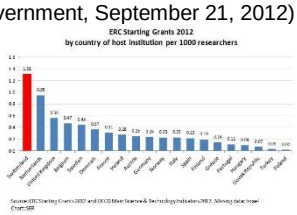
Top Number of Prestigious ERC Grants

(Swiss Government, September 21, 2012)



The European Research Council (ERC) is awarding the ERC Starting Grants, which can be as high as EUR 2 million, for the fifth time. A total of 536 starting grants were issued and researchers in Switzerland secured 33 of these grants (6.2% of the total number of starting grants), placing Switzerland in the 5th slot after the United Kingdom, Germany, France, and the Netherlands. Switzerland's position has improved with respect to the previous year: in 2011, researchers in Switzerland secured 22 starting grants (7th place). Considering the ratio of starting grants to researchers, Switzerland ranks 1st with 1.31 grants per 1,000 researchers. The starting grants were awarded to the following institutions in Switzerland: EPF Lausanne (11 grants), ETH Zurich (8), University of Geneva (4), University of Lausanne (2), University of Zürich (2), IBM Research GmbH (2), University of Basel (1), University of Bern (1), University of Lugano (1) and the Swiss Tropical and Public Health Institute (1).
http://swissinnovation.org/news/web/2012/00-120921-e8.html

Top Rank for Brand 'Switzerland'

(FutureBrand, October 24, 2012)

Switzerland moved to the first rank by overtaking Canada in the 8th Country Brand Index published by FutureBrand. In the report, countries are ranked according to their perception by international travelers. The countries are rated across five key association dimensions: Value System, Quality of Live, Good for Business, Heritage and Culture, and Tourism. This score is then combined with the performance in six other areas of brand strength (Awareness, Familiarity, Preference, Consideration, Decision/Visitation and Advocacy) to find the top 25 country brands. Since the brand perception informs decisions such as where to invest, visit, work, study or consume the country's goods, the top countries on the list have a competitive advantage. Those include Japan, Sweden, New Zealand, Australia, Germany, the United States, Finland and Norway among the top ten spots.
http://swissinnovation.org/news/web/2012/00-121024-4c.html

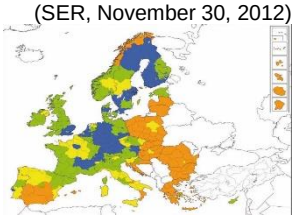
Switzerland Best Country to Be Born in 2013

(Yahoo, November 29, 2012)

Switzerland will be the best place to be born in 2013, according to the quality-of-life index published by the Economist Intelligence Unit (EIU). The index is based on population surveys covering 11 factors such as wealth, crime, family life, trust in the government and the stability of the economy. Australia and Norway are on the second and third place, respectively. They are followed by Sweden and Denmark.
http://swissinnovation.org/news/web/2012/00-121129-73.html

European Regional Innovation Scoreboard 2012

(SER, November 30, 2012)



The Regional Innovation Scoreboard provides a comparative assessment of how European regions perform with regard to innovation. The report covers 190 regions across the European Union, Croatia, Norway and Switzerland. The Regional Innovation Scoreboard 2012 classifies European regions into four innovation performance groups: there are 41 regions in the group of "innovation leaders", 58 regions belong to the group of "innovation followers", 39 regions are "moderate innovators" and 52 regions are in the group of "modest innovators". Twelve countries are reported as having at least one very innovative region. Swiss performance has been particularly remarkable since of its 7 regions 6 are classified as innovation leaders. Germany also has numerous regions considered to be innovation leaders (12), as does Sweden (5), the Netherlands (4) and Finland (3).
http://swissinnovation.org/news/web/2012/00-121130-46.html

Tech Oscar for ETH Zurich

(ETH Zurich, January 08, 2013)

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

Human Brain Project Wins Top European Science Funding

(EPFL, January 28, 2013)

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

Other FET Flagship Project "Graphene" Featuring Swiss Institutions

(Swiss Government, January 28, 2013)

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

FET Flagship Candidate "Guardian Angels" Continues

(EPFL, January 29, 2013)

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

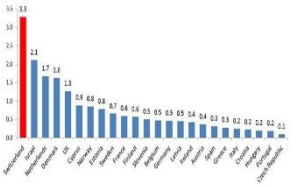
Switzerland strengthens cooperation with the United States

(swissnex Boston, January 30, 2013)

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

Many ERC Advanced Grants Go to Switzerland

(SERI, January 30, 2013)



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

High Number of Patents Per Capita

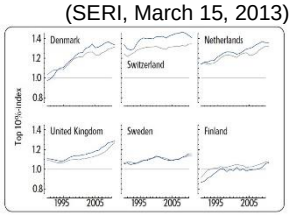
(SERI, February 08, 2013)

About 49,000 triadic patent families were filed in 2010, compared to over 45,000 registered in 2000. The United States accounts for 28.1% of patent families (13,837), a lower share compared to the one recorded in 2000 (30.5%). The share of triadic patent families originating from Europe has also tended to decrease, losing almost one percentage point between 2000 and

2010 (to 28.6% in 2010). The origin of patent families has shifted towards Asian countries. When triadic patent families are expressed relative to the total population Japan, Switzerland, Sweden and Germany were the four most inventive countries in 2010, with the highest values recorded in Japan (118.5 patent families per million population) and Switzerland (108.3).
http://swissinnovation.org/news/web/2013/00-130208-be.html

Second in Highly Cited Paper Ranking

(SERI, March 15, 2013)



The impact factor (or relative citations indicator) is a bibliometric indicator used to measure the international competiveness of a country's publications. In the period between 2005 and 2009, the impact of Swiss publications was excellent as it exceeded the global average by 16%, placing Switzerland 2nd in the world behind the United States. An alternative measure to citation averages is the proportion of highly cited papers. For most countries, the development of the proportion of highly cited papers follows the national citation average relatively closely. However, Switzerland is a notable exception in that respect as the top 10%-index is considerably higher than the mean citation rate. In other words, Switzerland is one of the most important producers of high impact publications.
http://swissinnovation.org/news/web/2013/00-130315-e8.html

Switzerland tops European Innovation Scoreboard 2013

(swissinfo.ch, March 30, 2013)

Switzerland is the most innovative country in Europe, comfortably ahead of second-placed Sweden, according to an annual study by the European Union. The Innovation Union Scoreboard 2013, published this week, gives a comparative assessment of the innovation performance of the EU's 27 member states and the relative strengths and weaknesses of their research and innovation systems. Switzerland, which isn't a member of the EU, confirmed its position as the overall innovation leader, continuously outperforming all EU countries. The report said Switzerland's strong performance was linked to being among the top-three performers for 15 indicators, in particular in "open, excellent and attractive research systems" where it has best performance in all three indicators: firm investments; intellectual assets; innovators and economic effects.
http://swissinnovation.org/news/web/2013/00-130330-7e.html

1. Policy

Scholarship Agreement between Switzerland and China

(Swiss Government, September 14, 2012)

The head of the Federal Department of Home Affairs Federal Councillor Alain Berset, and Vice Minister Du Zhanyuan of China's Ministry of Education have signed a Memorandum on Higher Education Cooperation during a working visit in Bern. The declaration of intent aims to consolidate and intensify cooperation between the two countries in the fields of science and research. The memorandum concerns the promotion of academic exchange programmes for young researchers through government scholarships, cooperation between higher education institutions and the involvement of China's Ministry of Education in the Sino-Swiss Science and Technology Cooperation, a highly successful bilateral research programme. The new memorandum raises the number of scholarships offered by both countries from 20 to 25 per year.
http://swissinnovation.org/news/web/2012/01-120914-b4.html

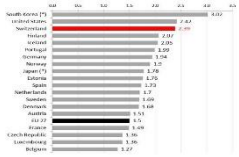
Increased Subsidies for Renewable Energy R&D

(Swiss Confederation, October 17, 2012)

The Swiss Federal Council has announced the investment of CHF 202 million for the support of energy R&D during the period of 2013 to 2016. CHF 142 million are newly granted and the remaining 60 million are going to come from the funding of the Swiss Institutes of Technology. The funds are going to support the creation of 30 new research groups with professorships in seven new competence centers until 2020 in order to create the necessary knowledge for the new energy policy which calls for the abandonment of nuclear energy.
http://swissinnovation.org/news/web/2012/01-121017-0a.html

2.39% of Total Government Budget Allocated to R&D

(SER, November 12, 2012)



Traditionally, the Swiss federal government and the cantons promote R&D independently of economic trends and constantly increase the amounts allocated to research. Government budget appropriations or outlays for R&D rose to CHF 4.639 billion in 2010 from CHF 2.770 billion in 2000 (compound annual growth rate: +5,3%). These funds amount to 2.39% of the total government budget, placing Switzerland in 3rd place in international comparison. Only South Korea and the United States allocate a larger share, with 3.02% and 2.42%, respectively, of total government budgets.
http://swissinnovation.org/news/web/2012/01-121112-e3.html

Continued Cooperation With Euratom

(SER, November 30, 2012)

The Federal Council has approved a continued research cooperation between Switzerland and the

European Atomic Energy Community for the years of 2012 and 2013. This marks a continuous cooperation for more than 50 years. The complete budget of Euratom for those two years amounts to EUR 2.5 billion. Switzerland will contribute approximately CHF 100 million. The research focus lies in the construction of the International Thermonuclear Experimental Reactor (ITER) in France.
http://swissinnovation.org/news/web/2012/01-121130-c3.html

Federal Council Approves New CO2 Ordinance

(Federal Council, November 30, 2012)

The new CO2 Ordinance will enter into force on 1 January 2013, establishing the legal framework for Switzerland's climate policy from 2013 to 2020.The reduction target of 20 per cent compared with 1990 levels by 2020 is shared between the buildings, transport and industrial sectors, according to the emissions that the sector is responsible for. If the CO2 emissions target for fossil fuels is not met in 2012, the CO2 tax on fossil fuels will be increased from the current 36 francs to 60 francs per ton of CO2 from January 1, 2014.
http://swissinnovation.org/news/web/2012/01-121130-67.html

New Strategy for Knowledge & Technology Transfer

(Swiss Government, December 18, 2012)

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

Financial Provisions to Save 700M

(Swiss Government, December 19, 2012)

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

Continuing Successful Participation in EU Framework Programmes

(SERI, February 28, 2013)

The Federal Council has referred to parliament two dispatches on funding for Swiss participation in the EU Framework Programmes in the areas of Research and Innovation on the one hand, and education, training, youth and sport on the other. The former is intended to give researchers in Switzerland continued access to the second most significant source of public funding and to the European research network. The second dispatch is designed to continue the mobility opportunities of students in education, training and on youth and sport courses. The total budget set in both dispatches is approximately 4.7 billion Swiss francs (including reserves) for the years 2014 to 2020. Their approval by parliament will allow the Federal Council to conduct negotiations with the EU on renewing both bilateral agreements.
http://swissinnovation.org/news/web/2013/01-130228-52.html

120 Years of Statistical Data on Switzerland

(Swiss Government, February 28, 2013)

