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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, October – November 2013

News on Swiss science, technology, education and innovation

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Swiss National Science Foundation Launches World Network

(SNSF, October 24, 2013)

The Swiss National Science Foundation (SNSF) offers past and present SNSF grantees a network of their own on the business platform LinkedIn. The SNSF World Network has the goal to gather all scientists funded by the SNSF in order to strengthen Swiss research throughout the world. This can only be achieved by forging and maintaining professional links with one another. A particular attention is given to the mobility of young scientists. Participants of the group will also receive information about career opportunities and upcoming events concerning Swiss science. Join the closed network here (http://www.linkedin.com/groups?home=&gid=5161227)
http://swissinnovation.org/news/web/2013/00-131024-3b

The Human Brain Project Has Officially Started

(EPFL, October 07, 2013)

The Human Brain Project, co-funded by the EU, with an estimated budget of €1.2 billion will be hosted in Switzerland. More than 130 research institutions will collaborate from all over Europe with hundreds of scientists from a multitude of fields. Ultimately, the objective of the project is to develop methods that will dive into an extensive analysis on how the human brain functions, which in turn, will help fuel new medical and information technology breakthroughs. The scientists involved in the Human Brain Project have two and a half years to finalize their research platforms with infrastructures, tools and methods needed to meet their objectives. Nine months after its selection as a EU Flagship, the project is officially under way.
http://swissinnovation.org/news/web/2013/00-131007-1b

Times Ranking: ETH Zurich Best University Outside US / UK

(SERI, October 18, 2013)

The Times Higher Education World University Ranking (Times Ranking) is one of three main ranking lists used to compare higher education institutions worldwide. It is drawn up on the basis of 13 criteria relating to such things as teaching, research, innovation and international aspects. While the Times Ranking is dominated by US and British universities, ETH Zurich remains the best university outside the USA and UK (14th place). EPFL (37th, 3), the University of Basel (74th, 68), the University of Geneva (124th, 9) and University of Fribourg (between the 276th and 300th place) also gained ground with respect to last year's ranking, whereas the University of Zurich (121st, -32), the University of Lausanne (132nd, -2) and the University of Bern (157th, -6) lost ground.

Ranking: Switzerland #1 in Attracting and Incubating Talent

(Insead, November 26, 2013)

INSEAD, in partnership with Singapore's Human Capital Leadership Institute and Adecco, has created the first ranking of 103 countries on their ability to attract and incubate talent. The index shows the top ten slots mostly pop-

ulated by European and rich countries, plus Singapore and the United States and a wide gap between prosperous and low-income countries. Switzerland is number one, set apart by its strength in both vocational and global knowledge skills, and across the entire set of indicators. Bruno Lanvin, INSEAD Executive Director for Global Indices stressed that two local specificities are remarkable about Switzerland: A thriving apprenticeship system and a system where workers can move back and forth from classroom to workplace.
http://swissinnovation.org/news/web/2013/00-131126-9e

Ranking: Human Capital Is Top in Switzerland

(World Economic Forum, October 01, 2013)

Switzerland, Finland and Singapore are best at unlocking the economic potential of their people, according to the World Economic Forum's new Human Capital Index. Germany ranks 6th, the UK 8th, Canada 10th, Japan 15th and the US 16th. Qatar (18th) ranks highest in the Middle East and N. Africa, Costa Rica (35th) highest in Latin America, and China (43rd) highest among the BRICS economies. The Index measures countries on their ability to develop and deploy healthy, educated and able workers through four pillars: Education; Health and Wellness; Workforce and Employment; and Enabling Environment. It aims to help countries improve their decision making to maximize the long-term economic potential of labor. The Human Capital Report, covering 122 economies, is available for download.
http://swissinnovation.org/news/web/2013/00-131001-aa

38% Immigrant Inventors in Switzerland

(SERI, November 29, 2013)

The global share of inventors with migratory background stands at 10% for the 2001-2010 period (7.5% for the 1991-2000 period). The inventor emigration rate is at its highest for low income countries (88%), and lower-middle income countries (50%). Latin America and Africa suffer the most severe brain drain of inventors. North America as well as Oceania and the Pacific show the largest inventor immigration rates with 18% and 12%, respectively. The inventor immigration rate is particularly high in small countries such as Switzerland with 38% (Luxembourg: 35%; Ireland: 20%; Belgium: 19%). The United States host the large majority of immigrant inventors, accounting for 57% of them, followed by Germany (7.4%), Switzerland (6.0%), and the United Kingdom (4.6%).
http://swissinnovation.org/news/web/2013/00-131129-9e

Ranking: Swiss Have the Highest Life Expectancy

(20min.ch, November 23, 2013)

According to the most recent OECD statistics, the Swiss have a life expectancy of 82.8 years, making them the new world champions. The Japanese, for many years world leaders with a life expectancy of 82.7 years, have been relegated to second place. The reasons are Switzerland's higher economic growth, increased spending on the healthcare system and a significantly lower rate of cancer deaths. The number of suicides has fallen, while remaining stable in Japan. Preventive measures taken at federal level have had a positive effect. Tobacco and alcohol consumption in Switzerland has declined more than in Japan. Life expectancy at birth has almost doubled in Switzerland since 1900 and the difference between the two sexes has fallen over the years, reaching 4.2 years.
http://swissinnovation.org/news/web/2013/00-131123-89

1. Policy

New Federal Act for the Promotion of Research and Innovation

(SERI, November 29, 2013)

The Federal Council has approved the enactment of the new federal act for the promotion of research and innovation in Switzerland by January 1, 2014. The act contains the legal basis for the national research programs, federal research funding and intellectual property as well as for the international collaboration in the field of research. For the promotion of innovation, the law contains new guidelines for the Commission for Technology and Innovation (CTI), the federal instrument aiming to support the transfer of knowledge and technology between higher education institutions and industry in a targeted and results-oriented manner and aiding startup companies in their development.
http://swissinnovation.org/news/web/2013/01-131129-8d

New Funding Instruments for Startups Through Horizon 2020

(startupticker.ch, November 08, 2013)

To help bridge the infamous "valley of death" for innovative SMEs and start-ups, the new European research program Horizon 2020 extends the access to risk finance for companies with up to 500 employees. Switzerland is also participating in "Horizon 2020", which will run from 2014 to 2020. The program consists of a range of measures designed to promote research and innovation, including funding for innovative companies. Horizon 2020 foresees several new funding instruments for smaller companies. In the coming months, the EC will set up their new "SME and Small Midcaps R&I Loans Service", to provide the funds these companies need to test or scale up their new technologies. Especially seed companies and start-ups should thus be able to benefit from early stage loans.
http://swissinnovation.org/news/web/2013/01-131108-35

Innovation Promotion Agreement between Switzerland and Japan

(news.admin.ch, October 29, 2013)

The Commission for Technology and Innovation CTI and the Japanese Ministry of Education, Culture, Sports, Science and Technology MEXT intend to further strengthen their good relations in the area of innovation and further promote cooperation in the area of science-based innovation. Representatives of both countries signed an agreement recognising the benefits of mutual exchange of technological knowledge and globalisation of research and development. The aim of this agreement is to promote joint innovation projects involving researchers and entrepreneurs from both countries. The agreement specifically envisages joint workshops for stakeholders in innovation beginning in 2014. The signing of the agreement is in the run up to celebrations marking the 150th anniversary of diplomatic relations between Japan and Switzerland in 2014.
http://swissinnovation.org/news/web/2013/01-131029-07

New E-commerce Rules Proposed

(ICTjournal, October 10, 2013)

Unlike in the rest of Europe, there is no right in Switzerland to cancel sales or return goods ordered online. That could soon change. Swiss e-commerce reached a turnover of CHF 10 billion in 2012. The Committee on Legal Affairs of the Council of States proposes the right to rescind any contract concluded online or by phone within two weeks. The aim is to not disadvantage Swiss consumers over European consumers, and to allow them to examine goods before buying them. If approved, the Code of Obligations should be amended accordingly. Many companies already allow the return of goods, with self-regulation being the norm. Some fear that changing the law will merely add complexity and encourage abuse.
http://swissinnovation.org/news/web/2013/01-131010-9f

Two New Energy Competence Centers in Storage and Energy Research

(news.admin.ch, October 07, 2013)

The Federal Council's 'Coordinated Energy Research Switzerland' action plan aims to promote energy research in the years 2013-2016. Central to the action plan is the creation of research competence centers or networks between higher education institutions, to be known as Swiss Competence Centers for Energy Research (SCCERs). These centers will be active in seven action areas. Two applications in the areas Storage and Electricity Supply have already been approved by the Steering Committee. The two competence centers can already start operating this year.
http://swissinnovation.org/news/web/2013/01-131007-65

European Database for Biological Information

(news.admin.ch, October 09, 2013)

The Federal Council recently approved Switzerland's participation in ELIXIR, the European Infrastructure for Biological Information. This extensive international database aims to provide researchers in medicine, environmental science, biotechnology, agricultural sciences, and food sciences with greater access to information and more possibilities for collaboration across Europe. The Swiss Institute of Bioinformatics will play a leading role in Switzerland's participation as an ELIXIR hub, not least in ensuring the support of the renowned Swiss Protein Database. Switzerland's expertise in bioinformatics makes it a major asset to the ELIXIR project, which is scheduled to receive support from the government from 2013-2016.
http://swissinnovation.org/news/web/2013/01-131009-a7

Lucerne Attracts the Most Companies with Low Tax Rates

(20min.ch, October 20, 2013)

According to the Neue Zurcher Zeitung, as many as 147 companies in Switzerland have relocated to Lucerne since the beginning of 2013 alone. This is unsurprising - Lucerne became the canton with the lowest corporate tax rate in the country since halving it in 2012. In a survey conducted by Orell Fuessli, Lucerne was found to have attracted the most companies of all the cantons since 2011. Finance Director Marcel Schwerzmann attributes this inflow to the canton's excellent transport facilities, availability of labour, and customer-friendly authorities in addition to the tax benefits. However, the loss of 60 million CHF, or 34%, in revenue may spur the government to increase its tax to ensure that corporations will not benefit at the expense of its residents.
http://swissinnovation.org/news/web/2013/01-131020-53

2. Education

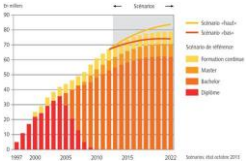
Swiss Apprenticeship Market Active

(SERI, November 04, 2013)

Results of the biannual apprenticeship survey conducted on behalf of the State Secretariat for Education, Research, and Innovation show that the number of apprenticeship opportunities in Switzerland rose from April to August 2013. In this time, there was an increase in both the number of opportunities available (+3500) and positions offered (+2000). As of August 2013, the total number of apprenticeship positions stood at approximately 95,500 of which 87,000 were filled. The largest proportion of unfilled apprenticeships was in the construction, architecture, services, and technical sectors due to ineligible candidates. This is attributable to the increasingly low rate of youth who finish compulsory education, which has been declining since 2009. In Switzerland, apprenticeships continue to be a vital way for young people to access the workplace and gain specialised skills through on-the-job training.
http://swissinnovation.org/news/web/2013/02-131104-ae

More Students Enrolling at Swiss Universities of Applied Sciences

(SERI, November 08, 2013)



The number of students starting a Bachelor's degree at a Swiss University of Applied Sciences (UAS) increased by 6.5% from 2011 to 2012. More are expected over the next few years, as more people gain the vocational baccalaureate that often leads on to study at a UAS. The number of students with a Bachelor's degree or diploma from a UAS will rise from 52,900 in 2012 to 58,400 in 2015 (an average of 3% each year). Student numbers are expected to rise in almost all subjects. The number of students starting a Master's degree rose by 10.5% between 2011 and 2012 and is predicted to continue to rise, possibly reaching 8,500 in 2022 (an increase of 27% from 2012).

Wide Support for Further Vocational Training for Employees

(news.admin.ch, November 21, 2013)

According to a 2011 survey conducted by the Swiss Federal Statistical Office, 83% of Swiss companies support at least one further training activity for their staff (this percentage varies with sector and company size). Switzerland ranks close to the European average in terms of proportion of employees supported, but is one of the countries with the highest number of training companies throughout Europe.
http://swissinnovation.org/news/web/2013/02-131121-1f

University of Zurich Welcomes Curious High Schoolers

(University of Zurich, October 11, 2013)

Choosing subjects and course combinations can be overwhelming for prospective university students, especially if they lack the necessary information to make well-informed decisions. To address this and respond to growing numbers of visitors to Information Days, the University of Zurich (UZH) has launched a course catalogue aimed at high schoolers as a way of inviting them to attend actual lectures and experience university life. From language courses such as "Modern Japanese" to chemistry lectures on molecular and classical genetics, high schoolers now have a chance to learn more about different courses and see what really interests them. UZH's Ac-

ademic Counseling Service hopes this exposure will help students make better-informed decisions regarding their study paths and available options. This semester, over 200 course activities from 42 disciplines are on offer.
http://swissinnovation.org/news/web/2013/02-131011-a7

$355 Million Student Grants and Loans in 2012

(SERI, October 25, 2013)

In 2012, the cantons paid out $ 355 million in financial aid in the field of education. Twenty-eight millions of this amount (8%) came from the federal government. Of the total amount of financial aid in education, $ 337 million (95%) was paid out in the form of grants, the remaining 18 million as student loans.Of the approximately 627,270 people in post-compulsory education in 2012, 45,979 received a grant (7.3% of all students) and 3101 a loan (0.5% of all students); these are the lowest rates since 1990. The percentage of grant recipients is approx. 11% among students pursuing vocational education and training (full-time school) and 3% among those in professional education and training. The rate is slightly higher among students at universities of applied sciences and of teacher education (13%) than at the cantonal universities and federal institutes of technology (11%).
http://swissinnovation.org/news/web/2013/02-131025-e4

Headquarters of Human Brain Projects at Campus Biotech in Geneva

(EPFL, October 29, 2013)

A first key step towards the creation of Lake Geneva's neuroscience hub has just been taken. The scientific and administrative teams of the Human Brain Project (Europe) and the Blue Brain Project (EPFL), together with the majority of EPFL's Center for Neuroprosthetics, will settle in 2014 in the Campus Biotech facilities in Geneva-Sécheron. This means about 200 researchers and staff that will move from EPFL's Innovation Park and the Life Science buildings in Lausanne. The State Council of the Canton of Geneva will be heavily involved in the project, contributing CHF 1 million annually towards rental costs for the Human Brain Project laboratory spaces over the next 30 years, and CHF 5 million of additional funds over a few years.
http://swissinnovation.org/news/web/2013/02-131029-43

3. Life Science / Health Care

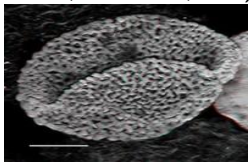
Ranking: Switzerland Most Competitive in Life Sciences

(SERI, November 15, 2013)

In a recent study KPMG compared the six European countries which invest most in research in life sciences, namely the UK, Germany, Ireland, the Netherlands, France and Switzerland. In terms of the number of life science companies per capita, Switzerland is number one with 127 companies per one million active population, followed by the Netherlands with 41 and Ireland with 36, while the European average is 18. One aspect that is often overlooked is the strong presence of businesses specialized in medical technologies, especially implants. In fact they are more numerous (340) than those active in biotechnology (334) or pharmaceuticals (68).
http://swissinnovation.org/news/web/2013/03-131115-24

Flowering Plants 100 Million Years Older than Previously Thought

(University of Zurich, October 01, 2013)



Many studies have tried to estimate the age of flowering plants from molecular data, but so far no consensus has been reached. Molecular estimates typically need to be "anchored" in fossil evidence, but extremely old fossils were not available for flowering plants - until now. Drilling cores from Switzerland have revealed the oldest known fossils of direct ancestors of flowering plants. These beautifully preserved 240-million-year-old pollen grains are evidence that flowering plants evolved 100 million years earlier than previously thought, in the early Triassic.
http://swissinnovation.org/news/web/2013/03-131001-67

Regenerating Heart Valves for Children

(20min.ch, October 04, 2013)

Scientists at the University Hospital Zurich are planning to implant regenerated blood vessels in children with heart disease as early as next year. Director of the Centre for Regenerative Medicine Phillipp Simon has already had success in implanting regenerated heart valves made from stem cells collected from bone marrow in young lambs.

