeling was given special consideration: The entrance has a soft natural rubber floor to give it a relaxing feeling, whereas in the product presentation zone, cozy carpets invite visitors to linger.
http://swissinnovation.org/news/web/2013/09-130710-e2

10. Economy, Social Sciences & Humanities

European Criminology Award for ESC Founder

(UZH, June 04, 2013)

Martin Killias, Professor of Criminal Law and Criminology at the University of Zurich, has received the European Criminology Award 2013 for his life's work, which took him all over Europe, the US, Canada, China and Indonesia. He founded and chaired the European Society of Criminology (ESC), undertook numerous international research projects, and contributed to drug policy and penalties. As well as serving as a United Nations expert, Killias contributed to various European criminology associations, journals, projects and committees, including for the Council of Europe. He authored some 20 books and initiated the European Sourcebook of Crime and Criminal Justice Statistics, comparing criminal justice systems. Killias' research was wide-ranging and comparative, covering i.a. youth, immigration, economic crime, and violence against women.
http://swissinnovation.org/news/web/2013/10-130604-27

Knowledge Is the Key to Change in Developing Countries

(UNIBE, June 04, 2013)

The NCCR North-South was an innovative research programme in the fields of global change and sustainable development started in 2001 funded by the Swiss Parliament for 12 years with 100 Million Swiss francs. Six Swiss universities and 140 partner institutions from Africa, Asia and Latin America collaborated to find solutions for problems caused by global change. The program hosted over 200 Masters, 130 PhD and 20 postdoctoral students from the south in Switzerland, 95 percent of which are today working in their home country or other developing countries in research, teaching or as consultants in politics and practice. The transfer of knowledge and investment in research has proven to be one of the most important cornerstones for development in poor countries.
http://swissinnovation.org/news/web/2013/10-130604-5e

How Kids Learn Their Mother Tongue

(UZH, July 11, 2013)

In her research, psycholinguist Sabine Stoll from the University of Zurich compares how children in different cultures learn their mother tongues. In a collaboration with ethnologists and linguists from Leipzig, she works on Chintang, a language spoken by only 6000 people in eastern Nepal. The language is grammatically very complex, verbs can come in up to 1800 forms - a lot compared to German with 20 and English with 3 different verb forms. Stoll and her students observed kids' communication patterns over one and a half years. Their data allows them to analyze the processes in the acquisition of language, for example whether kids first learn to use verbs or nouns.
http://swissinnovation.org/news/web/2013/10-130711-a6

Computer Model of Urban Violence

(ETH Zurich, July 11, 2013)

Jerusalem is characterized by a continued level of territorial conflict. Rarely does a day go by without media reports of violent clashes. Ethnic, religious and ideological tensions determine the social life of the city, and efforts to find a political solution to the city's future status have thus far failed. A team of researchers from ETH Zurich, the Graduate Institute for International and Development Studies in Geneva and the Hebrew University of Jerusalem have developed an evidence-based computer model to better understand the sources and patterns of violence in urban areas, employing Jerusalem as a demonstration case. The model explores alternative scenarios for the future of Jerusalem, in particular, their implications for the spatial distribution of violence in the city.
http://swissinnovation.org/news/web/2013/10-130711-68

Research on the Transition to Parenthood

(UNIL, July 26, 2013)

Coralie Magni-Speck recently defended a PhD in psychology exploring how the birth of the first child impacts the young couple's identity. The study investigated how 50 couples perceive their identity and whether the child's arrival affects their values. While the event triggers a significant decrease in marital satisfaction, couples with children appear to align on values, and such major life events enable them to evolve and adapt to new circumstances. The study identified factors influencing parents' degree of satisfaction, with men focusing more on the couple and women on individual elements, like how to reconcile private and professional lives. In a clinical or preventive context, young parents should be made aware of how the transition to parenthood affects each partner.
http://swissinnovation.org/news/web/2013/10-130726-d4

Online Psychotherapy Just as Efficient as Conventional Therapy

(UZH, July 30, 2013)

For the first time, clinical researchers from the University of Zurich provide scientific evidence of the equal value of internet-based psychotherapy. 62 patients with mild depression were treated with different established techniques that could be carried out both orally and in writing. Both therapy form helped about 50 percent of patients to overcome their depression, and the degree of satisfaction with the treatment and therapists was more or less equally high. In the medium term, online psychotherapy yielded even better results: Three months after completing the therapy, 57 percent of patients from online therapy were depression-free, compared to 42 percent with conventional therapy. One of the reasons for the success of online therapy could be that online patients said that they had re-read the correspondence with their therapist from time to time.
http://swissinnovation.org/news/web/2013/10-130730-80