The 2013 editions of the Statistical Yearbook of Switzerland and Statistical Data on Switzerland have just been published. These two publications provide an overview of all economic and social aspects of life in Switzerland. The Yearbook is a large compendium of diagrams and texts and Statistical Data on Switzerland is a summary of the most important statistical information. The data from the 120th edition of the Statistical Yearbook are fully accessible and searchable online.
http://swissinnovation.org/news/web/2013/01-130228-8e.html

More Funding for Energy Research

(ETH Zurich, March 14, 2013)

The Swiss Federal Parliament has adopted the action plan "Coordinated Energy Research Switzerland". The plan increases the funding for the ETH Domain by CHF 60 million in the period of 2013 to 2016. In an earlier plan, these funds would have been provided from within the institutions normal budget. In a new motion, the parliament has now decided to make additional funds available. This strengthens the positions of the involved institutions, as seven new competence centres and over 30 new research groups with full professorships are planned.
http://swissinnovation.org/news/web/2013/01-130314-cd.html

2. Education

ETH Zurich Defends Top Chemistry Ranking

(ETH Zurich, August 15, 2012)

The ETH Zurich was able to defend its position in the Shanghai-Ranking of 2012. Overall, ETH Zurich occupied the 23rd rank for the fourth time in a row. For Chemistry, the ETH Zurich was able to keep its excellent 5th place, just as in the two previous years. The University of Zurich was the second best university in Switzerland on rank 59, followed by the University of Geneva on the 69th place. The University of Basel is on rank 85, and the EPFL is positioned in the group of universities between the ranks 101 and 150.
http://swissinnovation.org/news/web/2012/02-120815-68.html

EPFL and A*Star of Singapore Cooperation

(EPFL, September 07, 2012)

EPFL and A*Star of Singapore signed an agreement that enables collaboration between the two institutions at the doctoral level. Young researchers in life sciences, engineering, physics and mathematics will have the possibility to complete half of their courses at a research facility in Asia. In a few years, A*Star of Singapore has become a cutting-edge scientific institution, and from now on, it will be a possible destination for doctoral students who opt to continue their studies abroad. A*Star is not a school or university in the traditional sense. It is made up of various institutes that host the elite researchers of Singapore, and the agreement signed yesterday with EPFL will soon allow students to follow a doctoral curriculum at the institution.
http://swissinnovation.org/news/web/2012/02-120907-49.html

ETH Zurich Leaps Forward Among World's Best Universities

(ETH Zurich, September 11, 2012)

ETH Zurich is the new number 13 on the list of the world's best universities. This is the result of the latest QS World University Ranking. ETH Zurich has thus defended its title as the best university in Continental Europe. ETH Zurich has moved up five places on its QS ranking from last year, bringing it to number 13 in the list of the world's top universities. This means that it is still the best-ranked university in Continental Europe on this list too.
http://swissinnovation.org/news/web/2012/02-120911-e3.html

English Undergraduate Studies in St. Gallen from 2013

(UNISG, September 14, 2012)

The University of St.Gallen has a first undergraduate year that is the same for all students, the so-called Assessment Year. This first undergraduate year is of crucial significance: students are introduced to the core subjects. In addition, it works as an important orientation and selection aid. To ensure that outstanding teaching quality can continue to be offered in spite of increasing student numbers, the Assessment Year has been fundamentally reformed. From autumn 2013, it will be structured into three groups: two in German and one in English.
http://swissinnovation.org/news/web/2012/02-120914-93.html

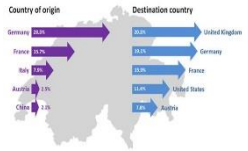
Top Rankings for University of St. Gallen

(UNISG, September 17, 2012)

The Master's programme in Strategy and International Management of the University of St. Gallen reaches 1st place in the ranking of the Financial Times again. The same applies to the School of Management in the latest Handelsblatt ranking. The Master's programme in Strategy and International Management has reached the first place for the second time running in this evaluation. In the latest Handelsblatt ranking grades research in Business Administration in the German-speaking area, the University of St.Gallen has the strongest Business Administration faculty and is ranked first. Second place in the Handelsblatt ranking was awarded to the Vienna University of Economics and Business, which was followed by the University of Zurich.
http://swissinnovation.org/news/web/2012/02-120917-5d.html

Circulation of Students

(SER, November 03, 2012)



According to recent figures published by UNESCO, nearly 3.6 million students worldwide were studying in a foreign country in 2010, compared to 2 million back in the year 2000 (+78%). With regards to Switzerland, 11,152 students studied abroad in 2010. The destination countries most frequently chosen by Swiss students were the United Kingdom (20.3%), Germany (19.1%), France (15.9%), the United States (11.4%) and Austria (7.8%). In contrast, Swiss higher education institutions hosted 38,195 students from other countries. Most of these students came from Germany (28.3%), France (15.7%), Italy (7.9%), Austria (2.5%) and China (2.1%).
http://swissinnovation.org/news/web/2012/02-121103-f6.html

13 New Open-Access Journals

(EPFL, November 09, 2012)

The EPFL startup "Frontiers in" announced today that it is launching 13 new open-access journals in fields including Physics, Bioengineering, and Public Health. These new titles will more than double Frontiers' current repertoire of twelve online journals whose peer-reviewed, scientific articles are immediately accessible, free of charge, to anyone. EPFL researcher Kamila Markram launched the company in 2007 with the support of a small group of scientists. Frontiers can expand by taking advantage of the possibilities of the Internet for scientific communication and publication, the platform allows for publishing and sharing open-access content online and participation in real-time peer-review of manuscripts. Most importantly, the platform automates much of the distribution of editorial tasks, allowing Frontiers to easily scale up production without raising prices.
http://swissinnovation.org/news/web/2012/02-121109-88.html

Science Career Development in Switzerland

(E. Geiser, November 19, 2012)

Career development refers to a conscious effort to develop and structure one's career. Swiss universities have turned their attention to the issue of career development. The Rectors' Conference of the Swiss Universities sees career development in academia as a necessity to maximize both university-level education as well as scientific output and technological innovation in Switzerland. Realistically, career development in Swiss science will be implemented step-wise. As a first step, offering services such as individual career evaluation could motivate academics to stay in university research. Comparable services are offered by highly sought-after industrial employers and high profile foreign universities. In the long run, structural changes and reallocation of resources will be necessary. The already implemented Bologna Process, together with increasing numbers of students, will inevitably catalyze such changes.
http://swissinnovation.org/news/web/2012/02-121119-8a.html

University of Bern Establishes Research Center in South Korea

(UNIBE, November 27, 2012)

The Institute for Applied Physics (IAP) of the University of Bern has established a common research center with the Advanced Photonics Research Institute (APRI) of South Korea. The new research center will conduct research in the areas of photonics and lasers and improve the scientific exchange between Switzerland and South Korea.
http://swissinnovation.org/news/web/2012/02-121127-21.html

First Successful MOOC by EPFL

(EPFL, December 13, 2012)

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

Switzerland and Russia Sign Agreement on Scientific Cooperation

(SER, December 13, 2012)

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

Demand For Internal Funding Increasing

(ETH Zurich, December 18, 2012)

The number of researchers at ETH Zurich is growing. The ETH Zurich Research Commission is also feeling the effects. More grant applications are being submitted. There is likely to be a particular shortage of funding for junior researchers. The Research Commission has never received so many grant applications from researchers: the number of requests is reaching a record high, says Nicholas Spencer, President of the Commission. One reason for this is growth: more Chairs will also mean more applications. The total number of funded research projects is not, however, increasing at the same rate. "For years we have continuously had around 250 active grants", says

Sonja Negovetic, Secretary of the Research Commission from the Scientific Coordination Staff Unit.
http://swissinnovation.org/news/web/2012/02-121218-9b.html

New Academic Cluster on Energy and Health

(EPFL, December 19, 2012)

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

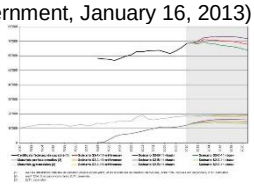
Perspectives for MINT Graduates

(Swiss Government, January 10, 2013)

In 2009, one year after graduation, graduates from an institution of higher education with a degree in a MINT (mathematics, informatics, natural sciences, and technics) field were better integrated in the labour market than graduates from other fields. Among MINT personnel, the unemployment rate based on ILO definition was 3.8% compared with 5.5% among graduates from other fields. MINT graduates were also more often in management positions (MINT total: 24%; other fields: 16.6%). These are the results of a study conducted by the Federal Statistical Office (FSO) on the integration in the labour market of graduates from an institution of higher education.
http://swissinnovation.org/news/web/2013/02-130110-85.html

Scenarios for the Education System 2012–2021

(Swiss Government, January 16, 2013)



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

EPFL Students Completing Master at Harvard

(EPFL, February 06, 2013)

Four students from EPFL completed their masters projects in Harvard Medical School labs thanks to the sponsorship of the Bertarelli Foundation. Amélie, Elvira, Léonie and Nicolas, four students passionate about neuroscience, recently returned from a one-year stay in Boston, where they completed their masters projects at Harvard Medical School. Their work was sponsored by the Bertarelli Foundation, whose goal is to advance neuroscience by combining the skills of engineers and medical experts. Most of these young travelers are now doctoral assistants.
http://swissinnovation.org/news/web/2013/02-130206-c5.html

EPFL Joining edX MOOC

(edX, February 20, 2013)

EdX, the not-for-profit online learning enterprise founded by Harvard University and the Massachusetts Institute of Technology (MIT), announced today the international expansion of its X University Consortium with the addition of six new global higher education institutions. The École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, Australian National University (ANU), Delft University of Technology in the Netherlands, McGill University and the University of Toronto in Canada, and Rice University in the United States are joining the Consortium and will use the edX platform to deliver the next generation of online and blended courses. This international expansion enables edX to better achieve its mission of providing world-class courses to everyone, everywhere, and is the natural next step to continue serving the large international student body already using edX on a daily basis.
http://swissinnovation.org/news/web/2013/02-130220-ca.html

Swiss Leading House for Science in Asia

(ETH Zurich, March 15, 2013)

ETH Zurich is the Swiss "Leading House" for research collaboration with China, Japan and South Korea. As an ambassador for Switzerland as a location for research and innovation, it will increase its scientific collaboration with these countries over the next few years and extend it to regions in the Asia-Pacific area that were previously less involved. Since 2008, ETH Zurich has been the "Leading House" for bilateral research

collaboration with China, South Korea and Japan – and therefore an important ambassador for Switzerland as a location for science and higher education. As part of Swiss education, research and innovation policy, the Federal Council and Parliament have decided that ETH Zurich should continue to increase the collaboration between these three key countries and Swiss universities over the next four years.
http://swissinnovation.org/news/web/2013/02-130315-8f.html

3. Life Science

Medication for the Treatment of Diabetic Muscular Edema

(Roche, August 13, 2012)

The approval of the medication "Lucentis" constitutes the first advancement of the therapy for the illness which leads to a deteriorated eyesight and even blindness. The remedy is produced by Roche and received approval from the Food and Drug Administration (FDA). Diabetes is the most common source for blindness of adults and affects approximately 560'000 people in the U.S. Lucentis is the only approved medication for the diabetic muscular edema, and unlike the standard treatment for the disease it can even restore a significant part of the sight of the patients.
http://swissinnovation.org/news/web/2012/03-120813-18.html