However, transferring this application to human models is difficult because it remains unclear whether the valves will be able to withstand the relatively higher blood pressure humans have. According to Simon, starting with blood vessels, regenerated using the same techniques, will present the lowest possible risk to patients compared to testing with valves due to relatively lower blood pressure conditions. Nevertheless, this represents a big step towards being able to regenerate and implant fully-functioning heart valves.
http://swissinnovation.org/news/web/2013/03-131004-75

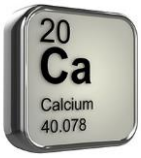
Health Information in Mummies

(salon.com, October 02, 2013)

Ancient mummies can provide a wealth of information and links to today's standards in health. Mummies are both rare and delicate, but recent improvements of two medical tools—DNA sequencing, which can reveal microbial infections, and CT scanning—are allowing detailed diagnosis's of the cause of death in mummies. Researchers have found signs of everything from prostate cancer to malaria in mummies across the globe. By comparing the ancient forms of those diseases with their contemporary equivalents, researchers can learn how those diseases evolved, what makes them so harmful, and—possibly—how to stop them
http://swissinnovation.org/news/web/2013/03-131002-c5

Six Genes Control Blood Calcium Levels

(University of Lausanne, October 02, 2013)



Calcium is essential to mineralize bone, maintain muscle and heart contractions, propagate nerve impulses and maintain proper blood clotting. Calcium levels in the body are controlled by hormones, like vitamin D or parathyroid hormone, and vary considerably among individuals. Control disorders can cause osteoporosis, cardiac arrhythmia or muscle cramps, yet the genes involved are little known. Research teams at the UNIL-CHUV in Lausanne, heading an international consortium, have analyzed the genes of 40,000 individuals and identified six genes involved in regulating blood calcium levels. Their findings, published in PLOS Genetics, show that some of these genes control hormones regulating blood calcium levels, whereas others have an unknown function, possibly bone remodeling. The study may help identify new ways of treating osteoporosis.
http://swissinnovation.org/news/web/2013/03-131002-fd

High Altitude Cancer Research Project

(swissinfo.ch, October 04, 2013)

The Swiss-Exped team will face hostile conditions in the Himalayans for the sake of a high altitude research project which will investigate oxygen trials and tests. The physicians, researchers and participants hope that their oxygen trials will provide clues about cancer cells. It will be an arduous undertaking as the team will trekk up a 7,126m Himlung, mountain in Nepal. For nearly 2 years, the team of 24 researchers have prepared by finding sponsors, tested the highly sensitive and costly material and recruited 40 participants.
http://swissinnovation.org/news/web/2013/03-131004-93

Premiere: 1,000 Genes in 10,000 Single Human Cells Visualized

(University of Zurich, October 06, 2013)

Using robots, a microscope, and the supercomputer Brutus, biologists at the University of Zurich have pioneered a fully-automated method to visualize gene activity and transcript patterns in as many as one thousand genes in ten thousand single human cells, all at the same time. In doing so, it was possible to study the spatial organization of transcripts - molecules which are produced when genes are activated. The Pelkman group found high variability in the amount and organization of these molecules between single and multiple cells, and suspect that the patterns they observed could explain what makes a particular cell process robust. Their new method will be of use in multiple fields of research, not least in the study of cancer tumors, where understanding the gene activity in single tumor cells may provide insights into tumor development.
http://swissinnovation.org/news/web/2013/03-131006-8b

Switzerland Shares Biological Information via ELIXIR

(SERI, October 09, 2013)

ELIXIR, the European life-sciences infrastructure for biological information, supports research to encourage advances in medicine, environmental science, biotechnology, agriculture and food production. The Swiss Federal Council has approved Switzerland's participation in ELIXIR and authorized the signing of the international consorti-

um agreement by the Secretary of State for education, research and innovation. About CHF 800,000 have been earmarked to support Swiss participation in ELIXIR from 2013 to 2016. Switzerland will be involved in ELIXIR's "Hub", connected to the European Bioinformatics Institute near Cambridge (UK), and will also manage a national scientific body, or node, led by the Swiss Institute of Bioinformatics (SIB). SIB will deliver all of ELIXIR's services, including data, programming, training, tools and standards, and maintain the world-renowned Swiss protein database (UniProtKB/Swiss-Prot).
http://swissinnovation.org/news/web/2013/03-131009-90

Treating Cancer with a Vitamin Trojan Horse

(PSI, October 10, 2013)

Tumour cells, like normal cells, need vitamins such as folic acid for vital processes including cell division and growth. Exploiting this fact, Cristina Mueller of the Paul Scherrer Institute has been developing a folic acid 'Trojan Horse' to deliver harmful radioactive substances to cancer cells that readily take up folates through their receptors. The complete disappearance of tumour tissue observed in mice makes this development promising, but avoiding harmful effects to the kidney remains a challenge since the kidney would also uptake the radioactive folate through its many receptors. The Mueller group hopes to overcome this by first saturating the kidney with natural folate in future work. Despite the many safety precautions necessary for working so closely with radioactive substances, the researchers are optimistic about the potential of this new form of cancer therapy.
http://swissinnovation.org/news/web/2013/03-131010-c9

Antiviral RNA Interference Shown in Mammals

(ETH Zurich, October 10, 2013)

The RNAi (RNA interference) pathway has now been shown by researchers at ETH Zurich to function in mammalian stem cells. Prior to the work by Professor Olivier Voinnet and his colleagues, this type of immune response to viral infection was known in plants and invertebrates, but not in mammals. RNAi had been identified in mammals, but was previously thought to be involved in cell regulation processes, not in antiviral immunity.
http://swissinnovation.org/news/web/2013/03-131010-5f

Improved Health Behaviour but more Overweight People

(Swiss Federal Statistical Office, October 10, 2013)

The "Swiss Health Survey", conducted in 2012 for the fifth time by the Federal Statistical Office showed that the Swiss population have improved their health behaviour in recent years. For example, in 2012, three out of four people were sufficiently physically active – 10 percentage points more than in 2002. However, the analyses also show that 41% of the Swiss population aged 15 and older were overweight or obese. Men were one-and-a-half times more likely to be overweight than women (51% compared with 32%). Overweight and obesity have therefore increased, having stagnated between 2002 and 2007. Since 1992 the number of obese people has almost doubled and in 2012 was 10%.
http://swissinnovation.org/news/web/2013/12-131010-88

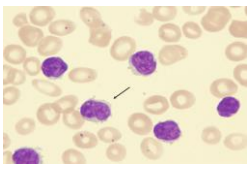
Treating Hypertension with Happiness Hormone Dopamine

(ETH Zurich, October 14, 2013)

A synthetic gene module has been developed by a team of researchers at ETH Zurich which relies on dopamine to trigger the release of proteins that lower blood pressure. Because dopamine, the hormone that induces feelings of happiness, is produced when we undertake pleasurable activities like eating good food, sex, or consuming drugs, the researchers hope that their new form of therapy can be 'administered' through doing enjoyable daily activities. Head of the research group Professor Martin Fussenegger is optimistic that their module, made from mostly human-derived components, could be used in humans after having demonstrated success in hypertensive mice models. However, the process of developing their prototype into a marketable product could take years.
http://swissinnovation.org/news/web/2013/03-131014-63

Potential Cell Therapy Against Cancer Using Lymphocytes

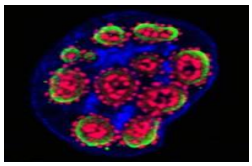
(University of Fribourg, October 16, 2013)



Scientists in the University of Fribourg laboratory led by Professor Carole Bourquin are developing methods to manipulate and "reprogram" B-lymphocytes. They discovered that during certain viral infections, the lymphoid nodules that are normally present on the small intestine disappear, and the B-lymphocytes that would normally be contained in those nodules cannot enter, but instead are redirected to the infection site. The body's interferon response plays a key role in this mechanism. Potential cell therapies based on this new understanding are being explored. They include taking lymphocytes from a patient and "reprogramming" them so that they are no longer sensitive to interferon and will be directed to attack cancerous cells in the colon.
http://swissinnovation.org/news/web/2013/03-131016-76

Tracking Viral DNA in the Cell

(University of Zurich, October 16, 2013)



Cell biologists and chemists from the University of Zurich and ETH Zurich reveal how viral DNA traffics in human cells. They have developed a new method to generate virus particles containing labeled viral DNA genomes. This allowed them to visualize, for the first time, single viral genomes in the cytoplasm and the nucleus of a host cell by using fluorescence microscopy in regular or superresolution mode. The new findings enhance our understanding of how viral disease occurs, and how cells respond to infections. The scientists suggest that their procedure can be applied to other DNA viruses or HIV.
http://swissinnovation.org/news/web/2013/03-131016-50

Fear Of Pain Creates Vicious Cycle For Back Pain

(Swiss National Science Foundation, October 17, 2013)

Yves Henchoz of the Lausanne University Hospital and colleagues at the University of Quebec have been studying how patients experience acute and chronic lumbago (lower back pain). Their experimental results suggest ways to reduce the number of patients for whom lumbago becomes a chronic condition. Subjects had to bend and straighten their torso, and during the movement a thermal stimulus was applied. The stimulus was either painless, slightly painful or painful. Beforehand, the researcher announced to the subject the level of stimulus to anticipate. If a low-pain stimulus was announced, the subjects felt less pain during the movement, even when the actual stimulus was at the "painful" level.
http://swissinnovation.org/news/web/2013/03-131017-70

US Patent for Fast, Precise Mass-Spectrometric Technology

(startupticker.ch, October 21, 2013)

A patent from ETH Zurich which is exclusively licensed to its spin-off Biognosys was granted in the US. This patent enables Biognosys to protect a key process in high-content targeted proteomics experiments that can quantify proteins from any biological sample with unbeatable precision and speed. Biognosys' solution is based on a novel mass-spectrometric technology that allows simultaneous measurement of thousands of proteins in one sample and subsequent storage of the full information in a digital protein map.
http://swissinnovation.org/news/web/2013/03-131021-9b

New Drug Reduces Negative Memory

(University of Basel, October 22, 2013)

Researchers at the University of Basel performed a multinational study to analyze the genetic basis of emotionally aversive memory, which is a central feature of anxiety disorders including posttraumatic stress disorder. They identified 20 potential drug target genes that are involved in the process of remembering negative events. The research groups of Prof. Andreas Papassotiropoulos and Prof. Dominique de Quervain then tested a particular compound, an antihistamine that interacts with one of the identified gene products, for its effects on memory recall. They found that the compound produced a reduction in recall of previously seen aversive pictures, while leaving memory of neutral or positive pictures unaffected.
http://swissinnovation.org/news/web/2013/03-131022-af

Clinical Study Towards Halting Renal Cell Carcinoma

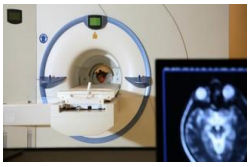
(Debiopharm, October 22, 2013)

The Lausanne based Debiopharm Group™ announced the Initiation of a Phase I Clinical Study with a Combination of HSP90 Inhibitor Debio 0932 and Everolimus (Afinitor®) in collaboration with the Lexington based Curis, Inc.

Renal cell carcinoma (RCC) represents approximately 2-3% of all adult malignancies, and is the seventh most common cancer in men and the ninth most common cancer in women. The European Society of Medical Oncology (ESMO) estimates approximately 209,000 new cases and 102,000 deaths due to renal cell carcinoma per annum worldwide.
http://swissinnovation.org/news/web/2013/03-131022-ec

MRI Scanning Takes Safer Approach with Natural Agent

(EPFL, October 22, 2013)



Using our bodies' natural agent-pyruvic acid, EPFL researchers have developed a breakthrough method that will expose more identifiable MRI imaging thus making a safer and cheaper alternative. Researchers showed that high resolution in contrast-enhanced MRI can still be used with pyruvic acid. This is an organic chemical naturally produced in the body as a result of glucose breakdown without the need of persistent radicals. Exposing frozen, pure pyruvic acid to ultraviolet light for an hour resulted in the generation of non-persistent radicals at a high concentration. This approach was then used to perform high-resolution MRI on a mouse brain. The resulting images showed detailed spatial and temporal resolution to the point of tracking the metabolism of pyruvic acid in the animal's brain.
http://swissinnovation.org/news/web/2013/03-131022-b5

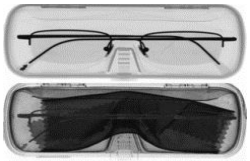
New Probe for Diagnosing Cancer

(IBM, October 23, 2013)

Scientists and doctors at IBM and the University Hospital Zurich have developed a compact and easy-to-use probe sensitive enough to detect heterogeneities within tumours thanks to its ability to interact with tissues on a micrometer scale. Being able to map variations within tumours is particularly important for the early detection of cancer markers, as well as for more personalised and therefore effective diagnoses. The microfluidic probe has shown promising results in the laboratory and is currently being developed to function in the context of pathology with a specific focus on lung cancer. A prototype of the device will be installed at the University Hospital Zurich by early 2014.
http://swissinnovation.org/news/web/2013/03-131023-71

Improved Breast Cancer Detection Using Refraction

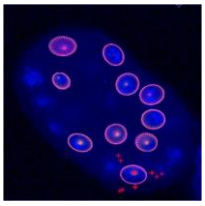
(news.admin.ch, October 24, 2013)