High Demand for Microcredit in Zürich Economy

(startupticker, July 31, 2013)

Go! Ziel selbständig reports consistent high demand for microcredit financing in the first half of 2013, having provided over 100 consultations to potential youth entrepreneurs. Since 2009, the non-profit organization has been supporting aspiring entrepreneurs through providing information sessions, mentoring programs, and microcredit loans averaging 20,000 Swiss Francs (21,700 USD). Operating in the Canton of Zürich, Go! Ziel selbständig has been instrumental in helping provide capital to projects which may otherwise not be supported by banks. To date, it has supported 89 projects.
http://swissinnovation.org/news/web/2013/10-130731-90

11. Technology Transfer / IPR / Patents

Most Entrepreneurial Countries

(startupticker.ch, June 05, 2013)

The School of Management Fribourg recently published the results of the Global Entrepreneurship Monitor (GEM), which explores and assesses the role of entrepreneurship in national economic growth. The GEM includes a country ranking based on the Global Entrepreneurship and Development Index (GEDI). In 2012 Switzerland again featured among the world's most entrepreneurial countries. It ranked 7th, after the US, Sweden and Australia in the top three. Switzerland achieves outstanding results in finance, commercial infrastructure, tertiary education, and knowledge and technology transfer, and in stable internal market dynamics. The Swiss start-up scene is characterized by somewhat risk-averse founders, but is clearly oriented towards combined product-market innovation and international markets. Entrepreneurial framework conditions are outstanding and businesses tend to be sustainable.
http://swissinnovation.org/news/web/2013/11-130605-41

2013 Awards for Entrepreneurship

(startupticker.ch, June 20, 2013)

The W.A. de Vigier Foundation has granted awards of CHF 100,000 to each of five young entrepreneurs. This oldest, largest and most prestigious Swiss award for innovative start-ups has been won this year by Amphasys (Lucerne), Gastros (Zurich), LESS (Lausanne), Newscron (Lugano) and SWISSto12 (Lausanne). Gastros has developed an induction coating for porcelain tableware which it hopes will revolutionize the hospitality industry. Amphasys AG has designed a portable analyzer that can check cells immediately on site. Newscron offers an app enabling smartphone users to compile personal newspapers. LESS has developed an energy-saving light wave guide based on a nanofiber for tablet and notebook LCD displays. SWISSto12 develops components that ensures terahertz signal transfer. LESS and SWISSto12 are EPFL spin-offs.
http://swissinnovation.org/news/web/2013/11-130620-66

Research Collaboration Pioneers Medical Diagnostics and Disease Tracking

(startupticker.ch, June 03, 2013)

A new £11 million Interdisciplinary Research Collaboration (IRC), led by University College London (UCL), will develop mobile health technologies for rapidly testing and tracking infectious diseases. Swiss company Zurich Instruments is one of the international partners in the IRC, contributing its know-how in digital dynamic signal processing. The IRC brings together healthcare organizations, research institutions, and industry partners. The collaboration will pioneer low cost, easy to use mobile phone-connected diagnostic tests based on advances in nanotechnology. It will also track reported symptoms of infection by searching internet sources and develop data mining technologies for application to public health surveillance challenges.
http://swissinnovation.org/news/web/2013/11-130603-32

Basel Technology Park Spawns Successful Start-ups

(startupticker.ch, June 17, 2013)

The first start-ups incubated at Basel Technology Park, visionarity and numfum, have performed well and moved to their own premises. The park was founded in 2011 and the two related companies moved in, occupying two work stations, in January 2012. Less than two years later, the team now comprising eight people is large enough to rent its own premises in the canton of Basel-City. numfum's main project, due for successful delivery, is to adapt an American e-learning company's existing training software for tablet use. The biggest challenge was to re-code an

obsolete programming language. Cleantech company visionarity creates products and concepts to help companies reach their sustainability goals. Google in Zurich and Roche in Basel are its first major customers.
http://swissinnovation.org/news/web/2013/11-130617-8e

Successful Startups Rather Exception than Rule

(20min.ch, July 09, 2013)