First Wearable Detector for MRI

(ETH Zurich, August 13, 2012)

Scientists from ETH Zurich have developed the first elastic detector for magnetic resonance imaging (MRI). The detector in the form of an elastic bandage moulds itself to the shape of the patient's body, which also enables body parts to be examined in motion. The novel detector provides better images and greater patient comfort during the scan. In the latest prototypes the magnetic field is allowed to wobble thanks to measurement and control technology that handles even substantial field fluctuations. It should also be possible to examine body parts in motion, which is important to discern what the kneecap does while bending or whether the meniscus is torn partially or fully, for instance.
http://swissinnovation.org/news/web/2012/03-120813-01.html

New Diet Pill for U.S. Made in Switzerland

(20min.ch, August 19, 2012)

The U.S. center for disease control has approved two new diet pills for the first time in 13. One of those is produced in Zofingen, Switzerland. Because in every ten americans, seven are overweight, the pill is expected to meet a high demand. The pill, Belviq, is likely to be available in the U.S. from the beginning of 2013.
http://swissinnovation.org/news/web/2012/03-120819-79.html

Low Risk of Genetically Modified Plants

(swissinfo.ch, August 28, 2012)

Genetically modified (GM) plants present little danger for the environment or people's health, according to Swiss researchers. Also, while they offer almost no benefit to farmers now, this could change if plants had the right properties. The government requested a national research programme on the risks and benefits of GM plants after the Swiss voted for a five-year moratorium on their use in 2005. The moratorium was extended for another three years by parliament. The researchers all reached the same conclusion: there were no identifiable negative effects on beneficial organisms, microorganisms or soil fertility. Three meta-analyses that looked at more than 1,000 international studies reached similar findings.
http://swissinnovation.org/news/web/2012/03-120828-b8.html

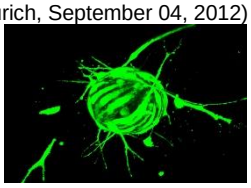
Supplementary Diet Protects Babys From Dermatitis

(UZH, August 31, 2012)

The first year of life is crucial for the development of the immune system. A team of scientists of the University of Zurich have found that a varied supplementary diet during the first year of life helps protecting a baby from allergies. A healthy diet includes vegetables, fruits, cereals, yogurt and meat, with every additional food reducing the risk of dermatitis by 25%. Since children with dermatitis are suffering from a heightened risk of contracting other allergies, it serves as an indicator for the strength of the immune system. The recommendation is to start introducing additional side dishes in combination with yogurt between the 4. and 6. month.
http://swissinnovation.org/news/web/2012/03-120831-00.html

Cholesterol Inhibitors Block Lymphatic Vessel Growth

(ETH Zurich, September 04, 2012)

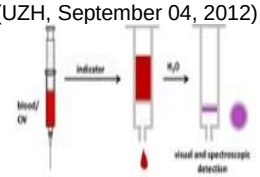


One of the world's top selling drugs potentially also acts against the growth of new lymphatic vessels, with potential implications for cancer therapy. Scientists led by Michael Detmar, Professor at the ETH Zurich, made this discovery with a newly developed cell culture system that allows compound screening for modulators of lymphatic vessel expansion. With the so-called three-dimensional cell culture system, they

were able to show that Statins which are standardly used to treat patients with cardiovascular disease, are also able to prevent the progression of atherosclerosis. The researchers are also convinced that the number of animal experiments can be reduced with such a 3D-system, in particular with regard to the pharmacological testing of large numbers of chemical substances.
http://swissinnovation.org/news/web/2012/03-120904-51.html

Rapid Cyanide Poisoning Diagnosis

(UZH, September 04, 2012)



Flue gas poisoning is prominently caused by cyanides. To save the life of a person with the poisoning, it is vital to administer the antidote instantly. Because the currently used cyanide tests take up to an hour, emergency doctors had to use the medicine based on mere assumptions. Two chemists of the University of Zurich were able to develop a cyanide test that allows a diagnosis in only two minutes.
http://swissinnovation.org/news/web/2012/03-120904-42.html

Antibodies Against Alzheimer

(UZH, September 11, 2012)

Certain elderly people do not suffer from dementia. The psychiatrists Roger Nitsch and Christoph Hock investigated this phenomenon and have found a new therapy for alzheimer's disease. The two scientists searched the blood of healthy elderly people for the immune cells which combat the amyloid deposition in the brain which is responsible for inducing the dementia. After identifying the correct cells, they decoded their genetic code and reproduced them through molecular biology. They are now testing the new remedy in a phase-1 study with alzheimer's patients and so far, there have not been any complications.
http://swissinnovation.org/news/web/2012/03-120911-d8.html

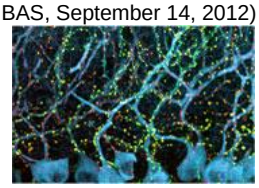
Roche Ranks First in Sustainability Index - Again

(Roche, September 13, 2012)

Roche took the first place for the healthcare industry in the Dow Jones sustainability index for the fourth time in a row. The index rates enterprises on the basis of their ecologic, social and economic development. The basis of this evaluation were the recent strategic decisions of Roche, such as to focus on medical innovation and personalized medicine as well as the programs for the development of future executives and the decision to have special pricing strategies for developing companies.
http://swissinnovation.org/news/web/2012/03-120913-7f.html

Neural Disruption Caused by Autism Is Reversible

(UNIBAS, September 14, 2012)



People with autism suffer from a deep development disorder in the brain from early on. Scientists of the University of Basel have found one specific fault caused by autism in the neural circuits. The fact that they were able to reverse the changes in the brain is an important step for the development of a drug against autism.
http://swissinnovation.org/news/web/2012/03-120914-64.html

Map of Synaptic Connections between Neurons

(EPFL, September 17, 2012)

One of the greatest challenges in neuroscience is to identify the map of synaptic connections between neurons. Called the “connectome,” it is the holy grail that will explain how information flows in the brain. In a landmark paper, published in PNAS, the EPFL’s Blue Brain Project (BBP) has identified key principles that determine synapse-scale connectivity by virtually reconstructing a cortical microcircuit and comparing it to a mammalian sample. These principles now make it possible to predict the locations of synapses in the neocortex.
http://swissinnovation.org/news/web/2012/03-120917-0e.html

First Mammalian “Cell Phone”

(ETH Zurich, September 17, 2012)

Researchers from ETH Zurich have quite literally created a “cell phone”: they have reprogrammed mammalian cells in such a way that they can “phone” each other via chemical signals. The researchers used suitable signal molecules and constructed “devices” out of biological components that receive, process and respond accordingly to the signals. The devices consist of suitable genes and their products, proteins, which are linked to each other logically. Although other scientists have already developed synthetic communication networks for bacteria and yeast cells, it is the first network for mammalian cells as this cell type is far more complex.
http://swissinnovation.org/news/web/2012/03-120917-ce.html

New Drug for Resistant Strain of Tuberculosis

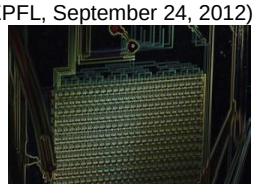
(EPFL, September 19, 2012)

EPFL researchers have opened the door to a new strategy to fight tuberculosis, the second leading cause of death from infectious disease after HIV. In a study published in EMBO Molecular Medicine, EPFL professor Stewart Cole takes a hard look at the natural product pyridomycin, first reported in the 1950s, and determines exactly how it kills Mycobacterium

tuberculosis. Pyridomycin inhibits a vital enzyme, much like the best frontline antibiotics, but in a sufficiently different way so it can combat even the most antibiotic-resistant strains that have recently afflicted Russia, South Africa and North America.
http://swissinnovation.org/news/web/2012/03-120919-ab.html

Multiple Biochemical Analyses on a Single Device

(EPFL, September 24, 2012)



Scientists at EPFL and the University of Geneva have developed a microfluidic device smaller than a domino that can simultaneously measure up to 768 biomolecular interactions. In traditional methods, it is generally possible to determine if an interaction takes place or not. The new device goes much further, because it can measure the affinity and kinetics of the interaction. The strength of the device lies in a sort of "push-button" in its microreactors. The push-button is activated at regular intervals of a few milliseconds, trapping protein-DNA complexes that form on the surface of the device. In addition to that, it can also be used to synthesize proteins in vitro, with a massive reduction in time and number of manipulations compared to the traditional method.
http://swissinnovation.org/news/web/2012/03-120924-29.html

New Cassava Resists Viruses

(ETH Zurich, September 26, 2012)

Plant scientists at ETH Zurich have developed a new African cassava preferred by consumers and farmers that is resistant to the two major virus diseases in Africa. Now they want to test the resistant cassava in Africa. Cassava is one of the most important crops in tropical countries, particularly in Sub-Saharan Africa. However, plant viruses are threatening cassava production and with it the staple food of hundreds of millions of people. Researchers at ETH Zurich led by Wilhelm Gruissem, Professor of Plant Biotechnology and his senior scientist Dr. Hervé Vanderschuren have used gene technology to develop a new cassava variety that is resistant to the feared cassava brown streak virus.
http://swissinnovation.org/news/web/2012/03-120926-bf.html

The Lung at High Altitude

(UZH, October 01, 2012)

Life at high altitude causes considerable physiological adaptations of the human organism, be it natives or sojourners. The second international Leh Symposium 2012 focused on the lung at high altitude and covered aspects from cellular acclimatization to clinical disease. The meeting was organized in Leh, Ladakh, India and co-sponsored by the Zurich Center for Integrative Human Physiology (ZIHP), the European Respiration Society (ERS), swissnex India and several other institutions. It brought high altitude experts from basic and clinical science to a common global platform to develop long term future perspectives and to experience acclimatization first-hand. The city is situated at an altitude of about 3500m above sea level within a beautiful valley of the great Himalayas.
http://swissinnovation.org/news/web/2012/03-121001-ea.html

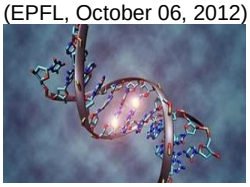
Research Award on Parasitic Pathogens of Sleeping Sickness

(UNIBE, October 04, 2012)

Professor Isabel Roditi, codirector of the Institute of Cell Biology at the University of Bern, has been awarded the Senior International Research Scholar by the Howard Hughes Medical Institute. Roditi is honoured for her research on trypanosomes, the parasitic pathogens of sleeping sickness, and will receive USD 100,000 a year over five years. The sickness afflicts hundreds of thousands in the tropical regions of africa and ends deadly if left untreated.
http://swissinnovation.org/news/web/2012/03-121004-16.html

Embryonic Mechanism Causes Cancer

(EPFL, October 06, 2012)



Many types of cancer could originate from a mechanism that cells use to silence genes. There are some genes that are only activated in the very first days of an embryo's existence. Once they have accomplished their task, they are shut down forever, unlike most of our genes, which remain active throughout our lives. EPFL scientists have unveiled part of this strange mechanism. The same process, accidentally initiated later in life, could be responsible for many kinds of cancer.
http://swissinnovation.org/news/web/2012/03-121006-bb.html

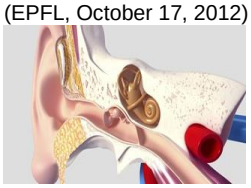
Genome Sleuth Honored for Virus Research