Traditional x-ray imaging for breast cancer measures how much of the x-ray dosage the tissue transmits versus attenuates. The differences give an indication as to which tissue is cancerous. Now, the Paul Scherrer Institute, together with hospital and commercial partners, is testing a new method that extracts additional information from the same x-ray dosage by looking at how waves are refracted by the tissue. This method provides much finer detail as to the structure of cancerous tissue, and also gives an indication as to the malignancy of tissue. The team's next step is to validate the procedure on patients.
http://swissinnovation.org/news/web/2013/03-131024-67

New Technique for Rapid Cell Measurement

(EPFL, October 28, 2013)



A new technique developed by a PhD student in the EPFL Biomedical Imaging Group (BIG) enables fast measurement of the properties of individual cells, just by scrolling a computer mouse over a 3D digital microscopic image of a biological sample. The student, Ricard Delgado-Gonzalo, says about the tool he has developed, "Until now, biologists have had to manually surround the cell they wanted to analyze by clicking over and over again on its perimeter points … With this method, all you need to do is drag the globe near the target cell, click on it, and it's automatically analyzed." The tool measures the cell's shape, size, and density in real time.
http://swissinnovation.org/news/web/2013/03-131028-cb

3D Cell Cultures for Drug Development

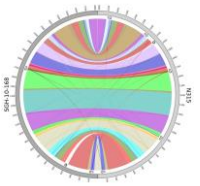
(ZHAW, October 23, 2013)

Approximately 100 researchers and industry partners attended the second annual meeting of the Tissue Engineering for Drug Development and Substance Testing (TEDD) Centre at the Zurich University of Applied Sciences aimed at promoting the use of three-dimensional cell culture in drug development and screening. According to TEDD President Ursula Graf-Hausner, 3D cell cultures can provide better results compared to other conventional

methods such as 2D cell cultures and animal testing. This is critical, especially since animal testing is not very reliable given that 40% of clinical studies in humans following animal testing have been found to be unsuccessful. She is confident that 3D cell cultures and the use of tissue and organ models will therefore provide a more economical and effective method whilst reducing animal testing in the field of drug development.
http://swissinnovation.org/news/web/2013/03-131023-b0

Software to Reconstruct a Bacterial Genome

(University Hospital Geneva, October 28, 2013)



New software developed at the Geneva University Hospitals (HUG) allows a bacterial genome to be fully reconstructed. Modern lab techniques can be used to read an entire bacterial genome. However, this produces millions of small fragments of sequence, which then have to be assembled like a huge puzzle. Until now, available IT tools could only enable partial reconstruction of genomes, and laborious additional analyzes were needed to resolve the genome completely. The software developed at the HUG has completely restored the 3 million bases of the genome of a strain of Staphylococcus aureus.
http://swissinnovation.org/news/web/2013/03-131028-0f

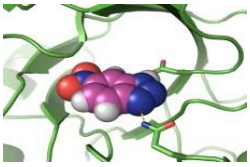
New Dolphin Species Proposed

(University of Zurich, October 29, 2013)

The exact number of species in the dolphin genus Sousa remains disputed amongst ecologists and biologists. Consequently, this lack of knowledge about their population structures has made the conservation and protection of these humpback dolphins difficult. However, an international team of researchers, including geneticist Michael Krützen of the University of Zurich, now proposes the existence of a new Sousa species in Australian waters. Their recently published long-term study used large samples of genetic and morphologic data, and suggests that there exist at least four Sousa species. An even better understanding of dolphin taxonomy would result from further research.
http://swissinnovation.org/news/web/2013/03-131029-0c

Artificial Enzyme Promotes 700 Reactions per Second

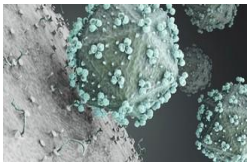
(ETH Zurich, October 29, 2013)



ETH scientists presented the most successful artificial enzyme known today. The enzyme converts 700 substrate molecules per second, which makes it the first artificial enzyme that readily competes with its natural counterparts in terms of catalytic throughput. The starting point for the new enzyme was a xylanase, but the researchers redesigned its interior to promote an entirely different reaction. "Much like retooling a factory for production of another product," explains the first author of the study. To achieve the exceptional turnover rate, the researchers used directed evolution, a process in which a prototype enzyme is subjected to both random and targeted mutation, and more efficient versions identified by screening. Structural insights gained from its structure may facilitate the development of new enzymes in the future.
http://swissinnovation.org/news/web/2013/03-131029-e7

Genetic Map of Human Resistance to AIDS

(EPFL, October 30, 2013)



Using a supercomputer, scientists at EFPL and the Vaud university hospital center analyzed the genomes of thousands of strains of the HIV virus and have produced the first map of human AIDS resistance. To draw up this map, the researchers had to analyze an enormous amount of data: They studied various strains of HIV from 1,071 seropositive individuals and crossed more than 3,000 potential mutations in the viral genome with more than 6 million variations in the patients' genomes. The map allows us to not only better understand how we defend ourselves from attack but also how the virus adapts itself to our defense mechanisms. "We now have a true database that tells us which human genetic variation will induce which kind of mutation in the virus", explains Amalio Telenti, co-author of the study.
http://swissinnovation.org/news/web/2013/03-131030-00

Kidney Protein Causes Hypertention and Kidney Dysfunction

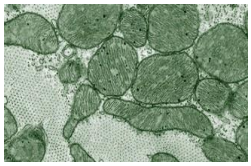
(University of Zurich, November 04, 2013)

Uromodulin is a protein that gets eliminated from the kidneys in the urine. It's known that elevated levels of Uromodulin can lead to hypertension and kidney damage, but its physiologic role has remained mysterious. Research-

ers from the University of Zurich were now able to show that a relatively common mutation in the promoter region of the gene for Uromodulin leads to elevated levels of the protein. In mouse models, they showed that mice with high Uromodulin levels have an increased salt retention in the kidney. Knowing this mechanism, they were able to lower the blood pressure with a standard diuretid drug. Importantly, the study identified Uromodulin as a possible drug target to treat hypertension and kidney diseases.
http://swissinnovation.org/news/web/2013/03-131104-c5

Fighting diseases related to mitochondrial dysfunction

(EPFL, November 04, 2013)



Mitokyne, a startup co-founded by EPFL professor Johan Auwerx, has signed a $45 million research agreement with pharmaceutical company Astellas. Mitokyne's objective is to fight mitochondrial related diseases, which can cause blindness, deafness, chronic muscle weakness or neurological disorders. Because these diseases are relatively rare, they fall into the category of orphan diseases. "The molecules that we will develop for treating extreme forms of these diseases are very likely to also work on less severe ones or on types occurring at an advanced age, such as glaucoma, hearing loss, sarcopenia and Alzheimer's and Parkinson's diseases", estimated Auwerx, thereby also paving the way to a larger-scale success on the market.
http://swissinnovation.org/news/web/2013/03-131104-95

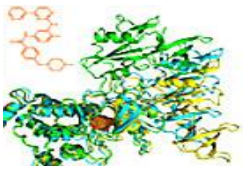
Swiss Food Giant Promises to Reduce Use of Salt

(Nestle, November 04, 2013)

Nestlé has pledged to decrease the usage of salt across all its food brands worldwide to aid a World Health Organization salt target of no more than 5g of salt per person, per day, by 2025. The decision will further lower salt levels across Nestlé's hundreds of savory products including soups, noodles, recipe mixes, frozen and chilled meals and pizzas, in popular brands including Maggi, Stouffer's, DiGiorno and Buitoni. In addition, all culinary innovations launched will be specially formulated with an even lower level of sodium. The announcement by the world's leading health, nutrition and wellness company follows a Washington conference on dietary salt consumption organised by the Pan-American Health Organization (PAHO), the regional Americas Office of the World Health Organization.
http://swissinnovation.org/news/web/2013/12-131104-0b

Interaction Between two Leukemia Drugs Explained

(University of Basel, November 05, 2013)



Currently no treatment option is available for five percent of patients suffering from chronic myelogenous leukemia, a from of blood cancer, since they have developed resistance to conventional medications. Researchers form the Biozentrum of the University of Basel and Novartis have investigated the combined action of two different compounds against this form of leukemia. Using nuclear magnetic resonance spectroscopy, their structural analysis explains at the atomic level, how both substances alter the structure of an enzyme and how their combination potentially can overcome drug resistance.
http://swissinnovation.org/news/web/2013/03-131105-77

Brain-Computer Interface to Control Arms

(20min.ch, November 06, 2013)

Recent advances in brain-computer interfaces have allowed paralyzed people to control robotic arms using only their thoughts and a brain implant. An algorithm translates the thoughts to actions. Now, a team of researchers, including a researcher from EPFL, have further advanced the state of the art by having monkeys control two arms simultaneously. However, the motion of two arms is not simply the combination of two single arm motions. Instead, there are thought patterns specifically associated with the combined motion of two arms, making this a difficult problem. The monkeys and the control algorithm were trained in several steps until they became proficient in thought control of virtual arms.
http://swissinnovation.org/news/web/2013/03-131106-fd

Sleep Deprivation May Treat Depression

(University of Zurich, November 11, 2013)

Sleep deprivation is a known antidepressant, but the neurobiological mechanisms involved are little understood. Through a new imaging study, researchers at the Psychiatric University Hospital in Zurich have shown that sleep deprivation restructures depression-related brain networks. Metabolic changes in two brain regions are associated

with depression symptoms: overactivity in the anterior cingulate cortex, responsible for processing emotional processes, and lower activity in the dorsolateral prefrontal cortex, involved primarily in cognitive performance. There is also excessive linking between various brain networks via the dorsal nexus in depressive patients. This overactivity may cause emotional, cognitive and autonomic dysregulation. Sleep deprivation weakens areas controlling emotional processes, while strengthening areas that mediate cognitive control processes. This insight into functional changes in the brain could enable fast-acting treatments to be developed.
http://swissinnovation.org/news/web/2013/03-131111-ba

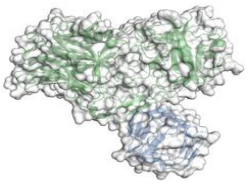
Understanding the "Invisibility" of Anthrax Bacteria

(EPFL, November 15, 2013)

Lethal yet invisible to the immune system and medical diagnostics, anthrax bacteria infections have eluded our understanding for over 50 years. Now however, research carried out at EPFL in collaboration with the University of California, Berkeley, and the National Institutes of Health in Washington has revealed the mechanism by which the anthrax toxin is able to evade detection and afflict cells. Composed of a protective antigen and a lethal factor, the bacterium enters the cell via endocytosis and remains sheltered by the cell's membrane. Then, its lethal factor is released either within the cell or into vesicles that reach the extracellular environment to infect other cells. These findings are significant, as future drug development will revolve around targeting this mechanism.
http://swissinnovation.org/news/web/2013/03-131115-38

Groundbreaking: Botox-Nerve Cell Binding

(PSI, November 17, 2013)



Researchers at the Paul Scherrer Institute (PSI) in collaboration with the University of Utrecht and the pharmaceutical company UCB have discovered how botulinum neurotoxin A (Botox) binds to nerve cells. Publishing their groundbreaking findings in Nature, the researchers used the PSI's Synchrotron Light Source to determine the X-ray crystal structure of the relevant protein complexes and were able to show how exactly the toxin molecule binds to the protein receptor on the nerve cell. Because this binding prevents the transmission of nerve signals to muscles, Botox can cause lethal paralysis if consumed and is commonly used in the cosmetics industry to reduce the signs of wrinkles. Roger Benoit, first author of the study, is confident that their results will be the basis of the development of many new drugs.
http://swissinnovation.org/news/web/2013/03-131117-e1

Untreated HIV Carriers Transmit Resistant Viruses

(Swiss National Science Foundation, November 18, 2013)

Around one in every ten newly infected HIV carriers in Switzerland has viruses that are resistant to at least one of the three classes of drugs used to treat AIDS. Contrary to previously held assumptions, resistant viruses are primarily transmitted by people who are not yet receiving treatment, according to a report from researchers at Zurich University Hospital. "We were astonished to note that the resistant viruses are primarily brought into circulation by untreated people," said one of the researchers. "Previously we had assumed that the resistant viruses came from patients for whom treatment had failed as resistances were produced while treatment was ongoing." They concluded that in order to prevent a spread of the resistant viruses, increased efforts in prevention and early diagnosis of new infections are needed.
http://swissinnovation.org/news/web/2013/03-131118-7e

Enzyme Reaction Proves Single Step Process

(ETH Zurich, November 18, 2013)

For the first time, a team headed by Tobias Erb at ETH Zurich's Institute of Microbiology has monitored the reaction of a nicotinamide-dependent enzyme in systematic steps by applying a simulated reaction cycle of the enzyme, crotonyl-CoA carboxylase/reductase, in slow motion. For nicotinamide-dependent enzymes, it was hypothesized fifty years ago that their reactions might take place in defined single steps. However, this old hypothesis could not be proven until now. "For the first time, our experiments provide concrete arguments that support these old ideas and suggest that many nicotinamide enzymes work in a different way to previously assumed," says Erb.
http://swissinnovation.org/news/web/2013/03-131118-9a

EU Approval For New Breast Cancer Drug

(Roche, November 20, 2013)

Roche has gained approval in the EU to market a new treatment for HER2-positive breast cancer. The drug is an antibody-drug conjugate, with the generic name ado-trastuzumab emtansine, and the brand name Kadcyla®. Clinical trials not only showed increased survival compared to the standard treatment of lapatinib and Xeloda® (cape-

citabine), but also fewer of the side effects commonly associated with chemotherapy. The lower incidence of severe side effects might be related to the targeted mode of action of the drug, which delivers the active substance directly to cancer cells, limiting damage to non-cancerous tissues.
http://swissinnovation.org/news/web/2013/03-131120-a0

Reducing Copper Intake Slows Tumor Growth

(EPFL, November 22, 2013)

Copper imbalances have been associated with a number of pathological conditions, including cancer. Scientists at EPFL have found that copper in drinking water – given at the maximum levels permitted in public water supplies – accelerated the growth of tumors in mice. On the other hand, reducing copper levels reduced tumor growth. The study strongly suggests that copper is an essential factor for the growth of tumors in humans as well. The authors suggest that copper levels could be monitored in cancer patients. They propose that minimizing copper in the patient's system may be beneficial in cancer therapy, especially when combined with drugs that block glycolysis.
http://swissinnovation.org/news/web/2013/03-131122-c8

Breastfeeding Provides Babies with Iodine

(ETH Zurich, November 22, 2013)

Iodine is essential for the human body, and it's especially crucial for infants in order to ensure healthy development. To ensure newborns receive enough of the trace element, the World Health Organisation (WHO) recommends that new mothers take one iodine capsule to provide a year's dose of iodine for the mother and child by way of breastfeeding. If breastfeeding is not possible, physicians give a lower concentration pill directly to the infant. A team of researchers from ETH compared the direct administration of iodine with indirect nourishment through breast milk in newborns. In the course of the study, they found that giving an iodine capsule to the mother is more effective than administering it to the child directly. However, both methods are insufficient to ensure that both mother and child receive enough of the trace element.
http://swissinnovation.org/news/web/2013/03-131122-79