Switzerland is experiencing a startup boom: More than 20'000 companies were founded in the first half of the year 2013. Especially at universities, there's quite an euphoria about the topic, inspired by the success stories of former startups like Twitter and Facebook, says Alan Frei, who manages the startup platform of the University of Zurich. However, the most recent data from the Swiss Federal Statistical Office show that only every second company is still operating five years after its inception. "These numbers also include small businesses like barbers or craftsmen. For high-tech startups, the survival rate might be as low as 10 to 20 percent", says Frei. Many entrepreneurs work intensly on their product and forget to think about the needs of their customers.
http://swissinnovation.org/news/web/2013/12-130709-c6

12. General Interest

Gold Medal in European Rowing Championships

(UNIFR, June 10, 2013)

Lucas Tramèr, a third-year student of medicine at the University of Fribourg, won the gold medal in the lightweight men's pair event at the European Rowing Championships. It proves the feasibility of combining elite sport and studies. Tramèr, a member of the Vésenaz Rowing Club, achieved this feat with his teammate Simon Niepmann from the Seeclub Zurich. It was the pair's second European medal, having won the bronze medal in the men's four event in 2010. Last year the four Swiss ranked fifth in the lightweight men's four event at the Olympic Games in London. Tramèr has benefited from a program designed to support elite sportsmen and sportswomen by enabling them to organize their studies, and particularly exams, around competitions.
http://swissinnovation.org/news/web/2013/12-130610-7a

Unemployment Rate Rose to 4.6%

(Swiss Federal Statistical Office, June 27, 2013)

According to figures from the Federal Statistical Office (FSO), the number of employed persons in Switzerland rose by 1.5% between the 1st quarter 2012 and the 1st quarter 2013. Within the European Union (EU), it declined (-0.4%). During the same period, the unemployment rate as defined by the International Labour Organisation (ILO) increased in Switzerland from 4.3% to 4,6%. The EU's unemployment rate based on ILO definition rose markedly from 10.6% to 11.4%. In the 1st quarter 2013, the unemployment rate of young people was 8.3% in Switzerland compared with 24.1% in the EU.
http://swissinnovation.org/news/web/2013/12-130627-71

UNESCO Heritage for Montreux Jazz Archives

(EPFL, June 27, 2013)

The Montreux Jazz Festival's archives have been selected by UNESCO to become part of the Memory of the World register. With more than 5,000 hours of live audio and video recordings, the collection is an authentic gold mine, containing treasures like the only video recording of a Marvin Gaye concert as well as Miles Davis' last public performance. EPFL is in charge of the collections' digitization and enhancement. To date, more than half of the audio and video documents have been digitized and stored in the school's servers. Eventually, the archives will be available in Montreux Jazz Cafes in Geneva, London and Zurich, as well as at EPFL's campus.
http://swissinnovation.org/news/web/2013/12-130627-dd

First Geoguide Launched

(UNIL, July 09, 2013)

To commemorate its 10th anniversary, UNIL's School of Geosciences and the Environment (FGSE) has developed the Geoguide application: three nature trails guided via smartphone across different regions of Switzerland. The first Geoguide is already online, available as Android and iOS apps. Produced by the Institute of Geography and Durability (IGD) with the design office Relief, the first trail proposes a walk in Lausanne, from the Sauvabelin tower

to the Dorigny campus, via the Flon cascade and Cathedral Square. Highlighting the relationships between climate, water and the atmosphere, the Geoguide gives explanations on geological aspects, the origins of Lausanne's topography and town planning. Two other nature trails will soon be launched: Geoguides for the Vallon de Nant and Val d'Hérens.
http://swissinnovation.org/news/web/2013/12-130709-2d

Open Science Publisher Founded at EPFL

(EPFL, July 09, 2013)

Frontiers is a new scientific publisher that has as its mission the advancement of open-access science. It publishes 33 journals in a variety of fields. Frontiers was founded at EPFL's Innovation Square and established a partnership with the renowned journal Nature to advance open science. The latest edition of Nature has a large cover promotion of Frontiers. Articles in Frontiers journals are community-reviewed through an open forum.
http://swissinnovation.org/news/web/2013/12-130709-0e

Bad Sleep Around Full Moon Is no Longer a Myth

(UNIBAS, July 26, 2013)

Many people complain about poor sleep around full moon. Researchers at the University of Basel report evidence that lunar cycles and human sleep behavior are in fact connected. They analyzed the brain patterns, eye movements and hormone secretions of over 30 volunteers in two age groups while they slept. The volunteers' subjective impression that their sleep had been poorer during full moon was confirmed by the data: Brain activity related to deep sleep dropped by 30 percent during full moon. People also took 5 minutes longer to fall asleep and they overall slept for 20 minutes less.
http://swissinnovation.org/news/web/2013/12-130726-18