(swissinfo.ch, October 16, 2012)

Jacques Fellay who heads a life sciences laboratory at the EPFL has been awarded with the National Latsis Prize. Through his research he has found that it is important to consider genetic differences when developing vaccines because people respond differently to the same treatments. Fellay and his team are currently studying mutations that occur in HIV when fought by the immune system, as well as how genetic variations among infected people affect this. He discovered three genes that give some patients better immune control over the disease.
http://swissinnovation.org/news/web/2012/03-121016-9d.html

EPFL and Harvard Join Forces to Diagnose Hearing Loss

(EPFL, October 17, 2012)



Researchers at EPFL and Harvard Medical School have joined forces to develop an imaging technique that can provide in situ observations of the internal ear, an area which has until now been inaccessible. This may finally make it possible to understand the mechanisms underlying hearing loss. The team's new optical method is groundbreaking in that it provides extremely clear images of inner ear tissue without any need for fluorescent labeling of the cells with antibiotics, proteins and other fluorescent markers that are usually used to "color" the targeted cells.
http://swissinnovation.org/news/web/2012/03-121017-f4.html

Mapped Out: The Microstructure of the Human Brain

(UNIGE, October 19, 2012)

The project CONNECT (Consortium of neuroimagers for the non-invasive exploration of brain connectivity and tracts), financed by the European Commission is nearing completion after three years of research. The goal of the project was to create the first atlas of the microstructure of white matter in the human brain. A team from the University of Geneva collaborated with 11 other international research groups in the project. Historically, most research efforts have been invested in the study of gray matter and neurons, while white matter has received relatively little attention. This is largely due to the lack of effective research tools for studying the white matter. For the project, the scientists had to develop new MRI methods in order to investigate the brain's white matter.
http://swissinnovation.org/news/web/2012/03-121019-da.html

Researchers Decipher the Mechanism of Cell Membrane Fission

(UNIGE, October 24, 2012)

Researchers at the University of Geneva (UNIGE), in collaboration with the Institut Curie (Paris, France), shed light on the mechanism of fission of cell membranes. They analyzed the function of dynamin, a protein involved in this mechanism, vitro. The waterproofness and the self-healing ability of a membrane protectes the cell from its environment. Although this membrane resistance is fundamental to the survival of the cell, it also needs to let vital particles pass through the membrane. The mechanism by which a small region of the cytoplasmic membrane lets molecules and other particles move into the cell is known as endocytosis. The team of Aurélien Roux, professor of biochemistry and member of the NCCR Chemical Biology, focused on dynamin, a protein involved in endocytosis, to understand the process.
http://swissinnovation.org/news/web/2012/03-121024-11.html

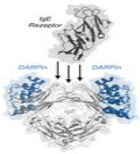
Partnership on Zero-Power Brain-Biosensors

(EPFL, October 29, 2012)

One Mind for Research and Guardian Angels For Smarter Life (GA) announced an alliance to design a new tool for the treatment of major brain diseases: micro devices that use nanotechnology to monitor and transmit biological signals. Swiss-based GA is developing the Zero Power Biosensor, using low power nanoelectronics and nano/microsystems that harvest power rather than requiring batteries or power sources. Potential uses include monitoring of health status, monitoring ambient conditions for environmental danger, and, ultimately to perceive emotional conditions and provide functional activity. One Mind for Research, an independent non-profit organization dedicated to curing the diseases of the brain, and GA have announced an alliance to design research projects in North America.
http://swissinnovation.org/news/web/2012/03-121029-dd.html

Potential Treatment for Acute Allergies

(UNIBE, October 29, 2012)



A discovery by researchers from the University of Bern and the Stanford University School of Medicine may pave the way for new treatments to stop potentially fatal allergic reactions. According to the study the researchers engineered a new molecule capable of stripping antibodies from receptor molecules on the surface of cells. Those receptor molecules are responsible for immune reactions triggered by outside allergens. The scientists said their discovery could lead to the development of highly potent, fast-acting therapies for acute allergic reactions, which are often caused by exposure to ragweed pollen, bee venom or peanuts, for example.
http://swissinnovation.org/news/web/2012/03-121029-31.html

New Biotechnology Facility by Swiss Company in Singapore

(Novartis, October 31, 2012)

Novartis announced today the construction of a new state-of-the-art biotechnology production site in Singapore with an investment valued at over USD 500 million. The new facility will focus on drug substance manufacturing based on cell culture technology. It will be co-located with the pharmaceutical production site based in Tuas, Singapore. In the future, Singapore is expected to be a technological competence center for both biotechnology and pharmaceutical manufacturing at Novartis. The investment decision underlines the long-term strategy of Novartis to establish a worldwide manufacturing network of technology centers of excellence.
http://swissinnovation.org/news/web/2012/03-121031-fc.html

An Encyclopedia of Human Genetic Variation

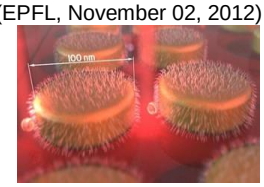
(UNIGE, October 31, 2012)

The "1000 Genomes" is the first large-scale project which has enabled the sequencing of 1092 human genomes in patients worldwide. After several years of work, researchers have finally developed a genetic database reference that will enable the scientific community to study rare genetic variants responsible for diseases such as cancer, cardiovascular diseases, the diabetes or multiple sclerosis. The project brought together nearly a hundred institutions, including the University of Geneva (UNIGE), who worked together to sequence human genomes. The database that results will allow researchers to interpret genetic mutations in patients with diseases, by country. This is the largest study ever conducted on individuals from 14 populations in Europe, America, East Asia and Africa.

http://swissinnovation.org/news/web/2012/03-121031-cb.html

Early Cancer Detection

(EPFL, November 02, 2012)



It may soon be possible to test a person for cancer with just a drop of their blood and a small machine. As part of a European research project, scientists have developed a device for detecting the HSP70 protein, which is over-expressed in patients with many types of cancer. The objective: to make a diagnosis extremely early in the disease process, thereby improving outcomes for patients. As part of the "Spedoc" European Research Project, an EPFL team is developing an extremely sensitive, easy-to-use HSP70 detection platform. The device, which will be no bigger than a small suitcase, is expected to be on the market in 2014.

http://swissinnovation.org/news/web/2012/03-121102-4d.html

DNA Sequencing To Fight Cheese Counterfeiters

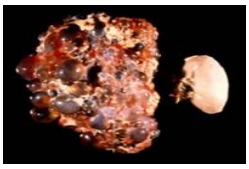
(Aljazeera, November 05, 2012)

Not only Rolex watches, but also Swiss cheese is a popular target for counterfeiters. In order to protect their brand, producers of Emmenthal cheese have started to use DNA Sequencing to identify fake cheese. This works by adding certain bacteria with a known DNA to the cheese. A counterfeit cheese can be determined by sequencing the DNA of the bacteria within. If the DNA of the bacteria contained in the cheese do not correlate to one of the bacteria indexed by the cheese-makers, it can be identified as a fake.

http://swissinnovation.org/news/web/2012/03-121105-a0.html

Reduced Growth of Polycystic Kidney Disease

(UZH, November 05, 2012)



Globally, several million humans suffer from hereditary polycystic kidney diseases. Scientists from the University of Zurich, together with others, managed to reduce the growth of the disease. Until now, it was only possible to treat the symptoms of the illness. With about 1 out of 1000 humans affected, it is one of the most common hereditary diseases and leads to a kidney failure in about 10% of the patients. By the age of 50, most patients need to be treated with a dialysis or a kidney transplant. The new treatment is the first to reduce the growth of the kidney and is consequently able to reduce the decline of the kidney.

http://swissinnovation.org/news/web/2012/03-121105-4d.html

Burning Fat By Activating Brown Adipose Tissue

(ETH Zurich, November 12, 2012)

A team of ETH-Zurich researchers headed by Markus Stoffel has discovered a signaling molecule that activates brown adipocytes and increases their formation. This knowledge could help overweight people to burn their excess white fat. Markus Stoffel's research group, has found that Micro RNA-133, a short piece of ribonucleic acid, is a key regulator for the formation and activation of brown adipocytes during cold exposure. By stimulating the brown adipocytes, the body consumes more energy and burns fat unceremoniously. Theoretically, at least, this could be an approach to treat overweight people.

http://swissinnovation.org/news/web/2012/03-121112-1c.html

Cholesterol Affects Adrenaline Receptor

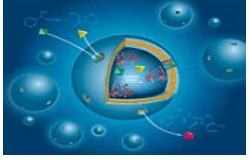
(ETH Zurich, November 27, 2012)

Scientists at the Department of Biosystems Science and Engineering (D-BSSE) measured how cholesterol affects the stability of adrenaline receptors in an elaborate process. In the project of the ETH researchers Brian Kobilka, this year's Nobel Prize for Chemistry, was also involved. The team used a robot and Single Molecule Force Spectroscopy to quantify the interactions and found that cholesterol greatly influences the behaviour of the adrenaline receptor.

http://swissinnovation.org/news/web/2012/03-121127-2c.html

Targeted Release of Antibiotics with Polymer Nanoreactors

(ETH Zurich, November 29, 2012)



Researchers from the University of Basel have developed nano baubles with the ability to produce and release the frequently used antibiotic cephalexin. With the

inclusion of such nanoreactors in medical implants, it could be possible to fight bacterial infections locally, without distributing the active substance in the whole body. To achieve that, the scientists encapsulated the enzyme penicillin acylase in an amphiphilic triblock copolymer orb. The penicillin acylase acts as a catalyst for the synthesis of two inactive substances to the antibiotic cephalexin. The researchers could prove in an experiment that those two substances were able to enter the orb, fuse, and be emitted as the antibiotics.
http://swissinnovation.org/news/web/2012/03-121129-35.html

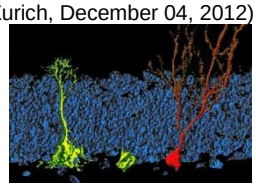
Two SCRIP Awards for in Innovation And R&D Excellence Awarded to Swiss Company

(Novartis, November 29, 2012)

Novartis has been awarded two of the prestigious SCRIP Awards for excellence in innovation and research and development (R&D). The annual awards event celebrates industry achievements in a number of categories and are considered the premier awards for the global biopharmaceuticals industry. Novartis won the Clinical Advance of the Year for the Company's EXIST-2 study of everolimus for the treatment of tuberous sclerosis. This award exemplifies the value of the Novartis investment in R&D and its ongoing commitment to addressing unmet medical needs. Recognized as having achieved the Licensing Deal of the Year, Novartis received the award for its agreement with ThromboGenics and Alcon (a Novartis company) for the commercialization of ocriplasmin for vitreomacular adhesion outside the United States.
http://swissinnovation.org/news/web/2012/03-121129-58.html

Lipid Metabolism Regulates the Activity of Adult Neural Stem Cells

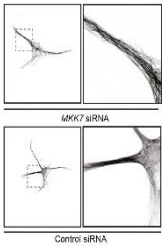
(ETH Zurich, December 04, 2012)