Sensor Contact Lense for Glaucoma Monitoring

(20min.ch, November 22, 2013)

Over one percent of the Swiss population is affected by glaucoma, an eye disease that can damage vision in the affected eye and lead to blindness if left untreated. For these patients it is important to keep track of the intraoccular pressure. Sensimed, a startup from EPFL has developed a soft disposable silicone contact lens with an embedded micro-sensor that captures spontaneous circumferential changes at the corneoscleral area. With an antenna and a wireless transmission system, this technology allows to record the data continuously over 24 hours to improve the glaucoma management of patients at risk of progression. Along the same lines, the Swiss Universities of Applied Sciences of Bern and Northwestern Switzerland in cooperation with medtech company Ziemer are developing a lens with an integrated intraoccular pressure sensor.
http://swissinnovation.org/news/web/2013/03-131122-88

Implantable Slimming Aid

(ETH Zurich, November 26, 2013)

According to the WHO, over half the population in many industrialized nations is overweight, one in three people extremely so. Biotechnologists from ETH Zurich have now developed an early warning system and treatment: an implantable genetic circuit mainly composed of human gene components. On the one hand, the device constantly monitors the circulating fat levels in the blood. On the other hand, it has a feedback function and forms a messenger substance in response to excessively high blood-fat levels that conveys a sense of satiety to the body. Tests on obese mice reveal that the system helps them to lose weight: The obese mice stopped eating too much and their body weight dropped noticeably as a result. As the blood-fat levels also returned to normal, the regulatory circuit stopped producing the satiety signal.
http://swissinnovation.org/news/web/2013/03-131126-2e

New Immunotherapy for Malignant Brain Tumors

(University of Zurich, November 25, 2013)

Glioblastoma is one of the most ominous brain tumors. Despite aggressive surgery, radiation and chemotherapy the outcome of this disease is almost always fatal. Treatment of these brain tumors is particularly challenging because regulatory T-cells accumulate in brain tumors and suppress an immune attack. Using a new strategy and a

novel drug, a team from the Institute of Experimental Immunology at the University of Zurich has now succeeded in doing exactly this. They stimulated the body's own immune system in such a way that it recognized and then killed the brain tumor cells even in advanced stages of the disease. Combining this initial approach with a newly developed drug for skin cancer treatment, they were able to heal 80% of the test mice with late-stage tumors.
http://swissinnovation.org/news/web/2013/03-131125-51

New Drug Target for Malaria Discovered

(Novartis, November 28, 2013)

Each year malaria kills more than 660,000 people most of whom are African children. While current therapies are effective against the most common forms of malaria, patients in certain disease stages are not treatable with them and their efficacy has been compromised in parts of South-East Asia due to emerging resistances. Novartis scientists have discovered a new drug target for treating malaria. Their research identifies phosphatidylinositol-4 kinase (PfPI4K) as the target of the imidazopyrazines, a novel experimental antimalarial compound class that inhibits the development of multiple malaria-causing Plasmodium species at each stage of infection in the human host. The ongoing research to develop imidazopyrazines as a new treatment for malaria is supported by the Wellcome Trust and Medicines for Malaria Venture.
http://swissinnovation.org/news/web/2013/03-131128-60

4. Nano / Micro Technology / Material Science

Innovative Concept for Knee Cartilage Treatment

(Swiss National Science Foundation, October 09, 2013)

In order to regenerate, knee cartilage, paradoxically, needs to be placed under mechanical stress, as happens whenever we take a step and our knees take our weight. At this point, the cartilage cells are most receptive to medication because they develop receptors that are sensitive to the growth factors produced by the organism. Working on this basis, researchers from EPFL have developed a smart material that only releases a substance when the material is mechanically loaded - a hydrogel containing liposome-type nanoparticles and the drug. The research project was funded by the National Research Programme on "Smart Materials" that aims not only to promote scientific excellence but also to promote the successful industrial exploitation of smart materials and their application.
http://swissinnovation.org/news/web/2013/04-131009-ab

Failure Modes of Advanced Lithium-Ion Batteries

(ETH Zurich, October 17, 2013)

In the search for higher-capacity batteries, advances in lithium-ion battery technologies seem promising, but the most advanced technologies being tested, which use alloying materials, have only a short lifetime due to premature failure. Researchers at ETH Zurich and the Paul Scherrer Institute have been investigating one cause of failure, electrode fracture. As the batteries charge and discharge, their electrodes expand and contract. This process causes the electrodes to fracture and small particles to become detached, decreasing the capacity of the battery. This process was observed non-invasively using x-ray tomography at the Swiss Light Source synchrotron facility.
http://swissinnovation.org/news/web/2013/04-131017-db

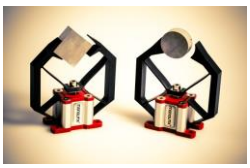
Novel Material Combinations for Aerospace

(Empa, October 21, 2013)

Empa is playing a significant role in "ADMACOM" (Advanced Manufacturing Routes for Metal/Composite Components for Aerospace), a major new EU project within the 7th EU Framework Program. The project aims to discover how components (like aircraft parts) made from a combination of various materials can be economically produced, without reducing functionality or security. Empa's High-Performance Ceramics Laboratory and its Joining Technologies and Corrosion Laboratory are developing and manufacturing an electromagnetic actuator like those used in aircraft or space vehicles to position aerodynamic control surfaces. The challenge is to create a functioning device from a novel combination of different materials (steel and metal alloys, ceramics and ceramic matrix composites) to i.a. minimize fuel consumption, reduce weight or increase range.
http://swissinnovation.org/news/web/2013/04-131021-c8

Novel Frictionless, Wear-Free Compliant Mechanisms

(Empa, October 28, 2013)



The recent Empa spin-off Monolitix AG specialises in compliant mechanisms. These are frictionless and wear-free and are also lighter, more hygienic and cheaper than conventional joint mechanisms. They have an enormous range of potential applications in the most diverse fields. The new company's young entrepreneurs are now setting about breaking into the market with their first products. The "trick" is that rather than using conventional bearings and joints to create the required movement for a mechanism, these so-called solid-state mechanisms deliberately dispense with these types of elements. Instead, the material is deformed in a controlled and reversible way. The advantage is that these joint-free mechanisms are frictionless and wear-free and therefore also maintenance-free. This can drastically reduce the running costs of machines and instruments.
http://swissinnovation.org/news/web/2013/04-131028-42

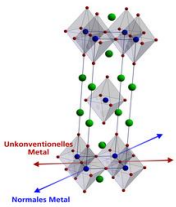
Highly Efficient, Flexible Solar Cells

(Empa, November 05, 2013)

Empa scientists have developed a new technique for manufacturing high-efficiency, flexible, thin film solar cells from CIGS (copper indium gallium di-selenide) semiconductors. With this technique, the Empa team has again been able to significantly increase the energy conversion efficiency from sunlight into electricity using CIGS thin film solar cells on flexible plastic foils – to a new record level of 20.4%, representing a marked improvement over the previous record of 18.7% established by the same team in May 2011. This finally enables CIGS cells to compete with the best polycrystalline silicon cells.
http://swissinnovation.org/news/web/2013/04-131105-62

Unusual Behavior of Electrons in Superconductors

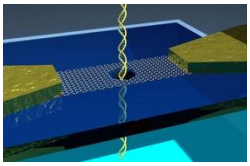
(PSI, November 12, 2013)



High-temperature superconductors conduct electricity without resistance, opening up new possibility for long-distance electricity transmission, more efficient medical imaging, maglev trains, and faster computers. Superconductivity occurs at low temperatures, when electrons in a material start behaving differently. To better understand this phenomenon, scientists at the Paul Scherrer Institute have been studying superconductors using the Swiss Light Source synchrotron. What they have discovered is that in certain high-temperature superconductors above the temperature at which superconductivity is observed, electrons have two different behaviors, depending on the direct of their motion. In one direction they behave like in a conventional metal, in another, like electrons in a superconductor.
http://swissinnovation.org/news/web/2013/04-131112-0f

Molecular DNA Analysis Using Graphene Nanoribbons

(EPFL, November 18, 2013)



Researchers at the EPFL have developed a new method for molecular analysis using ribbons of graphene, a material that consists of a single layer of carbon atoms, organized in a honeycomb lattice. Passing a liquid containing DNA through a nanopore which detects each molecule's passage is a well-known analytical method. But when the membrane is made of graphene nanoribbons (GNRs), its extreme thinness enables much greater accuracy and precision. It should be possible in the future to use the technique for DNA sequencing. The device can also detect passage of protein molecules and provide information on their size and shape.
http://swissinnovation.org/news/web/2013/04-131118-09

Swiss Technology Award Goes to Sanitized AG

(Innovation in Textiles, November 22, 2013)

Sanitized AG is a 60-year-old company specializing in antimicrobial hygiene function and material protection for textiles and plastics. It has won the Swiss Technology Award in the "Sustainable Leader" category, for its new technology in the field of antimicrobial barrier films for textiles, called Sanitized Pluma. How does it work? A polymer film in aqueous solution is formed on the textile surface. The polymer fixes a thin layer of water, which prevents bacterial colonization. The bacteria float on the film and can be eliminated with low-temperature washing. The technology is a significant advancement because it inhibits bacteria from establishing themselves in the first place, rather than attacking them after they are established.
http://swissinnovation.org/news/web/2013/04-131122-4f

5. Information & Communications Technology

Collaboration Between Wikimedia CH and the Swiss National Library

(news.admin.ch, October 17, 2013)

The Swiss National Library will enter a cooperation with Wikimedia CH in order to make the library's collection partially available online. The National Library owns more than 5 million documents concerning Switzerland: from books, journals, photographs, posters and graphics. Now, the library is planning to make the documents that are not protected by copyright anymore available on the Wikimedia Commons and Wikisource. The library is currently already digitizing these documents and will now begin a collaboration with Wikimedia in order to offer the online access to as many people as possible.
http://swissinnovation.org/news/web/2013/05-131017-88

Internet as Economic Engine

(ICTjournal, October 25, 2013)

According to findings of a study commissioned by ICT Switzerland and performed by Econlab GmbH, Switzerland ranks fourth among European countries for the percentage of its gross domestic product (GDP) that depends on internet use. For 2010 the authors calculated that work processes and transactions relying on the internet brought 32.2 billion francs to the Swiss economy, representing 5.6% of the total GDP. They estimate that for 2013, the figure may reach 12%, or 69 billion francs. The study also shows that the e-commerce sector continues to be led by online travel agencies, with plane tickets accounting for 35% of online transactions by consumers. The study is published only in German.
http://swissinnovation.org/news/web/2013/05-131025-be

Improved Digital 3D Models for Disney

(20min.ch, November 01, 2013)

In Hollywood movies, reality and virtual worlds seem to blend. To achieve this effect, real, three-dimensional objects have to be measured and turned into a digital model using a 3D laser scanner. However, this device can not capture colors, so an illustrator has to manually color the resulting model in a time-consuming process. Researchers at Disney Research Zurich at ETH Zurich have now developed a method to create colored 3D models directly. While this technique is not entirely new, it was far to slow. A new algorithm for data processing now makes the process faster and useful for movie designers.
http://swissinnovation.org/news/web/2013/12-131101-f5

Embedded Micropayment System

(startupticker.ch, November 05, 2013)

The startup Millipay based in Zurich is one of the leading companies in the areas of digital payment transactions. Their system allows the billing of minimal amounts of money, up to fractions of cents. Commercial micropayment had the issue that the billing of smaller quantities of money (below 20 cents) was not very viable for banks. The system by MilliPay acts as a broker and is embedded directly into the systems of the content provider. This has the advantage that the consumer data remains with the content provider and is not leaked to a third party.
http://swissinnovation.org/news/web/2013/05-131105-42

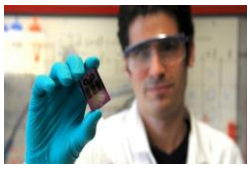
Swiss ICT Award for Startups

(startupticker.ch, November 13, 2013)

The Swiss ICT Award recognizes Swiss companies and individuals who have made important contributions to, and advances in, information and communications technology. The winner in the Newcomer category was Starmind, which provides an advanced way of creating and maintaining a corporate knowledge base using artificial intelligence technology. A second startup, dacadoo, won the People's Choice Award. Dacadoo provides a health platform that uses games and social networking to encourage people to maintain a healthy lifestyle. The third winner was Manuel Grenacher, who started coresystems and Mila. Coresystems provides corporate mobile cloud solutions, and Mila is an online marketplace for exchange of goods and services within a neighborhood.
http://swissinnovation.org/news/web/2013/05-131113-f9

3D Computer Chip Powers like Electronic Bloodstream

(ETH Zurich, November 13, 2013)



Using a circuit of electrochemically active fluids, scientists created a new method that synchronizes both electricity and cooling in innovative three-dimensional computer chips. Inspired by the structure of the human brain, this project named Repcool, the researchers – including scientists from the Paul Scherrer Institute and the Università della Svizzera italiana (USI) – will use liquid circuits to power the computer chips at the same time. Without the purpose as a coolant, an electrolyte solution will flow through the chip like an 'electronic bloodstream'. Therefore, computer chip and power supply virtually merge to form a single unit.
http://swissinnovation.org/news/web/2013/05-131113-c3

First Big Data Course

(Bern University of Applied Science, November 18, 2013)

The Bern University of Applied Sciences and the IT service provider Trivadis have jointly designed the first Big Data CAS (Certificate of Advanced Studies). The extraction, processing and use of data in real time are complex tasks and there are not enough IT professionals capable of handling them. Until now, no specialist training was available in Switzerland. However, demand for it is high among IT firms, banks, insurance companies and those in the healthcare sector. The new executive master course, to be launched in spring 2014, is aimed at IT professionals in the fields of Business Intelligence, Analytics and Smart IT. It will focus on Enabling Technologies, the uses of Big Data, architecture and embedding of Big Data solutions, as well as methodological basics.
http://swissinnovation.org/news/web/2013/05-131118-c6

First Swiss Petaflop-Scale Supercomputer

(20min.ch, November 18, 2013)

"Piz Daint", in operation at CSCS since April 2013, has gone through a major upgrade. During the last few weeks the supercomputer based on Intel Xeon E5 processors has more than doubled in system size from 12 to 28 cabinets and has been upgraded to a hybrid architecture featuring NVIDIA® Tesla® K20X graphical processing units (GPUs). With a total of 5'272 hybrid compute nodes as well as a powerful high-bandwidth, low-latency network, it will now be possible for real simulations to sustain petaflops (1015 floating point operations per seconds) performance. Early tests confirm the performance of "Piz Daint". DCA++, a quantum Monte Carlo code to simulate models of high-temperature superconductors, sustains 4.2 petaflops under regular production conditions.
http://swissinnovation.org/news/web/2013/05-131118-64