13. Calls for Grants/Awards

Call: Competition for Artist Residency at CERN

(CERN, June 03, 2013)

Artists working in the digital domain are invited to apply for the Prix Arts Electronica Collide @ CERN, an opportunity to create new dimensions in the artist's practice through encounters with science. Artists of all genres are encouraged, including those in architecture, visual arts, sculpture, experimental sound work and music, generative art and film, and social media projects exploring how people relate to science and technology. The prize includes a residency at CERN for two months and Ars Electronica for one month, as well as €10,000 prize money. The work emerging from the residency will be showcased at the Ars Electronica Festival 2014. Online submissions are accepted at http://collide.aec.at/. The submitter of a project does not have to be the artist, and multiple projects can be submitted. Deadline: September 26, 2013
http://swissinnovation.org/news/web/2013/13-130603-27

Call: Swiss Technology Award Applications

(startupticker.ch, June 14, 2013)

The Swiss Technology Awards recognize the best innovations and technology-based developments each year at the Swiss innovation Forum. This year's application categories are inventors, start-ups, and sustainability leaders. Applicants can be entrepreneurs, teams, or companies, from business, industry or educational institutions. Awards will be presented at the Swiss Innovation Forum in Basel on November 20th. Each award winner will receive a customized package of benefits including media exposure, marketing support, and participation at an international trade fair. Applications can be entered in German or English at www.swiss-innovation.com/award. Deadline: August 28, 2013
http://swissinnovation.org/news/web/2013/13-130614-a6

Call: Geneva International Students' Program

(UNIGE, July 13, 2013)

The Geneva International Students' Program is an English language study abroad semester at the University of Geneva that combines English modules with intensive French language study. Program dates: 17 February - 23 May, 2014; Deadline: October 15, 2013
http://swissinnovation.org/news/web/2013/13-130713-33

Call: WA de Vigier Foundation Startup Award

(startupticker, July 19, 2013)

In the WA de Vigier Foundation Startup Awards, five startup projects can recieve a prize of 100'000 CHF. The main criteria for an award-worthy project are innovative character, societal importance, technical and financial feasibility, and market potential. Startups that want to be included in next year's competition can apply to the WA de Vigier Foundation now. Deadline: September 30, 2013
http://swissinnovation.org/news/web/2013/13-130719-38

Call for Projects: Mobile World Congress 2014

(startupticker, July 24, 2013)

The Mobile World Congress (February 24-27, 2014) is one of the most important events worldwide in the field of mobile hardware and mobile applications. For the first time, a Swiss Pavillion will be in place at the congress in Barcelona to offer Swiss SMEs, start-ups and research institutions a highly visible platform to present their innovations in mobile development. Start-ups are encouraged to apply – funding is available.
http://swissinnovation.org/news/web/2013/13-130724-fd

Call: Apply Now for Startup Awards

(startupticker, July 26, 2013)

Deadlines for several Swiss startup awards in fields ranging from Life Science to Tourism to Energy & Environment are approaching: - Heuberger Winterthur Jungunternehmerpreis, http://www.jungunternehmer-preis.ch, Deadline: August 27 - Swiss Technology Award, www.swiss-innovation.com/award, August 28 - Milestone - Swiss Tourism Awards, www.htr-milestone.ch, August 30 - Life Sciences Prize, www.lifesciencesprize.ch, August 30 - WA de Vigier Foundation Startup Awards, www.devigier.ch, September 30 - Swiss Environmental Prize, www.umweltpreis.ch, September 30
http://swissinnovation.org/news/web/2013/13-130726-62

Bring the CTI Market Entry Camp USA Roadshow to Your City

(startupticker.ch, July 28, 2013)

swissnex Boston and San Francisco are touring five Swiss cities in a roadshow in September to present the CTI Market Entry Camp USA. Participants gain in-depth knowledge of the most vibrant startup ecosystems in the US (Boston, New York and San Francisco) and learn how to best leverage these markets to accelerate their company's growth and gain a competitive advantage. They will learn how their startup can benefit from US exposure, which city is the best fit for their company, and how to get relevant market feedback quickly. They can find out what they can realistically expect if they enter the US market, how to leverage US-based talent and expertise, and what they need to know to successfully raise money in the US. You can bring the roadshow to your city by voting for it now at http://put-your-startup-on-steroids.eventbrite.com.
http://swissinnovation.org/news/web/2013/13-130728-aa

Call: Swiss Government Excellence Scholarships for 2014-2015

(SERI, July 29, 2013)