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

Mutitasking Proteins

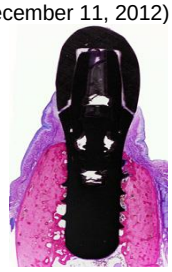
(UNIBAS, December 05, 2012)



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

Bernese Dentists Prove Reliability of Implantes

(UNIBE, December 11, 2012)



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

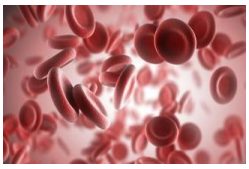
Tiny Hole for Better Hearing

(UNIBE, December 13, 2012)

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

Retraining White Blood Cells Could Cure Autoimmune Disease

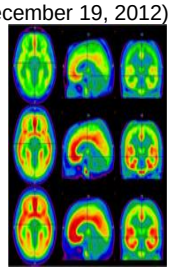
(EPFL, December 18, 2012)



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

Cerebral Consequences of Smoking

(UNIBE, December 19, 2012)



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

HIV Uses a Trojan Horse to Penetrate the Immune System

(UNIL, December 19, 2012)

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

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

(ETH Zurich, December 20, 2012)

Commonly used protein affinity purification systems suffer from dynamic binding equilibria. Therefore, these systems are not suited for both the quantitative isolation of low-abundance protein complexes from cell extracts as well as the permanent and specific immobilization of a given target protein. The ETH Zurich developed a protein ligand which allows for the affinity purification with an unsurpassed efficiency. The complex between the one-domain protein FimGt and a 15-residue peptide called DsF is the most stable noncovalent protein-ligand complex known to date, with a dissociation constant (KD) of 1.5 x 10-20 M.
http://swissinnovation.org/news/web/2012/03-121220-36.html

Climate Change Triggers Increased Biodiversity and Mass Extinction

(UZH, December 21, 2012)

After the largest known mass extinction 252 million years ago, the climate was initially cool, before becoming very warm and then cooling down again. Due to the cooler temperatures, the diversity of the marine fauna increased. In the beginning, the warmer climate combined with a high CO2 content in the atmosphere led to many new short-lived species. However, in the longer term, the climate change had a negative impact on the biodiversity and caused the extinction of species, according to the findings of paleontologists of the University of Zurich.
http://swissinnovation.org/news/web/2012/03-121221-49.html

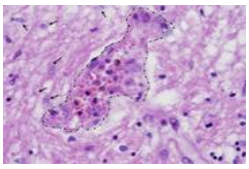
Device Detects Counterfeit Drugs

(swissinfo.ch, December 28, 2012)

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

Stroke: Immune System Not Responsible for Neural Damage

(UNIBE, December 31, 2012)



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

Healthier Breakfast Cereals

(Nestlé, January 01, 2013)

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

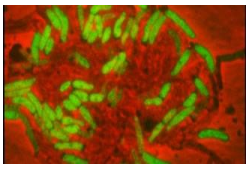
Stabilised Cell Fibres Prevent Cancer Cell Division

(PSI, January 03, 2013)

Anti-cancer drugs used under the heading of "Chemotherapy" prevent cells from dividing. As the cells in a growing tumour divide more frequently than others, tumour cells in particular are highly damaged by chemotherapeutic drugs. Scientists at the Paul Scherrer Institute and ETH Zurich have now elucidated the mechanism of action for an entire class of these drugs. The scientists have shown in detail how these drugs are incorporated into a recess in the building blocks of microtubules, and reinforce the cohesion between these units. It has been shown that structurally dissimilar drug molecules could bind to the same site and act in a similar manner. The information obtained about these structures is so accurate, that it opens the possibility to develop targeted drugs that are better adapted to fulfil their task.
http://swissinnovation.org/news/web/2013/03-130103-8d.html

Rethinking Bacterial Persistance

(EPFL, January 04, 2013)



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

Protein Activity Monitored in Living Cells

(EPFL, January 07, 2013)

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

Animation of Bird Migration

(ETH Zurich, January 08, 2013)

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

New Professor for Bee Health

(UNIBE, January 08, 2013)

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

Mongoose Produce Sounds Like Humans

(UZH, January 10, 2013)

Animals are more eloquent than previously thought. The monosyllabic cry of the banded mongoose is structured and therefore comparable to the system of vowels and consonants of the human language. Behavioural biologists of the University of Zurich were the first to prove that animals are communicating with smaller units of sound than syllables. The researchers studied wild banded mongoose in a research lab in Uganda. They used both behavioural analysis as well as an acoustic analysis of the cries. They found that even the short monosyllabic sounds with a duration between 50 and 150ms were combined of several timed utterances carrying information about the identity and current activity of the mongoose.
http://swissinnovation.org/news/web/2013/03-130110-bf.html

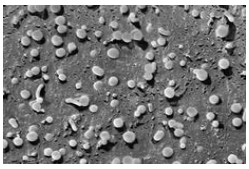
Childhood Trauma Affects Adult Brain

(EPFL, January 13, 2013)

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

Lipid Vesicles to Replace Mouse Experiments

(ETH Zurich, January 14, 2013)



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

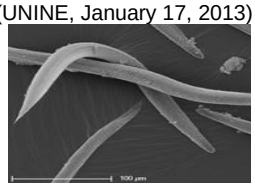
Fire Ant: The Gene Dictating Social Behaviour

(UNIL, January 17, 2013)

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

Eelworms to Fight Against Pests

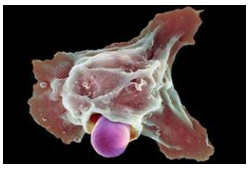
(UNINE, January 17, 2013)



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

New Defenders Against Fungal Infections

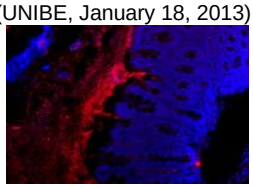
(ETH Zurich, January 17, 2013)



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

Good Bacteria Prevent Diabetes

(UNIBE, January 18, 2013)



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

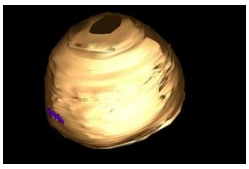
First Treatment for Sight-Threatening Vitreomacular Traction And Macular Hole

(Novartis, January 18, 2013)

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

Targeted Release of Drugs with Magnetic Nanovehicle

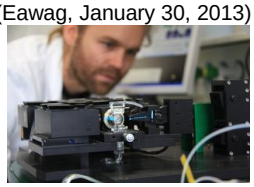
(EPFL, January 25, 2013)



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

Drinking Water Unexpectedly Rich in Microbial Life

(Eawag, January 30, 2013)



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

BEEBOOK:Reference Book for International Bee Research

(UNIBE, January 31, 2013)

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

Using Nanotechnology to Identify Viruses

(UNIBAS, February 20, 2013)

Researchers from the University of Basel and the University of Applied Sciences and Arts Northwestern Switzerland (FHNW) have developed a method to identify viruses using a new nano-technological process. The process could be used to create new viruses, however it also enables the diagnosis and therapy of various illnesses. The big advantage of the new method is, that the scientists can recognize relatively big biomolecules with an increased accuracy. This is achieved by creating particles who have the pattern of the virus imprinted on the surface. This material is then able to identify and bind viruses with the same chemical properties.
http://swissinnovation.org/news/web/2013/03-130220-7c.html

The Internet as Addiction Therapist

(UZH, February 21, 2013)

The solution to many drug issues might be found in a place few would suspect: the Internet. The psychologist Michael Schaub investigates the diagnosis and therapy of substance addiction. He found that online therapy may well have positive effects. He is research manager at the Swiss Research Institute for Public Health and Addiction (ISGF), which is associated to the University of Zurich. The institute also offers an online therapy program to help cocaine users combat the drug. Through this program, the ISGF gains the data they use for their research. The anonymity offered by the internet is one of the big advantages of this approach, because many people who would not consider an established form of therapy are willing to participate in the online therapy.
http://swissinnovation.org/news/web/2013/03-130221-eb.html

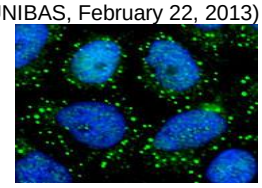
Teamwork against Mutated Free Riders

(ETH Zurich & Eawag, February 21, 2013)

The sickness inducing salmonellae depend on teamwork. One part takes care of the common interests, another part fights against other viral fee riders. This teamwork has similarities with the cooperation observed in ants and bees and is a major success factor for helping the salmonella create colonies in the intestines. The fact that there are two differing forms of salmonella in the intestines, was shown by scientists of the ETH Zurich and the Eawag a few years ago. The researchers were now able to describe the two different roles the salmonellae assume in a successful infection.
http://swissinnovation.org/news/web/2013/03-130221-86.html

New Insights into the Vital Protein mTOR

(UNIBAS, February 22, 2013)



Many illnesses are caused by malfunctions of the signal network of the protein mTOR. More knowledge about the different agents of this network could lead to new treatments for these illnesses. The team of Prof. Michael N. Hall of the Biocenter of the University of Basel has identified a number of the proteins regulated by mTOR, including an enzyme facilitating the production of the genetic material. The results of their research has now been published in the journal "Science".
http://swissinnovation.org/news/web/2013/03-130222-9f.html

3-D Printing of Individualized Implants

(20min.ch, February 22, 2013)

3-D printers have already been used to create body implants. The newest machines are even capable of creating living tissue. This technology could revolutionize the way we perceive and modify our body: only recently, the face of a young Romanian was disfigured in an accident. Consequently, he received an artificial cheekbone. However, instead of molding the bone normally, it was printed with a 3-D printer in the research lab of the University of Applied Sciences and Arts Northwestern Switzerland (FHNW). The team there used a computer tomography to reconstruct the replacement cheekbone. This process yields significant advantages over the conventional way, because it is much more efficient to create individualized implants.
http://swissinnovation.org/news/web/2013/03-130222-df.html

Researchers Tackle Obstacles to Medical Aid

(swissinfo.ch, March 22, 2013)

Two-thirds of the world's population have no access to diagnostic imaging, but a Swiss project is working to produce a radiology machine that is cheap, robust, easy to use and able to handle rough conditions. Medical devices sent to developing countries are often unsuitable or just don't work. According to the World Health Organization (WHO), more than 70 per cent of the latest appliances sent to African hospitals are not used. To remedy that, the EssentialMed initiative of the EPFL has the goal of developing high-quality, affordable medical devices adapted to the needs of district hospitals in resource-poor regions. The first product in the pipeline is a medical imagery device that combines x-ray and ultrasound technology, which will be able to cover 90 per cent of a typical district hospital's needs.
http://swissinnovation.org/news/web/2013/03-130322-8b.html

4. Nano / Micro Technology / Material Science

Nanoscience Partnership between Max-Planck and EPFL

(EPFL, August 16, 2012)

Max-Planck-Gesellschaft (MPG) and EPFL signed a partnership agreement that involves creating a joint laboratory. The German institution, renowned for its 17 Nobel Prizes and 80 institutes will open an International Center dedicated to nanosciences at EPFL. The partnership includes the creation of a laboratory in Lausanne, the organization of joint summer schools and conferences, and funding for projects and theses. Twenty PhD students will eventually participate in the partnership and the two institutions are planning to fund six PhD positions on a permanent basis. The theses will be co-directed, thus preparing the next generation of scientists under ideal collaborative conditions between Germany and Switzerland.
http://swissinnovation.org/news/web/2012/04-120816-bc.html