Superconductor Simulation on 15 Petaflop Titan

(ETH Zurich, November 19, 2013)

Researchers from ETH Zurich have developed a new algorithm to simulate superconductivity. Thanks to the algorithm, the researchers reach their goal considerably more rapidly than before – in some cases even up to a billion times faster, say the scientists. Using the algorithm on the supercomputer "Titan" at Oak Ridge National Laboratory, they managed to carry out 15,000 trillion computational operations per second – fifteen petaflops. However, not only does the new algorithm work faster; the scientists have also used it to overcome two central problems in the simulation of high-temperature superconductors. Moreover, the new calculations reveal that the simplest models do not rule out superconductivity at room temperature.
http://swissinnovation.org/news/web/2013/05-131119-df

Best of Swiss Apps Award: Liquidsketch

(Best of Swiss Apps, November 20, 2013)

Liquidsketch was elected the best app of the year, earning the title "Master of Swiss Apps 2013". Over 130 entries from Swiss companies mostly in the mobile and advertising industries were received, with only less than half shortlisted by a jury of over 40 experts. Liquidsketch is a puzzle game app for iPad which requires the user to control a stream of water either by tilting the iPad or using their finger. Users must use logic to solve the various puzzles involving liquid mechanics. Stunning visuals, overwhelmingly realistic liquid simulation, and the ability to bring to life the 'dry' subject of liquid dynamics were among the factors in Liquidsketch's success.
http://swissinnovation.org/news/web/2013/05-131120-51

High-Performance Bubble Simulation

(ETH Zurich, November 22, 2013)

A team from ETH Zurich, together with partners, was awarded the Gordon Bell Prize for their fluid dynamics computer simulation of bubbles collapsing. The simulation solved a difficult computational problem and was one of the

most advanced uses of supercomputing, greatly advancing the state-of-the-art. Bubble collapse occurs in cavitation in two-phase flow in turbines, for example, where it can cause damage to machinery due to the violence of the process. However, cavitation also has wider applications such as in the treatment of kidney stones and as a therapeutic method to treat cancerous tumors.
http://swissinnovation.org/news/web/2013/05-131122-28

6. Energy / Environment

Source of the Largest Volcanic Eruption Identified

(University of Bern, October 01, 2013)

An international research team, involving the French "Centre National de la Recherche Scientifique" (CNRS), the Universities of Bern, Cambridge, ETH Zurich and Indonesian researchers, has identified the volcano responsible for the most massive eruption in the past 7,000 years. The eruption devastated an entire kingdom in Indonesia and caused a "year without a summer" in Europe. Deposits in polar ice cores suggest this happened around 1257 in the tropics. The source has now been identified as the Samalas volcano on the Indonesian island of Lombok. Based on model calculations, the researchers estimate at 7.0 the magnitude of the eruption that released 40 cubic kilometers of ash into the stratosphere. The study has been published in the Proceedings of the National Academy of Sciences (PNAS).
http://swissinnovation.org/news/web/2013/06-131001-24

Bacteria for Recycling Metals

(University of Zurich, October 02, 2013)

Old electronics hardware and slag from waste incinerators contain valuable metals, such as gold, silver, iron, and copper. Carlotta Fabbri of the Institute of Environmental Microbiology & Biotechnology (IEU) of the University of Zurich is investigating how bacteria can aid in recycling these materials. Special bacteria can transform metals into solvable forms, which can be extracted and recycled. In particular, Fabbri is interested in the bacteria with the name CCOS 191, which was recently discovered by a team of researchers from the University of Zurich.
http://swissinnovation.org/news/web/2013/06-131002-d1

Cost Effective & Eco-Friendly Way to Grow Lettuce

(startupticker.ch, October 03, 2013)

Using an “aeroponic system”, a method for growing plants in an air and moist environment instead of using soil, the CombaGroup has developed a new technology for growing lettuce which is both cost-effective and eco-friendly. Without any exposure to global warming or insects, lettuce production will be improved over traditional methods of growing. This production and methodology combines the reduced use of pesticides with aeroponics and consequently creates a simpler and faster growing process. Currently, the CombaGroup is in the process of setting up a 500m2 pilot farm.

Alpine Swift Flying Nonstop for 7 Months Straight

(swissinfo.ch, October 08, 2013)

Bird researchers in Switzerland have discovered that the Alpine swift, a species native to the region, can fly for seven months without stopping and even sleeps in-flight. In 2012, scientists at the Swiss Ornithological Institute in Sempbach, canton Lucerne, affixed tiny geolocators to three Alpine swifts and tracked them during their yearly migration to Africa. Upon the birds’ return to Switzerland in the spring, the researchers were able to remove the tracking devices and analyse the data they carried. The results were “revolutionary”, according to the researchers: the bird spends the vast majority of its time in the air without landing, feeding on flying insects and sleeping while airborne.
http://swissinnovation.org/news/web/2013/06-131008-dc

Atmospheric Aerosol Formation

(CERN, October 06, 2013)

Aerosols are tiny solid or liquid particles suspended in the atmosphere that reflect sunlight and seed cloud droplets. Scientists at the European Center for Nuclear Research (CERN) have been running experiments to test how aero-

sols are formed, and they have shown that amines and sulphuric acid combine to form aerosols. Both amines and sulphuric acid are present in the atmosphere, and even very small concentrations of amines are sufficient for this process. Furthermore, the effect of radiation was tested using the Proton Synchrotron facility, and it was shown that radiation has little to no effect on the rate at which aerosols are created by amines and sulphuric acid.
http://swissinnovation.org/news/web/2013/06-131006-2f

Swiss-Cameroon Lab Ends Electric Blackouts

(EPFL, October 09, 2013)

Switzerland and Cameroon are establishing a joint laboratory in Yaoundé to develop smart microgrids for hospitals in Cameroon. EPFL and ENSPY (Ecole nationale supérieure polytechnique de Yaoundé) will work together to develop technologies for stabilizing and improving electricity grids. This will help overcome the problem of unreliable electricity networks in sub-Saharan Africa that is especially problematic for hospitals, because medical equipment is very sensitive to sudden variations in current. The project is part of the RESCIF program, which brings together North-South French-speaking universities. The partner institutions will intensify exchange programs for students and professors, and strengthen collaboration with Cameroonian businesses, stimulating the creation of start-ups in Yaoundé. The microgrid solution should also be relevant to other sectors and even for developed countries.
http://swissinnovation.org/news/web/2013/06-131009-2d

Fossil Fuels to Still Dominate in 2050

(swissinfo.ch, October 14, 2013)

In a study conducted by the Paul Scherrer Institute and the World Energy Council, fossil fuels were found to likely remain as the top method of meeting the world's energy needs in 2050. This is despite current worldwide interest in developing alternative energy sources. The study, presented at the recent World Energy Congress, looked at two potential scenarios: one which relies on the market economy to produce electricity cheaply, and the other which prioritizes achieving international environmental goals through market regulation. In both cases, renewable energy forms were only expected to meet 20-30% of needs in 2050. These projections come as the Swiss government's Energy Strategy 2050 is calling for energy consumption to be reduced by nearly half by 2050.
http://swissinnovation.org/news/web/2013/06-131014-39

Biodiversity Affects Ecosystems Dynamically

(University of Bern, October 15, 2013)

The loss of biodiversity can be a significant threat to ecosystems. A team at the University of Bern led one of the biggest European experiments on biodiversity. The experiment analyzed 418 separate measures of 38 ecosystem processes. Overall, 45% of processes were significantly affected by plant species richness, suggesting that, while diversity affects a large number of processes not all respond to biodiversity. The team concludes that their findings should shift the debate from the point that biodiversity loss generally impairs ecosystem functions to a focus on specific functions of interest which might be preserved individually.
http://swissinnovation.org/news/web/2013/06-131015-0d

Microplastic Pollution Studied in Freshwater Systems

(swissinfo.ch, October 16, 2013)

EPFL researchers are expanding their study of microplastics, pieces of plastic smaller than 5 millimeters in diameter. Following a study of Lake Geneva, they are sampling the waters of the Rhône and Rhine rivers, and six different lakes in Switzerland. Scientists estimate that 80 per cent of plastics found in oceans come from terrestrial sources via rivers and lakes, but little is known about the quantities and types of microplastics in freshwater systems. Microplastics include so-called microbeads, used in products such as facial and body scrubs. More information could help re-engineer drainage and water treatment systems, and is already the basis for a movement to ban microbeads in personal care products.
http://swissinnovation.org/news/web/2013/06-131016-8d

Environmental Technology Promotion Report

(news.admin.ch, October 16, 2013)

The results of federal government spending of CHF 16 million in 2007-2011 to promote environmental technologies have been released by the Federal Council. According to the report, many pilot and demonstration projects ad-

dressing issues such as water pollution, air pollution, waste management, recycling, and biodiversity benefited from this funding. In providing such economic resources, the government hopes that the promotion of environmental technologies will improve the environmental quality of Switzerland and lead to economic benefits through savings on infrastructure, resource efficiency, and health costs.
http://swissinnovation.org/news/web/2013/06-131016-30

Competition to Combat Food Waste

(ETH Zurich, October 17, 2013)

As the world's resources grow scarce, finding sustainable ways to reduce and avoid food waste and loss is a global priority. The UN's Food and Agriculture Organization (FAO) estimates around 1.3 billion tonnes (worth USD 750 billion) of all food produced is wasted or lost each year, and about 870 million people worldwide are undernourished. World Food Day, held annually on October 16, and the "Our Common Food" competition aim to encourage the development of effective and sustainable solutions to food nutrition and security. This year, two out of eight competition finalists, chosen from 54 participants from 14 countries, were from ETH Zurich. The winners were 'Cloud Kitchen', an app to manage domestic food storage, and "A village-based grain bank", to manage grain storage for Kenyan farmers.
http://swissinnovation.org/news/web/2013/12-131017-38

"Mountland" Wins the Swiss Academies Award for Transdisciplinary Research

(Swiss Academies of Arts and Sciences, October 21, 2013)

Outstanding scientific research projects that address socially relevant issues were recognised at the award ceremony held in conjunction with the 2013 Swiss Inter- and Transdisciplinary Day. Top honours and prize money totaling CHF 75,000 went to "Mountland", a project under the framework of the Competence Center Environment Sustainability which involved research groups from ETH Zurich, EPFL, and the Swiss Federal Institute for Forest, Snow, and Landscape Research (WSL). The winning project looked at the effects of climate change and land use in relation to biodiversity conservation, food production, and natural disasters in the context of a mountain ecosystem, with the ultimate goal of creating policy and management options to promote sustainable development. Switzerland's research institutes in addition to 140 partner institutions from Africa, Asia, and Latin America participated in this programme funded by the Swiss National Science Foundation, the Swiss Agency for Development and Cooperation, and other participating institutions.
http://swissinnovation.org/news/web/2013/06-131021-c7

Recycling Low-Temperature Waste Heat in Scalable System

(startupticker.ch, October 23, 2013)

Switzerland-based OsmoBlue pitched a sustainable and profitable technology for recycling low-temperature waste heat. OsmoBlue's patented technology converts low-temperature heat, as low as 30°C, into electricity. The system is scalable and can produce hundreds of kW to tens of MW of electricity. The company has now been awarded the first price in the European finals of Climate-KIC's 2013 Venture Competition
http://swissinnovation.org/news/web/2013/06-131023-55

Tracking Micropollutants in Lake Geneva

(EPFL, October 25, 2013)

Every second, between one and three tons of treated wastewater from the city of Lausanne gush out into Lake Geneva from a pipe that ends 700 meters offshore and 30 meters below the lake's surface. Antibiotics, urban pesticides, and other contaminants accumulate where the processed wastewater is released into Lake Geneva. The impact of these micropollutants is receiving ever more attention from the scientific community, but it is still unclear how long they persist and to what extent they pose a threat to organisms. Using computer simulations, EPFL researchers have shown that the pollutants are most persistent during summer, several meters under water. In the winter, they rise to the lake surface and are most effectively degraded by sunlight.
http://swissinnovation.org/news/web/2013/06-131025-35

Biodegradable Grocery Bags Offer Alternative to Plastic

(startupticker.ch, November 04, 2013)

The Swiss supermarket chain Migros is offering, for their customers' purchases of fruits and vegetables, bags that are biodegradable and compostable. The bags have been developed by BioApply in Gland and are made from non-

GMO potatoes. Although intended as an alternative to single-use plastic bags (soon to be prohibited in Switzerland), the bags can be reused for food waste. Migros plans to test the product in several of their stores in the Canton of Vaud in early 2014, offering the biodegradable bags at 5 cents each alongside the conventional (and free of charge) plastic bags. The present cost of producing the biodegradable bags is ten times that of the plastic bags.
http://swissinnovation.org/news/web/2013/05-131104-35

Study: Residents Not Disturbed by Wind Turbines

(news.admin.ch, October 28, 2013)

With a mandate from the Federal Government, researchers from the University of St. Gallen and the German Martin-Luther-Universität Halle-Wittenberg have found, that most residents are not disturbed by wind turbines in the vicinity. An overwhelming majority (78%) supports wind energy, most of which also stated that they were not, or only slightly disturbed by the wind turbines. Only 6% of the residents were strongly incommoded by the wind parks.
http://swissinnovation.org/news/web/2013/06-131028-ac

World's First Dye-Sensitized Solar Cell Window Installed

(EPFL, November 05, 2013)

For the first time in history, EPFL has installed a solar window series with dye solar cells making a world first. The project uses dye-sensititized solar cells known as Graetzel cells which are translucent. These cells are indifferent to the angle of incidence of light that hits them, and, they can be applied vertically without any efficiency loss. Additionally, they produce renewable energy as well as shade the building from direct sunlight which reduces the need for air conditioning. This innovative solar installation is funded by Romande Energie and will be operational in December 2013.
http://swissinnovation.org/news/web/2013/06-131105-e3

Renewable Energy Integration Using Market Mechanisms

(University of St.Gallen, November 07, 2013)

Variability and price volatility can make the use of renewable energy expensive. Researchers at the University of St. Gallen, together with electricity provider TransnetBW, are investigating the use of market mechanisms to ease this problem. Using market coupling, TransnetBW can optimally make use of the electricity import capacity available across borders and reduce the negative effects of bad predictions of supply or demand.
http://swissinnovation.org/news/web/2013/06-131107-f6

Sustainable Water Management to Cope with Water Shortages in the Alps

(University of Fribourg, November 07, 2013)

In the framework of the National Research Program 'Sustainable Water Utilization', researchers at the University of Fribourg developed water management strategies for the alpine region of Crans-Montana. In addition of measurements to assess the deglaciation in the region, they also focused on sociological, political and institutional aspects of water management. As one of the conclusions, the researchers noted that the future problems are most likely not going to be caused by climate change and the alterations in water supply, but by the increasing usage and inadequate regulations in water management.
http://swissinnovation.org/news/web/2013/06-131107-68