The Swiss Government, through the Federal commission for Scholarships for Foreign Students (FCS), awards various postgraduate scholarships to foreign scholars and researchers. The scholarships provide graduates from all fields with the opportunity to pursue doctoral or postdoctoral research in Switzerland at one of the public funded university or recognized institution. Please visit the program's website to find more information about the scholarships offered for your country of origin. Deadline: October 2013
http://swissinnovation.org/news/web/2013/13-130729-9e

Upcoming Science and Technology Related Events

ZIHP Symposium
August 23
http://www.zihp.uzh.ch/research/symposium.html
Life Sciences
University of Zurich

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

CTI Medtech Event
August 27, 2013
www.ctimedtechevent.ch/cti-medtech-event-2013
Life Science
Kursaal, Berne

NanoEvent "Industrial NanoProgress"
September 10, 2013
http://bit.ly/14CoJAe
Nanotechnology / Innovation
Aarau

42nd Swiss Venture Day
September 11, 2013
www.cti-invest.ch/
Innovation / Entrepreneurship
SIX Swiss Exchange, Zurich

Swiss Energy and Climate Summit
September 11-12, 2013
www.swissecs.ch/
Energy / Climate
Bundesplatz, Berne

ETH Industry Day
September 12, 2013
www.industryday.ethz.ch
Technology Transfer
ETH Zurich

1st Swiss Venture Day Lausanne
September 12, 2013
www.cti-invest.ch/
Innovation / Entrepreneurship
Rolex Center, EPF Lausanne

Startupfair
September 17, 2013
www.startupfair.ch/
Innovation / Entrepreneurship
Maag Event Hall, Zurich

World Medtech Forum Lucerne
September 17-19, 2013
www.medtech-forum.ch
MedTech
KKL, Lucerne

Prix Média – Swiss Academies of Arts and Sciences
September 26, 2013
www.akademien-schweiz.ch/prixmedia
Science Journalism
La Chaux-de-Fonds

ScienceComm'13 Congress
September 26-27, 2013
http://tinyurl.com/sciencecomm-13
Science, Networking
La Chaux-de-Fonds

CERN Open Day
September 28-29, 2013
http://opendays2013.web.cern.ch/
Particle Physics
CERN, Geneva

Life Science Cluster Dialogue
September 30, 2013
www.standort.zh.ch/lifescience-anlass
Life Sciences / Technology Transfer
Schlieren, Zurich

Swiss Venture Day Berlin
October 1, 2013
www.cti-invest.ch/
Innovation / Entrepreneurship
Soho House, Berlin

Swiss Biotech Day Fall
October 4, 2013
http://www.swissbiotech.org/events
Biotechnology
Epalinges, Lausanne

Swiss Inter- and Transdisciplinarity Day
October 21, 2013
http://tinyurl.com/Swiss-Transdisciplinarity
Science
Hotel National in Berne

CEO Day 2013
October 23, 2013
www.ceoday.ch
Innovation / Entrepreneurship
Stade de Suisse, Berne

Swiss ICT Symposium 2013
November 11-12, 2013
http://tinyurl.com/swiss-ict-symposium
ICT
Lucerne

Collider: Step Inside the World's Greatest Experiment
November 13, 2013 - Apr 30, 2014
http://tinyurl.com/collider-Nov
Particle Physics
Science Museum, London

CRAG – IRGC Symposium "Uncertainty: From Insight to Action"
November 20-22, 2013
www.irgc.org/event/crag-irgc-symposium2013
Risk Analysis and Governance
EPFL, Lausanne

Empa Technology and Innovation Forum
November 28, 2013
http://tinyurl.com/Empa-Technology
Sustainable Innovation
Dübendorf

XX WFN World Congress on Parkinsons Disease and Related Disorders
December 08, 2013
http://www2.kenes.com/parkinson/Pages/Home.aspx
Life Sciences
Palexpo Geneva Congress Center, Geneva

43rd Swiss Venture Day
December 11, 2013
http://www.cti-invest.ch/
Innovation / Entrepreneurship
SIX Swiss Exchange, Zurich

2014 Tech4Dev International Conference
June 4-6, 2014
http://cooperation.epfl.ch/2014Tech4Dev
Technologies for Development
EPFL, Lausanne

IC Research Day
June 12, 2014
http://ic.epfl.ch/events-and-news
Big Data / Computer Science
EPFL, Lausanne

Science-Switzerland Back Numbers
http://www.swissinnovation.org/Science-Switzerland

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