High Yield Insulating Aerogel Plaster

(Empa, August 20, 2012)

The Empa has developed a new insulating plaster together with Fixit AG. The plaster is based on aerogel and provides double the isolation strength of currently used insulating plaster. Aerogel holds 15 entries in the Guinness book of world records, including the one as "best Isolator". The problem for industrial usage of aerogel as insulation was that the gel is too brittle to be used with a plaster machine. The Empa and Fixit are in the process of patenting their solution of insulating plaster using aerogel.
http://swissinnovation.org/news/web/2012/04-120820-c9.html

Quantification of Nanoparticles in Consumer Goods

(CSEM, August 31, 2012)

In response to the increasing need for the detection and analysis of nanoparticles, European industry and academics have launched the EU-funded SMART-NANO project. The consortium's principal purpose of developing a technology platform for the measurement of engineered nanoparticles (ENPs) could provide the key tool in assessing the fate and potential safety risks of ENPs for example in cosmetic products. The Swiss Center for Electronics and Microtechnology (CSEM) will coordinate the four-year project, the EUR 3.5 million funding of which will secure the platform's development, field application, and testing.
http://swissinnovation.org/news/web/2012/04-120831-ed.html

Nano-Velcro to Test Mercury Levels in Oceans

(EPFL, September 10, 2012)

Researchers develop nano-strips for inexpensive testing of mercury levels in our lakes and oceans with unprecedented sensitivity Mercury, when dumped in lakes and rivers, accumulates in fish, and often ends up on our plates. A Swiss-American team of researchers led by Francesco Stellacci at the EPFL and Bartosz Grzybowski at Northwestern University has devised a simple, inexpensive system based on nanoparticles, a kind of nano-velcro, to detect and trap this toxic pollutant as well as others. The particles are covered with tiny hairs that can grab onto toxic heavy metals such as mercury and cadmium. This technology makes it possible to easily and inexpensively test for these substances in water and, more importantly, in the fish that we eat.
http://swissinnovation.org/news/web/2012/04-120910-22.html

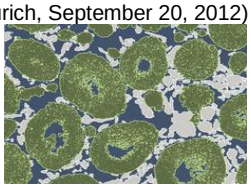
New Method for Researching Collaboration of Proteins

(ETH Zurich, September 18, 2012)

Scientists of the ETH Zurich have developed a new method to analyze the structure and composition of protein complexes. In their latest publication in "Science", they use the enzyme protein phosphatase 2A (PP2A) to showcase the new method. With conventional methods, it is possible to capture the structure of single protein complexes. However, to do so, they have to be gathered with high purity and in big amounts. The new method offers the advantage of requiring only small protein samples in order to analyze the protein complex.
http://swissinnovation.org/news/web/2012/04-120918-9a.html

Visualizing Complex Catalysts

(ETH Zurich, September 20, 2012)

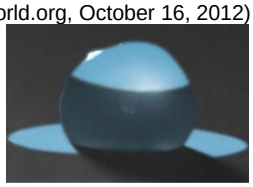


Using state-of-the-art visualization techniques, chemical engineers at ETH Zurich explore the complex inner life of porous catalysts. Their work will aid in the development of rational catalyst design, allowing promising laboratory leads to find their way into large-scale industrial production. Pérez-Ramírez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

dispersed is important to determine the performance of a catalyst.
http://swissinnovation.org/news/web/2012/04-120920-79.html

Towards Smart Ice-Phobic Surfaces

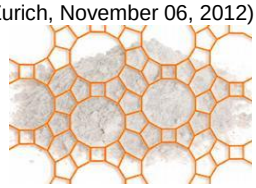
(Swissworld.org, October 16, 2012)



Stefan Jung, a researcher in the Laboratory of Thermodynamics, is the scientist behind the latest groundbreaking discovery from the ETH Zurich. It is generally accepted that water droplets freeze in two distinct stages. To start with, an explosion occurs within the droplet, creating a sort of ice scaffold. During the second stage which is 1000 times slower than the first, the droplet freezes from the surface inwards. Stefan Jung and his colleagues discovered what scientists had hitherto failed to spot: during both these stages a halo of frost forms around the frozen droplets. The researchers behind the discovery have now set their sights on using the knowledge they have acquired to develop smart “ice-phobic” surfaces.
http://swissinnovation.org/news/web/2012/04-121016-64.html

New Catalyst Synthesis Method

(ETH Zurich, November 06, 2012)



Researchers at ETH Zurich developed a new synthesis procedure for a catalyst. This procedure may be used for the production of, for instance, plastics from renewable resources in an environmentally friendly and efficient manner. To date, the synthesis of the catalyst occurs in a very complex and error-prone procedure. The ETH researchers discovered a far more convenient two-step procedure, which is more suitable for large-scale production.
http://swissinnovation.org/news/web/2012/04-121106-44.html

Paternity Test for Counterfeit Products

(ETH Zurich, December 05, 2012)

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

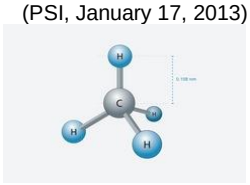
Towards "Solar Cement"

(PSI, January 14, 2013)

Cement holds the world’s buildings together. The binding agent for concrete and other construction materials is, if assessed by global production volumes, one of the world’s most important assets. However, cement production consumes vast amounts of energy – and this is largely obtained by the combustion of fossil fuels. Scientists at the Paul Scherrer Institute and the globally-active Swiss cement manufacturer Holcim want to change this. Together, they are developing a process that can create a high-quality environmentally-friendly fuel for the cement kilns of the future from carbon-rich waste using concentrated solar energy. In a collaboration project run over several years between Holcim and the ETH, Zurich, PSI-researchers have taken the first step towards the production of “solar cement”.
http://swissinnovation.org/news/web/2013/04-130114-68.html

Advantages of SwissFEL

(PSI, January 17, 2013)



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

Self-Assembling Magnetic Nano-Chessboard

(PSI, January 31, 2013)

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

http://swissinnovation.org/news/web/2013/04-130131-25.html

New Generation of Batteries

(PSI, March 06, 2013)

Lithium-ion batteries are one of today's best technologies for storing electrochemical energy. Nevertheless, the potential of the Li-ion battery is limited chemically and it will only be possible to achieve an even higher energy density, which is of critical importance for electric mobility in particular, by using other new types of batteries. One of the most promising alternatives is the lithium-sulfur battery. In this type of battery, the anode is made of metallic lithium, while the cathode is made of a composite comprising sulfur and carbon. From an environmental perspective, lithium-sulfur batteries also make it possible to avoid the use of heavy metals. PSI researchers, led by Petr Novák, Head of the Electrochemical Energy Storage Section of the Electrochemistry Laboratory at PSI, in cooperation with the German chemical company BASF, are looking for solutions which can be implemented industrially
http://swissinnovation.org/news/web/2013/04-130306-f7.html

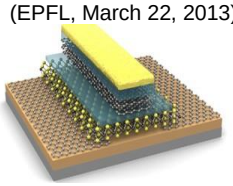
EU Aeronautic Technology Project Led by CSEM

(CSEM, March 11, 2013)

Fibrous composite materials have been used in civil aviation in small quantities from the 1970s. However, it is only with the advent of the latest generation of airliners (e.g. Airbus A380) that composite materials have been extensively used in the manufacturing of safety critical primary structures. The use of such materials helps reduce the fuel consumption per passenger, with regard to comparable aircraft, by up to 17%. The European Commission has recently launched the three-year, €1.55M effort named EVITA to develop advanced Phase Contrast X-ray Imaging detection tools for inspecting large areas of thick composite structures. Led by CSEM, the project consortium includes industrial partners, such as Dassault Aviation, GMI Aero (French SME), and academic partners like the University of Manchester and the National Technical University of Athens.
http://swissinnovation.org/news/web/2013/04-130311-a0.html

High Performance Flash Memory Combines Graphene and Molybdenite

(EPFL, March 22, 2013)



EPFL scientists have combined two materials with advantageous electronic properties – graphene and molybdenite – into a flash memory prototype that is very promising in terms of performance, size, flexibility and energy consumption. The transistor prototype developed by LANES was designed using “field effect” geometry, a bit like a sandwich. In the middle, instead of silicon, a thin layer of MoS2 channels electrons. Underneath, the electrodes transmitting electricity to the MoS2 layer are made out of graphene. And on top, the scientists also included an element made up of several layers of graphene; this captures electric charge and thus stores memory.
http://swissinnovation.org/news/web/2013/04-130322-77.html

5. Information & Communications Technology

Algorithm to Root Rumors, Epidemics and Crime

(EPFL, August 01, 2012)

A team of EPFL scientists has developed an algorithm that can identify the source of an epidemic or information circulating within a network, a method that could also be used to help with criminal investigations. EPFL researcher Pedro Pinto of the Audiovisual Communications Laboratory and his colleagues have developed an algorithm that could become a valuable ally for investigators, criminal or otherwise, as long as a network is involved. “Using our method, we can find the source of all kinds of things circulating in a network just by ‘listening’ to a limited number of members of that network,” explains Pinto.
http://swissinnovation.org/news/web/2012/05-120801-68.html

New Programming Language Scala

(EPFL, August 23, 2012)

Typesafe, a company created just a year ago at EPFL and headquartered in the Science Park, has raised $14 million to commercialize a new programming language called Scala. Scala was developed by EPFL professor Martin Odersky. Because it is Java-compatible, programmers and developers are likely to massively adopt it, particularly when the internet is involved. Its concise syntax makes it possible to reduce the number of lines of code by half. Scala is open-source, and programmers who participated in its development come from all over the world. Scala combines two well-established programming approaches – “object-oriented,” the industry favorite, and “functional programming,” whose adherents are primarily in the academic world. Functional programming is particularly effective for distributing jobs among several processors working simultaneously.
http://swissinnovation.org/news/web/2012/05-120823-08.html

World's Least Infected Computers

(swissinfo.ch, September 04, 2012)

Viruses and other malware are lurking not just on porn sites, but in places you might never expect. To make it safer to surf, the Switch foundation monitors

the Swiss web for malicious code. As a result, Swiss computers with an infection rate of 18.4% are the least infected in the world. In total, there are only eight nations with fewer than 20% infected computers and except Uruguay, all of them are European. South Korea (57.3%) and China (51.9%) are tailing the list. The U.S. is a bit better than the average, which is at 31.63%.
http://swissinnovation.org/news/web/2012/05-120904-9d.html

NFC & Geolocation Startup at Tokyo Game Show

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

The EPFL Spin-off EverdreamSoft, mainly known for its free-to-play online Trading Card Game "Moonga", has entered a research agreement with the Swiss Federal Commission for Technology and Innovation (CTI) for the development of a secure mobile geolocation engine The company is also working on a system for physical cards that can be transferred to the virtual world by the means of Near Field Technology (NFC). At the Tokyo Game Show 2012, the startup promoted its products in the midst of big players like gloops, Inc., GREE, Inc., Capcom, Co,. Ltd. and Square Enix, Co., Ltd.
http://swissinnovation.org/news/web/2012/05-120921-e5.html