Recovering Phosphor from Wastewater

(20min.ch, November 15, 2013)

Phosphor is an essential nutrient for plants and therefore an irreplaceable ingredient of fertilizers. The world's phosphor reserves in mines are running out, but the material is still abundant, for example in human feces. "The phosphor contained in all of Switzerlands sewage sludge is enough to supply the need of Swiss agriculture," says Franz Adam from the canton of Zurich. Today, Switzerland imports over 16'000 tons of phosphorous fertilizer. A new method of extracting phosphor from sewage sludge by first burning it and then treating the ash with acid to remove dangerous heavy metals has proven to provide effective fertilizer for plants. The canton of Zurich plans to open a facility for phosphor recovery from sewage in 2015.
http://swissinnovation.org/news/web/2013/06-131115-0e

Uncertainty in Climate Models Explained

(ETH Zurich, November 17, 2013)

Unlike long-term climate predictions, forecasts about the next twenty to fifty years are fraught with major uncertainties. For decision-makers and people affected by climate change, however, mid-time range information is at least as important as long-term predictions. Researchers from ETH Zurich have investigated the causes of the major discrepancies in the short and medium-term projections. The scientists conclude that they are mostly caused by natural, chaotic and thus unpredictable fluctuations in the climate system. There is certainly potential for improving climate models, says Erich Fischer, a senior scientist at the Institute for Atmospheric and Climate Science. “However, even if we had a perfect model for the medium-term, there would still be uncertainties.”
http://swissinnovation.org/news/web/2013/06-131117-1a

Europe Faces Growing Risk of Invasion by Insect Pests

(University of Fribourg, November 20, 2013)

Climate change will probably lead to more insects invading Europe, according to a research team from the Department of Biology at the University of Fribourg, collaborating with the federal research station Agroscope ART and the University of Neuchâtel. Published online in the journal Diversity & Distributions, the study highlights the influence of global trade in agricultural products, the cultivation of host plants, and climate on infestation by insect pests. The size of areas under host plant cultivation is a crucial factor, and the countries at highest risk of invasion are Italy, France, Spain, Hungary and Germany. Invasive species may include the Oriental cotton leafworm (Spodoptera litura), northern corn rootworm (Diabrotica barberi) and sugarbeet wireworm (Pheletes californicus). These findings should help national phytosanitary authorities develop suitable control strategies.
http://swissinnovation.org/news/web/2013/06-131120-d6

PlanetSolar DeepWater in a Movie

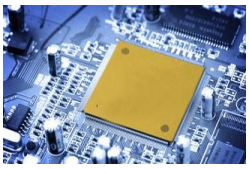
(University of Geneva, November 20, 2013)

In 2013 the MS Tûranor PlanetSolar, the world's largest solar boat, embarked on the DeepWater expedition to explore the ocean processes that interact with the atmosphere by taking water and air measurements for over 8,000 km along the Gulf Stream, aiming to better understand climate change. Laurent Bignolas, a French journalist, joined the expedition and shared the daily life of the researchers from the University of Geneva and the crew member. His documentary "Opération Solar" lets you discover the human, scientific and ecological aspects of this adventure.
http://swissinnovation.org/news/web/2013/06-131120-cf

7. Engineering / Robotics / Space

Imperfect Electronic Circuits

(EPFL, October 02, 2013)



Professor Christian Enz of EPFL is promoting a new "good enough" design philosophy for electronic circuits. For the last several decades, computer chips have halved in size every 18 months. However, this reduction is becoming more difficult because smaller circuits face more errors and require error correction circuits, which use space and power. By instead designing circuits to be good enough but not perfect, an imperfect but acceptable output can be achieved at lower power and smaller size than with current design approaches. Nevertheless, convincing engineers that such a change is appropriate is difficult due to cultural pushback, especially in Switzerland where there is a heavy focus on quality.
http://swissinnovation.org/news/web/2013/07-131002-7c

Multifunctional Solar Thermal Window

(University of Liechtenstein, October 04, 2013)

The FLUIDGLASS project develops a new and innovative concept for multifunctional solar thermal glass facades systems. The FLUIDGLASS approach turns passive glass facades into active transparent solar collectors while at the same time controlling the energy flow through the building envelope. FLUIDGLASS unites four key functionalities in one integrated system: The system firstly acts as a fully transparent solar thermal collector, which enables

harvesting of solar energy even in buildings with large glass share. It secondly acts as transparent insulation layer and thirdly controls the solar radiation transmission and inner glass surface temperature thus increasing the thermal user comfort and reducing the demand for heating, cooling and lighting. At the same time FLUIDGLASS substitutes conventional HVAC components such as cooling and heating panels.
http://swissinnovation.org/news/web/2013/07-131004-73

Luminous Textiles

(20min.ch, October 02, 2013)

The e-broidery® technology, developed by Forster Rohner Textile Innovations allows for the first time the integration of active lighting into fabrics without compromising the textile properties. These innovative materials are designed to meet both decorative and functional needs. They are equipped with electronic components like LEDs, which have been incorporated in a variety of textile surfaces with the help of embroidery technique. After years of development, Forster Rohner Textile Innovations has succeeded in developing the first textile lighting technology which retains textile properties like softness of touch, washability and ease of folding.
http://swissinnovation.org/news/web/2013/07-131002-41

Breakthrough in Automobile HUD display

(startupticker.ch, October 08, 2013)

Significantly enhancing the capabilities of its first generation head up display (HUD) architecture, Lemoptix, a Lausanne-based company, released its latest HUD prototype for cars. “Scanning MEMS-based laser projection displays are the future of automotive HUDs”, says Marco Boella, CEO of Lemoptix. The company presented its new HUD display at IAA 2013 automotive tradeshow and is planning to demonstrate it at the CES 2014 tradeshow in Las Vegas. It has a field of view of 12.8 degrees horizontally and 3 degrees vertically. Resolution has increased to 1024 x 240 pixels, representing an angular resolution of 80 pixels per degree. The viewed image size is 50cm x 12cm at 2.25m distance from the viewer, and a virtual image luminosity of 40,000 cd per square meters.
http://swissinnovation.org/news/web/2013/07-131008-e7

New Association to Promote Swiss Technology and Entrepreneurship

(startupticker.ch, October 18, 2013)

A new nonprofit organization has formed to enhance, promote and serve the Swiss technological scene. The Swiss Tech Association aims to connect entrepreneurs with one another, and to provide opportunities for them to share ideas and experiences, so they become stronger. The young organization already has support from Evernote, the Alp ICT Cluster, and Breeuw. They plan to hold “Swiss Tech Talks” every other Monday in Fribourg, inviting specialists to share their expertise related to technology and entrepreneurship. Individuals and companies can become members of the association at their website, www.swisstechassociation.com.
http://swissinnovation.org/news/web/2013/07-131018-65

Swisscube Satellite Continues its Success

(EPFL, October 21, 2013)

Four years ago, Swisscube, a small satellite designed in Switzerland, was launched with an expected operational duration of at most one year. The satellite continues to operate successfully, producing images of the air glow phenomenon. Instead of using space-qualified hardware, designers used off-the-shelf electronics that were much less expensive, such as mobile phone batteries. This strategy has proven to be useful and may be reused in the future. In 2018, CleanSpace One, a Swiss satellite designed to remove space debris, will use Swisscube as its first target for removal.
http://swissinnovation.org/news/web/2013/07-131021-86

Swiss Precision Instruments for Space Mission

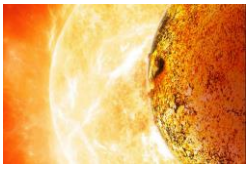
(University of Geneva, October 28, 2013)

Since 2009, researchers in astronomy at the University of Geneva have been collaborating with Dutch and Japanese colleagues to prepare a major space mission. Their role is to develop high-precision instruments for the Japanese ASTRO-H satellite that will be launched in 2015. High-energy astrophysics is a world of extremes, and special satellites equipped with telescopes sensitive to X-rays and gamma are needed to explore high-energy phenomena.

The ASTRO-H will be used to study the most collapsed stars, like black holes and neutron stars, and larger linked structures like clusters of galaxies. The Swiss researchers have helped develop a state-of-the-art X-ray detector, namely a wheel capable of placing different filters in the field of view and orientating X-ray sources to calibrate the instrument.
http://swissinnovation.org/news/web/2013/07-131028-68

Earth-Sized Lava Planet

(Global Post, October 30, 2013)



Researchers, including a professor from the University of Geneva, announced the discovery of Kepler-78B, a planet about the size and density of Earth. However, despite these similarities, this planet is very close to its star, and so its thin atmosphere is about 2000 degrees Celsius hotter than Earth and its surface is most likely molten. What confuses the researchers is how the planet got to its present orbit because it cannot be explained by current theories about planet formation. In the next few billion years, the planet will be pulled in closer and ripped apart by its star.
http://swissinnovation.org/news/web/2013/07-131030-30

Flight Safety Near Volcanos

(20min.ch, November 01, 2013)

Ash from volcanos poses a danger to aircraft due to the damage it causes to engines. Thus, whenever a volcano erupts, air traffic in its vicinity is disrupted. A zero-tolerance approach is used that bans flight regardless of the ash level. Researchers in Geneva are emulating volcanic eruptions to gain a better understanding of ash levels and their danger to aircraft. They hope that their research will lead to threshold values for ash levels that still allow flight when levels are low, thus reducing the impact of volcanos on aviation.
http://swissinnovation.org/news/web/2013/07-131101-a9

Safe and Crashworthy Drone Robot

(EPFL, November 01, 2013)

Engineers at EPFL designed a new drone that can safely continue to fly after it hits obstacles. The core of the aircraft, consisting of the electronics, controls, and motor, is surrounded by an elastic cage, and the two are attached through a set of gimbals, making the drone able to fly stably. Demonstration flights were performed showing how the drone flies robustly. As drones become more popular, the associated risks, including collisions, become more important. This new design solves many of the potential problems and opens up a range of uses for drones that require operation close to people or objects.
http://swissinnovation.org/news/web/2013/07-131101-24

Market-Ready Gait Trainer for Stroke Patients

(startupticker.ch, November 29, 2013)

ABILITY Switzerland AG, a spinoff from ETH Zurich and former participant of the venture leaders program at swissnex Boston, is aiming to get disabled patients after a stroke out of the wheelchair and back on their feet. They have developed a mechanism that transforms a simple rotational motion into a natural human gait pattern. In the first commercially available model of their gait trainer LYRA, this mechanism is integrated in an easy-to-use gait trainer for use by trained therapists in rehabilitation clinics. A innovative swing-mechanism of one of the two pedals lets even patients in wheelchairs easily access the gait trainer.
http://swissinnovation.org/news/web/2013/07-131129-98

8. Physics / Chemistry / Math

Confirming Physics Models With Muon Decay

(PSI, October 01, 2013)

The Standard Model of physics explains many of the phenomena discovered so far, but not all. An alternative model is supersymmetry. Researchers at the Paul Scherrer Institute (PSI) are conducting a multi-year experiment to detect rare muon decay that is predicted by one model but not the other in order to help determine which better explains our universe. PSI's unique proton accelerator creates an ample supply of muons, which are shot into a tank

of liquid xenon, where they decay. More specifically, the team is looking for anti-muons decaying into positrons and photons, which is predicted by supersymmetry. However, this decay is so rare, an enormous amount of data needs to be analyzed to be certain of the results.
http://swissinnovation.org/news/web/2013/08-131001-a3

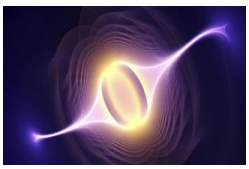
Documentary Shows the Human Side of the Large Hadron Collider

(Scientific American, October 03, 2013)

A new documentary movie tracks the odyssey of the Large Hadron Collider (LHC), the "largest machine ever built by humans," as one physicist explains onscreen. The story begins in 2008, before the opening of the giant particle accelerator near Geneva, and culminates in the announcement last summer that the project had found proof of the long-theorized Higgs boson, which is responsible for giving particles their mass. Both filmmaker and director Mark Levinson and producer David E. Kaplan hold degrees in particle physics.
http://swissinnovation.org/news/web/2013/12-131003-a7

Seebeck Effect: Using Heat to Make Magnets

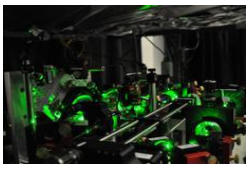
(EPFL, October 17, 2013)



The Seebeck effect is a well known thermoelectric effect whereby a temperature gradient along a conductor generates a current. If, instead, a temperature gradient is created along an insulator, a magnetic field is generated, if conditions are right. This magnetic Seebeck effect was just shown for the first time by a team of EPFL scientists. The experiment was conducted using yttrium iron garnet as an insulator. The magnetic Seebeck effect stems from the heat gradient causing differences in electron spin in the hot and cold sections of the insulator. This research has potential implications for spintronics, which are alternative electronics that use electron spin rather than charge and flow.
http://swissinnovation.org/news/web/2013/08-131017-47

Thermoelectric Materials Emulator

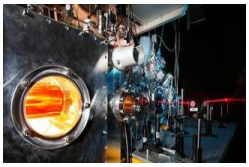
(ETH Zurich, October 24, 2013)



Thermoelectricity is the field of converting heat to electricity. Thermoelectric generators are used in very specialized applications, such as space probes, but if their efficiency could be increased, then they may see broader application in the recovery of waste heat from a wide range of systems. However, finding appropriate materials has been difficult, but ETH Zurich, together with European partners, is making advances. It created a thermoelectric materials emulator using gaseous lithium in a vacuum tube cooled to near absolute zero, which makes the lithium atoms behave like electrons. Lasers trap atoms in a spatially-varying structure as in a thermoelectric material. This experiment is still in its early stages, but looks very promising.
http://swissinnovation.org/news/web/2013/08-131024-e7

Nanoscale Superfluidity

(EPFL, November 13, 2013)



Superfluidity is the state when a fluid flows without viscosity, which can occur only in extremely low temperatures. Theory and experiments show that an object can move through a fluid without viscosity up to a certain Landau velocity, at which point superfluidity breaks down. Until now, superfluidity has only been studied as a macroscopic phenomenon, but scientists at EPFL recently extended the research to the nanoscale. They were able to show experimentally, using helium nanodroplets, that superfluidity and the Landau velocity still hold true at this scale.
http://swissinnovation.org/news/web/2013/08-131113-43

Nanodiamonds for Quantum Computing

(University of Basel, November 19, 2013)

With new research from the University of Basel, nanodiamonds, which measure only a few nanometers across, may have a use in quantum computing and related fields. Using scanning tunnel microscopy, the researchers discovered that an electrical current could be generated in nitrogen vacancy defects when illuminated with green light. Proving the presence of these optical centers in nanodiamonds could not have been done using conventional optical methods.
http://swissinnovation.org/news/web/2013/08-131119-4f

9. Architecture / Design

Design Prize Switzerland 2013/14

(startupticker.ch, November 06, 2013)

Design Prize Switzerland is being held in 2013 for the twelfth time. The high prestige of Design Prize Switzerland in the Swiss design scene is based on its being focused on the market economy. The start-ups *On*, *Dadadum* and *Reportagen* are among the winners of the Design Prize Switzerland 2013/14. The running shoes of the young Swiss company On are based on a completely novel idea – with a soft landing and hard push-off. Dadadum's CRESTA CHAIR involves the blending of the simple robustness of a traditional Alpine wooden chair with modern wood-processing technology and a contemporary aesthetic. The chair is made of solid timber. The magazine Reportagen [Reports] has been coming out every two months since 2011. It is focused on the journalistic genre of literary reporting.
http://swissinnovation.org/news/web/2013/09-131106-04

CERN Welcomes its First Film Maker in Residence

(CERN, October 04, 2013)

Seeing the invisible and discovering the meaning of life are the twin quests of CERN's first film maker in residence, Jan Peters, the second winner of the Collide@CERN Geneva prize, which is supported by the Canton and City of Geneva. Jan Peters is internationally known as a film maker who works with modern technology and also specializes in Super 8. "Jan is becoming an apprentice to the ATLAS pixel detector, which finds the particles that the human eye can not see. It will be fascinating to see what happens in this apprenticeship, as well as the reactions of the scientists with some of the wonderful interventions which we have planned at the laboratory," said CERN's cultural specialist Ariane Koek.
http://swissinnovation.org/news/web/2013/09-131004-09

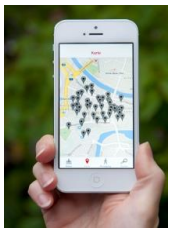
Interactive Infographics Award

(startupticker.ch, October 11, 2013)

In collaboration with the Neue Zurcher Zeitung (NZZ), Swiss startup Interactive Things beat 175 competitors to win the dpa-Infografik Award under the Interactive Infographics category. In its sixth year, the competition is held by the independent German press agency dpa, and received a record-breaking number of entries combining data and visual journalism this year. The winning entry consists of a series of twenty 'cards' made for NZZ Online that compares life across Switzerland using different metrics: from criminal statistics, to electricity prices, and even to the number of livestock per 1000 people in each canton. According to one of the jury members, the increase in quality of the entries for the Interactive Infographics category this year was significant compared to previous years.
http://swissinnovation.org/news/web/2013/09-131011-99

Swiss Art App

(swiss-architects, October 31, 2013)



Wonder about the significance of that building in Bern? What about that cathedral in Zurich? All this information and more are now available at the tips of our fingers thanks to the Swiss Art History Society's (GSK) newest smartphone app "Swiss Art to Go" (available in German, French, and Italian). The app contains over 35,000 entries on Switzerland's most important historic and modern buildings based on the GSK's guidebook "Kunstführer durch die Schweiz", compiled and verified by over 300 of Switzerland's most prominent art historians. Its radar and mapping functions can automatically tell users about buildings within a 150m radius as well as suggest routes and nearby places of interest. Exciting developments are planned for the app: entries on modern architecture and English translations will be available in 2014-15.
http://swissinnovation.org/news/web/2013/09-131031-60

CO2-free Buildings

(ETH Zurich, November 04, 2013)

New building technologies that will eliminate CO2 emissions are the focus of an alliance with Swiss companies under the banner of 2SOL. These companies aim to market core components developed at ETH. A hybrid collector has been installed on the roof construction making the roof and the collector a single entity. The alliance under the banner of 2SOL is bringing a diverse range of expertise to the table. What they share in common is their conviction that the ETH method is the future of the emissions-free heating and cooling of buildings.
http://swissinnovation.org/news/web/2013/09-131104-f5

Software for Cathedral Windows in a New Light

(EPFL, November 11, 2013)

As a testament to the quality of this ancient art, stained glass has the advantage of being well preserved. Colors remain almost unchanged over centuries, as evidenced by the impressive 13th century Rose adorning the southern facade of the Cathedral of Lausanne. The Audiovisual Communications Laboratory at EPFL has developed a software to observe stained glass windows on a screen with a selected brightness in order to grasp every detail - revealing unexpected details. Backed by Google, this work is part of eFacsimile, a research project that aims to develop a new paradigm of acquisition, representation, and rendering for high-quality reproductions of art.
http://swissinnovation.org/news/web/2013/09-131111-ef

10. Economy, Social Sciences & Humanities

Social Norm Recollection in the Brain

(University of Zurich, October 03, 2013)

Neuroeconomists at the University of Zurich have identified a specific region in the brain that controls compliance with social norms. In a new study, the lateral prefrontal cortex plays a central role in social norm compliance. "We found that the brain mechanism responsible for compliance with social norms is separate from the processes that represent one's knowledge and beliefs about the social norm," says Ernst Fehr, Chairman of the Department of Economics at the University of Zurich. "
http://swissinnovation.org/news/web/2013/10-131003-75

Eating Disorders and Media Impact

(University of Fribourg, October 10, 2013)

Supported by a grant from the Swiss Anorexia Nervosa Foundation, the University of Fribourg is investigating how the media influences young women's body image and eating behavior. The experimental study aims to identify the origin and reasons for the persistence of eating disorders. Conducted in collaboration with four Swiss psychiatric clinics and the Ruhr-Universität Bochum in Germany, the study involves patient groups with eating disorders (anorexia nervosa, bulimia nervosa) and other psychiatric disorders (depression, somatoform), and a control group of healthy participants. It will examine the psychological and physiological consequences of mass media exposure, focusing on two key variables: "thought-shape fusion" and the ability to regulate emotions. A three-year extension is planned, supported by the Swiss National Science Foundation (NSF).
http://swissinnovation.org/news/web/2013/10-131010-9d

Crime Rates in Relation to Social-Economic Conditions

(ETH Zurich, October 10, 2013)

Examining the origins of crime, Researchers at ETH Zurich developed a new agent-based model using criminals, law enforcers, and ordinary citizens. Parameters such as the penalties size and prosecution costs were varied in the model. Scientist were able to conclude that tougher punishments do not reduce crime. "If we want to reduce the crime rate, we have to keep an eye on the socio-economic circumstances under which people live," says Helbing, lead researcher on the project. But without confusing this with soft justice, Helbing assures that "Improving social conditions and integrating people socially can probably combat crime much more effectively than building new prisons
http://swissinnovation.org/news/web/2013/10-131010-70

Swiss Authorities Cooperate in Seizure of Counterfeit Drugs

(news.admin.ch, October 18, 2013)

Thanks to good cooperation between Swiss authorities, a sizeable load of counterfeit psychotropic drugs was seized at the airport. The haul contained more than a million anti-anxiety tablets. The drugs were intercepted in transit between China and Egypt. The four crates containing the counterfeit drugs weigh over 400 kilograms. The Swiss customs authorities informed Swissmedic, the Swiss Agency for Therapeutic Products, which then intercepted the shipment and requested samples. Analyses in the Swissmedic laboratory revealed that the drugs, which are prescribed to treat symptoms of acute anxiety, contained no active ingredients. According to experts, the drugs would be unrecognisable as counterfeits at a first glance.
http://swissinnovation.org/news/web/2013/12-131018-92

Childcare Facilities Improve Career Opportunities for Mothers

(Swiss National Science Foundation, October 28, 2013)

When it comes to childcare provisions, Switzerland lags behind compared with other countries: On average 11% of preschool children and 8% of school-age children have access to a place in childcare. A study conducted in the scope of the National Research Programme "Gender Equality" found that provision in the French-speaking part of Switzerland is more widespread than in the German-speaking part of the country. Moreover, the researchers found that the increase in childcare availability has an effect on fathers' and mothers' employment: Were the availability of childcare places per child to rise from an average of 3% to 11%, the percentage of mothers in full-time employment would increase from 4% to 12%. In contrast, they could also show that fathers would reduce their employment levels if more childcare places were available for their children.
http://swissinnovation.org/news/web/2013/01-131028-6a

New Research Center for Human Centered Interaction Science and Technology (Human-IST)

(University of Fribourg, November 05, 2013)

A new interdisciplinary research center will be established at the University of Fribourg thanks to an investment of approximately CHF 1 million made by two Swiss entrepreneurs. The Human-IST will conduct research at the intersection of computer science, psychology, and human sciences, and aims to investigate the ways humans interact with technology, as well as the impacts of technology's increasingly central role in our daily lives. The center will also focus on applying their findings to the education of future researchers and for the development of new, user-friendly technologies. The Human-IST is the first of its kind in Switzerland and Europe.
http://swissinnovation.org/news/web/2013/01-131105-bb

High Quality Care in Nursing Homes but High Workload for Staff

(University of Basel, November 05, 2013)

The Institute of Nursing Science at the University of Basel has comprehensively examined the work situation in a representative sample of Swiss nursing homes. The Swiss Nursing Homes Human Resources Project (SHURP) surveyed 5,323 professional care workers in 163 nursing homes. The results showed high quality of nursing care and a positive staff work environment with competent leadership and good cooperation between professional groups. Nursing home residents rarely suffer from adverse events, such as pressure ulcers (2.7%) or weight loss (4.5%). However, the study also identified high professional and physical demands on care workers. The majority of participants reported back pain. Staff shortage and lack of time negatively affect the care for residents with less time to emotionally support the residents or execute rehabilitative care. Nursing homes are facing an already difficult recruitment situation for qualified care staff and the competition in the work market will increase.
http://swissinnovation.org/news/web/2013/10-131105-cf

11. Technology Transfer / IPR / Patents

Strong Corporate R&D Spending

(SERI, November 01, 2013)

The 1000 largest global companies have increased their spending on research and development (R&D) by 5.8% to USD 638 billion. Volkswagen is the new leader in the R&D rankings with USD 11.4 billion invested in R&D, followed by Samsung at USD 10.4 billion. Among the top 1000 companies, the 30 companies headquartered in Switzerland invested USD 31.1 billion in R&D (4.9% of total). Over 60% of Swiss corporate R&D spending was by the two pharmaceutical giants Roche and Novartis. Roche increased its R&D spending by 8.1% to USD 10.2 billion (3rd place). Novartis decreased spending by 2.1% to USD 9.3 billion (7th place). Other Switzerland-based companies in the top 100 are STMicroelectronics (58th), Nestlé (84th) and ABB (96th).

New Start-Up Space at EPFL Opens with Promising Potential

(EPFL, November 20, 2013)

EPFL's Innovation Park opens up, The Forge, an official office space for aspiring entrepreneurs. It already hosts 16 future companies in fields as diverse as computer science, life sciences, and communications. During the incubation period the Forge provides a venue with Coaches to consult with new entrepreneurs on the development of their

project, target market, or research funds. Additional informal meetings also host seasoned entrepreneurs, professional investors and other players in the startup ecosystem. The projects selected by the CTI or Venture Challenge educational programs as well as those who have received initial funding (for example, through an Innogrant), can get a free spot.
http://swissinnovation.org/news/web/2013/11-131120-b4

Five Years of Success at Empa's Business Incubator

(Empa, October 31, 2013)

Empa Dübendorf is celebrating the fifth anniversary of its Business Incubator run by the glaTec development association. “Our focus is directed clearly towards early-phase projects in the fields of material sciences, environmental sciences and technology,” says glaTec's managing director Mario Jenni. “We accompany the young entrepreneurs until they are ‘mature’, and can take the step into independence.” At present there are twelve young companies that have taken up tenancies at glaTec: They are spin-offs from Empa, Eawag and ETH and deal with the most varied of subject matters: optical instruments for aerospace travel, marketing measuring systems for the wireless monitoring of buildings, intelligent hospital bed add-on systems, ceramic foams for heat insulation or biochemically analyzing and sorting grain by the tonne.
http://swissinnovation.org/news/web/2013/11-131031-bc

Startup Turns to Crowdfunding to Finance Clinical Trial

(carunda24.com, October 02, 2013)

In collaboration with Empa, the STBL Medical Research AG, a startup founded by University Hospital of Zurich researchers is developing a wristwatch-like device that monitors patients' blood pressure -- non-invasively and around the clock. While pre-clinical and a first series of clinical tests were performed after receiving the approvals required from Swissmedic and the Ethics Committee, the company needs additional funds of CHF 500'000 for developing the current prototypes into commercial systems and completing clinical trials. For that, the company has turned to crowdfunding: For a donation above CHF 575, sponsors can belong to the first generation of owners of the device, which is expected to be delivered by the year 2015.
http://swissinnovation.org/news/web/2013/11-131002-cf

EPFL Sets up Social Networking Platform for Ideas

(EPFL, October 14, 2013)

EPFL is setting up an online platform to get all those neurons on campus busy generating novel ideas. Using the social networking model, a platform has been created by EPFL and its partner Alcoa Foundation, where these ideas can be shared and developed: Fusebox. Fusebox will regularly launch new challenges drawn from a wide variety of areas, such an energy, robotics, and applications for new materials. To make sure that the ideas generated don’t end up just gathering dust on a shelf, EPFL will insure the participation of a business and institutionnal partner in each contest. The first Fusebox challenge, in collaboration with PSA Peugeot Citroën, ask people to imagine future cars.
http://swissinnovation.org/news/web/2013/11-131014-ef

Tool Predicts Kickstarter Success Within 4 hours

(arstechnica, October 17, 2013)

A team of scientists at the EPFL have developed an analysis tool for projects seeking for funding in the Kickstarter website. After a few hours, it is capable of predicting with amazing accuracy whether the submitted project will succeed or fail. The tool uses data aggregated from Twitter and information from the project's progress on Kickstarter. The accuracy of the prediction is at 75% after only 4 hours and after 36 hours it's nearly at 84%. The project was recently presented at the Conference on Online Social Networks (COSN'13) in Boston. The tool runs continuously on a dedicated website at http://sidekick.epfl.ch/.
http://swissinnovation.org/news/web/2013/05-131017-e9

Sharing Economy Startups

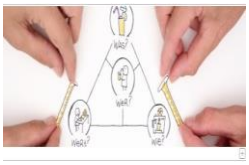
(Berner Zeitung, October 07, 2013)

A bunch of new startups' business models revolve around the principle of the sharing economy. In Lausanne for example, car owners using Tooxme can make a bit of pocket money by letting other users of the app ride with them.