High Data Flow in Server Farms

(EPFL, September 21, 2012)

In gigantic server farms around the world, billions of database entries are queried every second. EPFL researchers have developed a system that drastically improves the circulation of this flow of information. The economic and environmental benefits are considerable. Researchers in EPFL's DATA Laboratory have developed DBToaster, a system that speeds up the pace of operations by a factor of 100 – 10,000.
http://swissinnovation.org/news/web/2012/05-120921-af.html

Improving Bitcoin Security

(ETH Zurich, September 24, 2012)

The internet currency Bitcoin was created in 2009. The new electronic currency has an increasing number of supporters. But ETH-researchers found out, that there is a securitiy problem. They also have a suggestion, how this problem could be solved. A postdoc at the Institute of Information Security of the ETH Zurich, managed to demonstrate that there is a security loophole during the verification of the payment. With an elaborate configuration, the buyer can actually spend his electronic coins twice: first, he buys the goods he desires; then he transfers the same amount to his own account. The network only registers the second illegal transaction instead of the first legal one, and the buyer ends up with both: the goods and the money.
http://swissinnovation.org/news/web/2012/05-120924-b5.html

Augmented Glasses Project

(EPFL, October 01, 2012)

EPFL scientists are developing a prototype of a pair of "augmented" glasses. EPFL scientists in the Laboratory of Photonic Devices are currently working on a prototype that's similar to the project announced this spring by Google. The team will have to overcome a number of technological challenges, such as finding a way to allow the user to simultaneously see the information displayed on the lenses as well as see his or her surroundings. The researchers solved this problem by developing a specially designed contact lens with a micro-lens in its center that allows the eye to focus on the images.
http://swissinnovation.org/news/web/2012/05-121001-8a.html

Energy-Efficient Water Cooled Supercomputer

(swissinfo.ch, October 16, 2012)

Europe's fastest supercomputer stays cool with water instead of air – resulting in energy savings of 40%. This innovation is based on a research project involving the ETH Zurich and IBM. Energy accounts for half of the expense in the construction and operation of a supercomputer, or a high-performance data center and air conditioning alone accounts for half of total electricity consumption. The ETH Zurich developed a cooling system, which uses water rather than air for Aquasar, an experimental mainframe computer built by IBM. The cold water flows through the system; afterwards, the system is cool and the water is used to supply the campus' heating and hot water system. This way, the energy consumption can be reduced by 40%.
http://swissinnovation.org/news/web/2012/05-121016-14.html

routeRank Wins Award

(AlpICT, October 23, 2012)

Following routeRANK's participation in its first ACTE Executive Forum in London last month, the Association of Corporate Travel Executives granted the ACTE '3 Under 33' award to routeRANK's founder and Chairman Jochen Mundinger. The non-profit organization serves and advances the global business travel industry in over 100 countries. Its '3 Under 33' program is 'designed to identify and recognize the newest and brightest thinkers in the business travel industry'. It rewards innovation, leadership and contributions to the business travel industry. routeRANK is proud to have gained such distinguished recognition as a

winner both for its region (Europe, Middle East & Africa) and globally.
http://swissinnovation.org/news/web/2012/05-121023-57.html

University of Neuchâtel Coordinates European Big Data Research Project

(UNINE, October 23, 2012)

Since early October, the Institute of Informatics of the University of Neuchâtel coordinates a new European research project on the management of big data for small and medium enterprises. The project is headed by Etienne Rivière, lecturer in the team of Professor Pascal Felber and consists of three companies and four universities from five countries. The budget amounts to EUR 4.25M over a period of three years. The project will investigate a collaborative approach to the analysis of user-generated content for small enterprises. It focuses on guaranteeing confidentiality by implementing new encryption algorithms.
http://swissinnovation.org/news/web/2012/05-121023-df.html

An App to Re-Empower Farmers

(EPFL, October 31, 2012)

A cell phone application enables Indian farmers to better negotiate the sale of their harvests. FarmBook is designed for use by this population segment, where illiteracy is very common. Farmers trust their experience in the field as well as that of their fellow farmers. FarmBook works with Android based smart phone models that are accessible in terms of price. The application is intended to facilitate the real-time transmission of their advice and tips. To accomplish this, the application relies on a system of invitations, text-to-speech and a series of pictograms that enable illiterate people to locate and share information.
http://swissinnovation.org/news/web/2012/05-121031-05.html

Software Reproduces Facial Expressions on Avatar

(EPFL, November 19, 2012)

A virtual character produces the same facial expressions as its user. It makes a video game, chat, or an animated film both fun and fast. Faceshift, an EPFL spin-off, has launched its software solution recently. The software that could save time for the designers of animation or video games requires one tool: a camera that has motion and depth sensors in the style of Microsoft Kinect or Asus Xtion. During its first use, the software is configured in ten minutes through the reproduction of several basic expressions, such as smile, raise eyebrows, etc. “The more movement is incorporated into the program’s 50 positions, the more realistic are the results,” explains Thibaut Weise, creator of the start-up currently based at the Technopark in Zurich.
http://swissinnovation.org/news/web/2012/05-121119-43.html

Cyber-Physical Security of Power Systems

(ETH Zurich, November 28, 2012)

Scientists of the ETH Zurich have developed a novel methodology to strengthen the cyber-physical security in large-scale power networks. The idea is based on a model-based diagnosis filter design which is tractable for large-scale complex systems. The main objective of the invention is to design a diagnosis filter for complex and high dimensional systems. The current state of the art in the field is either confined to linear system or only applicable to low dimensional nonlinear dynamics with more specific structures. In contrast, the new system enables a scalable optimization-based approach by using a robust residual generator to detect faults and malfunctions, which is tractable for high dimensional nonlinear system dynamics.
http://swissinnovation.org/news/web/2012/05-121128-ff.html

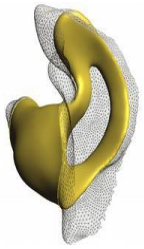
Swiss Facial Recognition Technology Pre-Installed on Fujitsu's Computers

(AlpICT, December 07, 2012)

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

3D Technology for Better Hearing

(ETH Zurich, December 14, 2012)



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

http://swissinnovation.org/news/web/2012/05-121214-7d.html

1991: WWW Spreads Beyond CERN

(Cern, December 21, 2012)

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

Mind-Control for Machines

(EPFL, January 23, 2013)

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

Sustainable Information Society

(UZH, February 06, 2013)

In the future, humankind will have to learn to use scarce resources in a sustainable way, says Lorenz Hilty, Professor for Computer Science and Sustainability. He develops software that can help us to achieve a sustainable information society. He envisions a personal software assistant who plans and organises our consumption of natural resources. Professor Hilty has now organized the First International Conference on ICT for Sustainability from February 12 to 16 at the ETH Zurich. This conference provided an unique opportunity to meet world-leading experts in the field of sustainable design and use of Information and Communication Technologies.
http://swissinnovation.org/news/web/2013/05-130206-0b.html

ETH Zurich Computer Classes Awarded Google Prize

(ETH Zurich, February 14, 2013)

Google recognizes the ETH Zurich center for teaching IT (ABZ). The ABZ offers programming courses for the primary school children in Zurich. The ETH Professor Juraj Hromkovic founded the ABZ in 2006 in order to improve the informatics education in Swiss high schools. Later, the focus shifted to the primary schools, which children visit before going to high school or starting an apprenticeship. They give those teachers the opportunity to request a teacher from the ABZ who will then instruct the kids with the help of ETH Zurich students. The Google RISE award honours the work already done by the ABZ and will make an extension of the programme possible.
http://swissinnovation.org/news/web/2013/05-130214-c1.html

Simulation of the Inner Structure of an Asteroid

(EPFL & UNIBE, February 14, 2013)

Models boost the significance of image and measurement data from space missions and help to understand our solar system. A simulation of a double impact that occurred on the proto-planet Vesta one billion years ago allowed scientists to describe precisely the inner structure of the asteroid. A joint research from EPFL, University of Berne, France and the United States is on the cover of Nature this week. Using a three-dimensional computer simulation, Martin Jutzi from the Center for Space and Habitability (CSH) at the University of Bern has now accurately reconstructed how Vesta collided with other asteroids twice over a billion years ago. The models show that the protoplanet owes its elliptical shape to these collisions and that they also scarred its surface structure.
http://swissinnovation.org/news/web/2013/05-130214-32.html

Super-Green Supercomputer

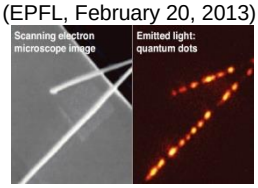
(EPFL, February 15, 2013)

Since January 28, researchers from EPFL and the Universities of Geneva and Lausanne have benefitted from a new supercomputer, the BlueGene/Q. With 1024 computation nodes, the BlueGene/Q has a calculation power of 172.7 teraflops, which means it can do 172,000 billion operations per second. That is four times more than the functioning capacity of BlueGene/P thus far. Water-cooled, it consumes only 82.2 kilowatts of electricity, the energy equivalent of a

mere one-hundred household coffeemakers working continuously. This excellent energy efficiency places it in tenth position in the list of the world's greenest supercomputers.
http://swissinnovation.org/news/web/2013/05-130215-12.html

High Quality Light Source for Quantum Computers

(EPFL, February 20, 2013)



Researchers have discovered a new way of emitting photons one at a time. They have constructed semiconductor nanowires with "quantum dots" of unprecedented quality. In a future of quantum computing, data will be treated and transmitted by lasers. The quantum properties of light will endow machines with gigantic computing potential. However, much work remains to be done. In order to exploit the "quantum" potential of light it is necessary, among other things, to be able easily to emit single photons. At the heart of the Laboratory of Semiconductor Materials (LMSC) of Institute of Materials, the team of Anna Fontcuberta i Morral has discovered a new method for creating a miniscule and extremely high-performance single-photon source. The final structure can then emit photos one by one, after having absorbed light.
http://swissinnovation.org/news/web/2013/05-130220-6c.html

Cloud Infrastructure for Robots

(ETH Zurich, March 11, 2013)

Scientists from five European universities, including the ETH Zurich, have developed a cloud computing platform that enables robots to exchange information and experience. This allows for the robots to learn new abilities and tackle totally new tasks. The basis for this is the open online database "RoboEarth", a giant network and database repository where robots can share information and learn from each other about their behavior and their environment. The goal of RoboEarth is to allow robotic systems to benefit from the experience of other robots, paving the way for rapid advances in machine cognition and behaviour, and ultimately, for more subtle and sophisticated human-machine interaction. RoboEarth offers a Cloud Robotics infrastructure, which includes everything needed to close the loop from robot to the cloud and back to the robot.
http://swissinnovation.org/news/web/2013/05-130311-a5.html

Towards Petaflop Computing

(CSCS, March 20, 2013)

The new CSCS supercomputer named "Piz Daint" is the first and largest Cray XC30 system installed worldwide. Its procurement and installation marks an important milestone in the implementation of the national high performance supercomputing strategy. In the beginning of April the system will be made available to Swiss researchers. In a collaboration with Cray and NVIDIA, this supercomputer will be extended with GPU-accelerators making it possible for the first time in Switzerland to exceed the petaflop frontier. The next generation supercomputer has a peak performance of 750 Teraflops. It is based on the latest generation Intel Xeon E5 processors with a total of 36'096 compute elements. The internal communication network has been completely redesigned to enhance scalability of scientific applications.
http://swissinnovation.org/news/web/2013/05-130320-93.html