Along the same lines, Sharoo, a new carsharing platform, lets you rent a car from a private of business owner. Searching, booking and unlocking cars can all be done with a smartphone. Park it and Parku let their users share their parking spots. The online platform Sharely allows its users to rent everyday objects like sewing machines, video game consoles or tools to others to make a bit of money.
http://swissinnovation.org/news/web/2013/11-131007-ae

The Roots of Innovation Explained

(University of St.Gallen, October 23, 2013)



In the fourth installment of the “Little Green Bag” video series, experts and researchers from the University of St. Gallen reveal that innovation does not have to be the product of copious research and development, brand new ideas, or even being high-tech. Rather, successful innovation comes about when entrepreneurs learn from each other and reinvent their business models. Entitled “Business Model Innovation”, the video explains the principles of successful innovation and touches on why big companies such as Nokia, Polaroid, and Kodak did not succeed in this area. The video series, available on Youtube in German and English, offers a tiny glimpse into the scope of the University's research, with previous episodes covering topics such as Corporate Social Responsibility and the Energy Revolution. Find the video series at bit.ly/littlegreenbagshsg.
http://swissinnovation.org/news/web/2013/10-131023-64

Novel Support Device Gentle to Violonists' Necks

(20min.ch, October 30, 2013)

The project "Dolfinos" has been awarded the Swiss Startups.ch award for a support device for violinists,offering a cure to help with their chronic neck pain caused by the pad of the instrument. Over 70% of professional fiddlers have had issues with the spinal column and were forced to go to the doctor. And before Dolfinos, there was no solution to the problem, since the conventional devices would create tears in the violin, negatively impacting the sound quality and value of the instrument.
http://swissinnovation.org/news/web/2013/11-131030-25

12. General Interest

Genetic Analysis of Pearls

(ETH Zurich, October 16, 2013)

For a long time, it was thought impossible to isolate a pearl’s genetic material. Now, a Swiss research team from ETH Zurich and the Swiss Gemmological Institute (SSEF) succeeded for the first time in extracting trace amounts of DNA from a variety of cultured pearls in an almost non-destructive way. Using the genetic code, they were able to differentiate pearls from three different species of oysters vital to the jewellery trade. Using radiocarbon dating, the researchers were also able to determine the age of the pearls. With these new methods, it will be possible to differentiate between various kinds of pearls and to provide better documentation of historical specimens. This will give dealers and owners of pearl jewellery greater transparency and certainty regarding a pearl’s source.
http://swissinnovation.org/news/web/2013/12-131016-56

Unique Skull find Rebuts Theories on Species Diversity in Early Humans

(University of Zurich, October 17, 2013)

University of Zurich Paleoanthropologists have discovered a skull of an early Homosapien in Dmanisi, Georgia which has shown diversity within a species is a rule rather than the exception. The present findings published in the PNAS journal shows the need for a change in perspective: the African fossils from around 1.8 million years ago. It is likely represented from one and the same species, best described as "Homo erectus". This would suggest that "Homo erectus" evolved about 2 million years ago in Africa, and soon expanded through Eurasia –via places such as Dmanisi – as far as China and Java, where it is first documented from about 1.2 million years ago. Examining diversity patterns in Africa, Eurasia and East Asia provides clues on the population biology of this first global human species.
http://swissinnovation.org/news/web/2013/12-131017-d7

Switzerland Honored with Award for Diplomatic Efforts in Iran

(news.admin.ch, November 14, 2013)

Former Swiss Ambassador to Iran Livia Leu and the Federal Department of Foreign Affairs have received a 2013 Common Ground Award for their diplomatic efforts in carrying out Switzerland's mandate as a protecting power for the United States of America in the Islamic Republic of Iran. The protecting power mandate for the U.S. is part of the good offices Switzerland provides to the international community within the scope of its humanitarian tradition. With the agreement of the two countries, Switzerland provides a confidential communications channel between the U.S. and Iran, thus supporting a dialogue between the two governments. The award was granted by Search for Common Ground, a Washington, D.C.-based nonprofit organization focusing on conflict resolution.
http://swissinnovation.org/news/web/2013/12-131114-31

Nestlé Hiring in Europe

(The Wall Street Journal, November 14, 2013)

Nestlé SA is embarking on a drive to recruit 20,000 young people across Europe, as the Swiss food company joins other manufacturers in expanding employment and training programs ahead of an expected fall in the Continent's working-age population. Driving Nestlé's hiring spree is the expectation that as many as 15% of the company's 93,000 employees in Europe will retire by 2024 as graying baby boomers leave the workforce. If it doesn't begin replacing those employees now, Nestlé management is concerned it might find it more difficult to staff an expansion in Europe that envisions building new coffee and pizza factories, Nespresso boutiques and call centers throughout the continent.
http://swissinnovation.org/news/web/2013/12-131114-93

New Dinosaur Species Discovered near Davos

(University of Zurich, November 26, 2013)

During excavations near Davos, University of Zurich researchers have discovered a fossil of a small dinosaur skeleton. The reptile must have been around one meter long and lived about 241 million years ago on large islands or at the shore of the Tethys ocean. The fossil represents a so far undiscovered species and was named Macrocnemus obristi after its finder Christian Obrist. It is only the third known example of the genus Macrocnemus. Since only part of the torso and the hind legs of the saurian were found, it is believed that it was partly eaten by a larger, carnivorous dinosaur.
http://swissinnovation.org/news/web/2013/10-131126-9b

13. Calls for Grants/Awards

Call: Student Projects Enhance Innovation in Hotel Services

(hospitalitynet.org, October 07, 2013)

At the Ecole Hotelière of Lausanne (EHL), a new Department of Entrepreneurship and Innovation has been created. A major focus of the Department is carrying forward a program of Student Business Projects (SBP). In the ten-week program, each group of five students works full-time on a mandate from a private client in the hospitality sector. Since the program began in 2001, students have completed more than 700 projects for clients in 32 countries. They have helped clients with developing new products and services, marketing and sales strategies, and business and financial plans. The next session of SBP starts in February 2014. More information is available at sbp.ehl.edu.
http://swissinnovation.org/news/web/2013/13-131007-1b

Call: Swiss Startup Pavilion at CeBIT 2014

(startupticker.ch, November 08, 2013)

CeBIT Hannover (March 10-14, 2014) is the world's leading IT trade show and conference for professionals and offers a range of benefits like its internationality and wide-ranging media coverage. The «SWISS Pavilion», located in the "Research & Innovation-hall" is an excellent networking- and marketing platform for start-ups aiming to enter the international market. The pavilion is prominently positioned next to world-class research- and innovation institutes as well as to the recruiting- and conference area. Applications for booths in the SWISS pavillion are now open and companies from the CTI start up program benefit from special conditions. Deadline: December 31, 2013.
http://swissinnovation.org/news/web/2013/13-131108-30

Call for Abstracts: 2nd International Congress on Research of Rare Diseases

(RE(ACT), October 18, 2013)

The RE(ACT) Congress, an International Congress of Research on Rare and Orphan Diseases aims to promote research on rare and orphan diseases among the general public, industry and policymakers as well as to provide a forum for researchers to meet and pool their knowledge. The underlying objective is to tackle the key issues that need to be addressed if we are to see new and promising therapies and treatments rapidly delivered to patients all around the world. The congress is bringing together world leaders and young scientists from stem cell, cell biology, gene therapy, human genetic, or therapeutic applications to present state-of-the-art research, to discuss results and to exchange ideas. Deadline for abstract submission: December 20, 2013 (for publication in Molecular Syndromology) / January 18, 2014
http://swissinnovation.org/news/web/2013/13-131018-cf

Call: Proposals for new National Research Programs

(SERI, November 11, 2013)

The National Research Programs (NRPs) are an important instrument of research promotion by the Swiss confederation. The goal of these programs is to produce knowledge to assess and solve current problems in the Swiss economy and society. The most recently launched programs are covering the topics "Energy Turnaround" and "Managing Energy Consumption". The State Secretariat for Education, Research and Innovation (SERI) is now accepting proposals for new NRPs. Deadline: January 10, 2014.

Call: Award for Startups from Eastern Switzerland

(startupticker.ch, November 12, 2013)

With the STARTFELD Diamant Award, the cantonal bank of St. Gallen supports innovative companies from eastern Switzerland with education and consulting opportunities and a prize money of 50'000 CHF. Furthermore, the awarded startups will be able to tap into a broad knowledge base and a network of contacts in the region. Companies founded after January 1st, 2010 can apply. Deadline: January 10, 2014.
http://swissinnovation.org/news/web/2013/13-131112-35

Call: Submit your Project for 'Best of Swiss Web'

(startupticker.ch, November 06, 2013)

The fourteenth edition of the "Best of Swiss Web Award" honors the most compelling projects in the Swiss web- and IT-landscape. Projects in 10 categories such as Innovation, Technology, Mobile Web or Creation will be evaluated by the judging panel. The award show will take place on April 3, 2014 in Zurich. Deadline: January 13, 2014.
http://swissinnovation.org/news/web/2013/13-131106-35

Call for Proposals: CHIST-ERA 2013

(Swiss National Science Foundation, November 20, 2013)

The funding scheme CHIST-ERA (Challenges in Information and Communication Sciences and Technologies ERA-NET) funds EU collaborations in Information and Communication Sciences and Technologies. This year's call supports the two topics "Adaptive Machines in Complex Environments" and "Heterogenous Distributed Computing". Proposals by international consortia with research partners in at least three of the participating countries (Austria, Belgium (Flanders), France, Italy, Latvia, Luxembourg, Poland, Romania, Switzerland, Turkey, United Kingdom) may be submitted until January 21, 2014.
http://swissinnovation.org/news/web/2013/13-131120-68

Call for Essays: St. Gallen Symposium

(HSG, November 20, 2013)

The St. Gallen Symposium, a leading platform for dialogue on key issues in management, the entrepreneurial environment, and the interfaces between business, politics and civil society, is inviting students to write short essays on the topic of "Rewarding Courage". The top 100 authors will be invited to attend the 44th St. Gallen Symposium with all expenses paid. Deadline: February 1, 2014
http://www.symposium.org/apply

St.Gallen Symposium

Call for Proposals: Leenaards Scientific Prizes 2014

(University of Lausanne, October 11, 2013)

The Leenaards Scientific Prizes are awarded annually for research projects, exploratory studies or evaluations that improve the quality of life of older people. Projects should be original, innovative and of high scientific quality, aiming to investigate any medico-psycho-social, economic and environmental aspects affecting older people's quality of life. Applicants must be full-time or part-time social science or interdisciplinary research teams (in social care or medical/paramedical sciences) at higher educational institutions in French-speaking Switzerland (HES, universities and ETH). Collaboration between academic institutions and other public and private partners is encouraged. The Leenaards Foundation will support projects with up to CHF 500,000 per year over three years. Deadline: February 1, 2014.
http://swissinnovation.org/news/web/2013/13-131011-64

Call: Gender Studies Research Days at the University of Lausanne

(University of Lausanne, November 18, 2013)

On March 18-19, 2014, the platform of Gender Studies at the University of Lausanne organizes the Research Days, focusing on works adopting a gender perspective or raising gender issues. The "Work in Progress" section of this event is particularly addressing young researchers, who get the opportunity to present their projects and discuss with the audience. The event is aiming to give a forum to compare and discuss views and research results between researchers. Deadline: February 19, 2014
http://swissinnovation.org/news/web/2013/13-131118-e6

Call: The Music of Physics at CERN

(CERN, November 26, 2013)

CERN, the City and The Republic and Canton of Geneva announce the 2014 open competition for the Collide@CERN Geneva artist in residency award. The form of art for 2014 will be music, which has a special affinity with physics. The open call targets all creators of contemporary music, which also includes jazz, electro, acoustic and electronic music composition. The Collide@CERN Geneva award is a 3-month funded residency at CERN, for fundamental research and development between the arts and science. The competition is funded by The City and Canton of Geneva, and it is open to music creators who were born, live or work in Geneva. Deadline: February 24, 2014.
http://swissinnovation.org/news/web/2013/13-131126-cf

Call: Interactive Web Art Award - Accelerate@CERN

(CERN, October 22, 2013)

CERN is launching Accelerate @ CERN, its new country specific one month research award for artists who have never had a longer stay at a science laboratory before. In this first year, the Swiss Arts Council Pro Helvetia is funding an Accelerate @ CERN strand for Swiss artists engaging in interactive web art as part of their programme called "Mobile. In Touch with Digital Creation". Swiss artists in this area are encouraged to apply, deadline: March 21, 2014.
http://swissinnovation.org/news/web/2013/13-131022-5e

Call: Eurostars 2 - Support for Inter-European R&D Projects

(startupticker.ch, October 31, 2013)

The Eurostars program supports SMEs investing in market-oriented research and development projects with a total of CHF 1.5 billion between 2014 and 2020. In the last edition of the program, 161 Swiss companies were part of 107 projects and received CHF 42 million. Projects that involve at least two partners (SMEs, universities, research institutes) from two different European countries are encouraged to apply, deadline: March 2014.
http://swissinnovation.org/news/web/2013/13-131031-ce

Upcoming Science and Technology Related Events

Nano-Tera Workshop
January 9-11, 2014
www.tcl.epfl.ch/WEEE
Energy Efficient Electronics
Lausanne

Launch Horizon 2020
January 14-17, 2014
www.launch-h2020.ch
Research Funding
Stade de Suisse, Bern

Micronarc Alpine Meeting
January 19-21, 2014
www.mam2014.ch
Microsystems
Villars-sur-Ollon

Biocatalysis
January 20, 2014
www.empa.ch/plugin/template/empa/*/142817
Enzymes / Material Sciences
Empa, St. Gallen

Lift Conference
February 5-7, 2014
www.liftconference.com/lift14
Innovation / Digital Technologies
Geneva

EMOOCs 2014
February 10-12, 2014
www.emoocs2014.eu
E-Learning / MOOCs
Lausanne

RE(ACT) 2014: International Congress on Research of Rare Diseases
March 5-8, 2014
www.react-congress.org
Rare and Orphan Diseases
Novartis Campus, Basel

4th European Lung Cancer Conference
March 26-29, 2014
www.esmo.org/Conferences/ELCC-2014-Lung-Cancer
Oncology
Geneva

Innovative Smart Systems Networking Conference
April 1, 2014
www.swii.org/index.php/events/systems-event
R&D / Innovation
CSEM, Neuchâtel

Swiss Biotech Day 2014
April 8, 2013
www.swissbiotech.org/events#event:616
Life Sciences
Zurich

Geneva Health Forum 2014: Global Health – Interconnected Challenges, Integrated Solutions
April 15-17, 2014
http://ghf.globalhealthforum.net
Global Health
Geneva

Human Genome Meeting 2014
April 27-30, 2014
www.hgm2014-geneva.org
Life and Health Sciences
Geneva

Society of Environmental Toxicology and Chemistry Annual Meeting
May 11-15, 2014
http://basel.setac.eu
Environmental Sciences
Basel

Swiss NanoConvention 2014
May 21-22, 2014
www.swissnanoconvention.ch/2014
Nanotechnology
Brugg, AG

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

11th IASTED Conference on Biomedical Engineering
June 23-25, 2014
www.iasted.org/conferences/cfp-818.html
Biomedical Engineering
Zurich

20th International Mass Spectrometry Conference
August 24-29, 2014
www.imsc2014.ch
Analytical Chemistry
Geneva

BioTech 2014
September 4-5, 2014
www.biotech2014.ch
Bioprocess Analytics / Sensor Technology
ZHAW Wädenswil

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