Mobile App on Swiss Dialects

(UZH, March 22, 2013)

The Swiss German dialect is not only a vessel for the heritage of a speaker - it also informs on his origin within Switzerland. As an example, there are almost 40 different names for the core of an apple, such as: "Huusini", "Bitzgi", or "Göitschi". Dialect Researchers at the Universities of Zurich and Bern have developed an app that determines the origin of Swiss German dialects. The data collected by the app will allow the researchers to create a more exact map of the different dialects in Switzerland. It is freely available in the Apple App Store, and an Android version is also in development.
http://swissinnovation.org/news/web/2013/05-130322-53.html

Increasing the Capacity of the Internet

(EPFL, March 27, 2013)

A new-generation analog-to-digital converter (ADC) developed by a joint IBM-EPFL team has the potential to greatly increase the speed and volume of data that can be transferred over the Internet. ADCs are essential to electronics. Integrated into the chips on our computers and into optical fiber networks, they translate analog signals – images and sounds from the physical world in which we live – into digital information. However, the total volume of data transferred over the Internet is exploding – it's estimated to be increasing by 60% every year. Current converters are simply not up to the task. The new ADC, developed by IBM and EPFL, is not only twice as rapid as other existing designs, but also holds the record for occupying the smallest area on the silicon chip, thus making it the most compact and energy efficient ADC to date.

http://swissinnovation.org/news/web/2013/05-130327-f5.html

6. Energy / Environment

Electronic Horse Coach

(Agroscope, August 13, 2012)

The research institute Agroscope introduced a prototype of an e-coach together with the city of Avenches and the company Meterus Sàrl. The e-coach works like an e-bike, supporting the horse when it becomes tired. The e-coach was used to collect the garbage in the city of Avenches. Horses have enjoyed a increasing popularity because of its ecological image of a living drive. Especially in France, more than 120 communities are looking into this means of transportation. The e-coach aims to support the limited power of horses in order to make them a viable alternative to automobiles.
http://swissinnovation.org/news/web/2012/06-120813-ab.html

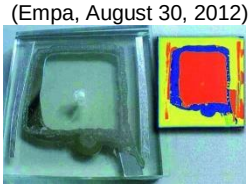
Environment-Friendly Toilet

(Eawag, August 15, 2012)

There are 2.6 billion people in the world who have no access to a decent toilet. An interdisciplinary team of Swiss aquatic researchers and designers from Austria won a special recognition award with their invention as part of the 'Re-invent the Toilet' competition, sponsored by the Bill and Melinda Gates Foundation. The new toilet model will provide a sanitary solution that ensures human dignity and hygiene, while also being environment-friendly and economically feasible.
http://swissinnovation.org/news/web/2012/06-120815-e8.html

Smart Windows

(Empa, August 30, 2012)



The project "Winsmart" aced out 21 other contenders and convinced the European experts. They awarded the project of Empa Scientist Matthias Koebel and his eight collaborators with a grant of more than EUR 3.8 million. The window uses a vacuum for insulation instead of the conventionally used gas. This results in a window three times thinner, while the insulation is increased two- to threefold. The team also works on switchable layers, making it possible to darken the window at the push of a button. Equipped with photosensitive sensors, the window could darken itself depending on the conditions outside.
http://swissinnovation.org/news/web/2012/06-120830-e9.html

New Data On Biofuel Ecobalance

(Empa, September 24, 2012)

A new study led by Empa gives an up-to-date picture of the ecobalance of various biofuels and their production processes. Only a few are overall more environmentally friendly than petrol. In recent years, the demand for supposedly environmentally friendly biofuels has increased significantly worldwide. However, there has been a controversy about their environmental sustainability around whether the production of biofuels is defensible from an ecological viewpoint. The Empa comes to the same conclusion as an earlier study in 2007: many biofuels based on agricultural products indeed do help to reduce the emission of greenhouse gases, but lead to other environmental pollution, such as too much acid in the soil and polluted (over-fertilised) lakes and rivers.
http://swissinnovation.org/news/web/2012/06-120924-e0.html

Efficiency Record for Hybrid Solar Cells

(EPFL, September 28, 2012)

The EPFL's Institute of Microengineering presented in Frankfurt "hybrid" photovoltaic cells with an energy conversion efficiency of 21.4%, the highest obtained for the type of substrate they used. This breakthrough will contribute to lower the cost of solar cell based installations. In the medium term, an investment of CHF 2000 in photovoltaic cells would suffice to provide more than enough electricity for the consumption of a four people household.
http://swissinnovation.org/news/web/2012/06-120928-a8.html

Thin, Flexible Thermoelectric Generator

(GreenTEG, October 03, 2012)

GreenTEG has won the European Venture Competition of Climate KIC and convinced the jury of its potential to become Europe's leading firm in providing commercial solutions to climate change. GreenTEG provides efficient and cost effective energy conversion technology in the form of thin and mechanical flexible thermoelectric generators (TEGs). Using the Seebeck-Effect, TEGs convert temperature differences directly into electricity and thus increase energy efficiency.
http://swissinnovation.org/news/web/2012/06-121003-83.html

Humans Influencing Climate Since Over 2000 Years

(EPFL, October 08, 2012)

Humans have been producing substantial amounts of greenhouse gases since long before the industrial revolution. By studying the tiny amounts of gases trapped in air bubbles in Greenland's glaciers, researchers have been able to add details to an emerging picture of historical human induced environmental change that reaches as far back as the Roman Empire and the Han Dynasty. "Past societies burnt enormous amounts of wood and charcoal to clear fields, to heat homes and churches, and to smelt metals such as iron, gold, copper or silver," says Jed Kaplan, group leader at the Atmosphere Regolith Vegetation group at EPFL.
http://swissinnovation.org/news/web/2012/06-121008-bc.html

Hydrogen-Driven Street Sweeper

(Empa, October 11, 2012)

Since spring 2012, the hydrogen-driven street sweeper was being successfully tested by the road inspection agency in St. Gallen. Building upon the achievements in St. Gallen and Basel, the reliability of the vehicle is now going to be tested in the difficult conditions of Berne, whose streets consist of cobblestones. The team hopes to demonstrate the advantages of hydrogen drives which are more silent and sustainable in comparison to conventional drives, because they emit Water instead of CO2. These are big advantages for street sweepers, because they have a 10 times bigger energy consumption than ordinary vehicles, as they are heavier and drive for longer hours.
http://swissinnovation.org/news/web/2012/06-121011-c2.html

First Swiss Ozonation Facility For Water Treatment Research

(Empa, October 12, 2012)

On October 2, 2012 the foundation stone for the first ozonation facility was laid in the Neugut water treatment plant. On the basis of the findings of the Micropoll project of the Federal Office for the Environment (FOEN), a change to the water protection law was submitted. This provides for around 100 of the 700 water treatment plants in Switzerland to be fitted with special purification technology for micropollution. Through the ozonation facility at the Neugut, Eawag will be able to analyze the new process directly at the water treatment plant through various research projects, and thereby gain important insights for the practical application of the technology.
http://swissinnovation.org/news/web/2012/06-121012-82.html

Trans-Disciplinary Research on Climate Change

(swissinfo.ch, October 24, 2012)

Tanzanian farmers use cell phones to document climate change, keeping track of how new pests and weather patterns affect their crops. Their work is the product of a unique climate change research method pioneered by Swiss-based scientists. 'Trans-disciplinary research' is a general term for this method of researching a real-world issue like climate change by surveying the situation on the ground and working with locals and experts in other fields before identifying the precise research goals. Swiss institutions were at the forefront of developing and encouraging this research method now being adopted around the world, according to professor Hans Hurni, president of the Centre for Development and Environment at Bern University.
http://swissinnovation.org/news/web/2012/06-121024-bf.html

Swiss Lake Tsunami Risks

(swissinfo.ch, October 28, 2012)

Swiss lake tsunamis are disasters in waiting, warns Geneva University researcher Guy Simpson, co-author of a study into a giant tsunami on Lake Geneva in 563 AD triggered by a rock fall and underwater landslide. According to new research published in the Nature Geoscience journal, a massive rock fall - probably from the Le Grammont mountain close to where the Rhone flows into lake at its eastern end - caused part of the river delta to collapse and slide into the lake. Using computer modelling to recreate the tsunami, the researchers believe the waves would have been up to 13 metres high in Lausanne and between three and eight metres in Geneva, 70km from the starting point, where it arrived 70 minutes after the rock fall.
http://swissinnovation.org/news/web/2012/06-121028-27.html

World's First High Voltage DC Breaker

(ABB, November 07, 2012)

ABB Ltd. has successfully designed and developed the world's first circuit breaker for high voltage direct current (HVDC). It combines very fast mechanics with power electronics, and will be capable of 'interrupting' power flows equivalent to the output of a large power station within 5 milliseconds, thirty times faster than the blink of a human eye.The breakthrough removes a 100-year-old barrier to the development of DC transmission grids, which will enable the efficient integration and exchange of renewable energy. DC grids will also improve grid reliability and enhance the capability of existing AC (alternating current) networks.
http://swissinnovation.org/news/web/2012/06-121107-aa.html

Printed Plastic Solar Cells

(CSEM, November 09, 2012)

Printed-plastic solar technology is transforming how and where we harvest power. It represents the newest generation of technologies in solar power generation which will result in flexible, low weight, and low cost panels. Europe has recently launched a four-year, EUR 14.2M effort to develop advanced flexible plastic solar panels designed to be integrated into new consumer mobile applications and buildings. The project named "SUNFLOWER" is led by the Swiss Center for Electronics and Microtechnology (CSEM) and includes industrial partners such as Agfa, BASF, and DuPont Teijin Films as well as the photovoltaic pioneer Konarka and key European research institutes and universities.
http://swissinnovation.org/news/web/2012/06-121109-8e.html

Mayan Era Climate Reconstructed

(ETH Zurich, November 09, 2012)

For a long time researchers have been discussing studies linking climate with the development, and especially the collapse of the Maya between 700 and 1000 AD. One of the criticisms of these studies is that climatologists and archaeologists hardly ever collaborate. However, researchers from the various disciplines have now joined forces and correlated climate data with the historical context. The international research team compared archaeological and anthropological data with detailed geochemical studies carried out by paleoclimatologists from ETH Zurich. The new findings support the theory that climate fluctuations had a decisive influence on Mayan social structures.
http://swissinnovation.org/news/web/2012/06-121109-f4.html

Inexpensive Solution for Storing Solar Energy As Hydrogen

(EPFL, November 11, 2012)

How can solar energy be stored so that it can be available any time, day or night, when the sun shining or not? EPFL scientists are developing a technology that can transform light energy into a clean fuel that has a neutral carbon footprint: hydrogen. The basic ingredients of the recipe are water and metal oxides, such as iron oxide, better known as rust. The team purposefully limited itself to inexpensive materials and easily scalable production processes in order to enable an economically viable method for solar hydrogen production. They hope to attain efficiencies of 10% in a few years, for less than $80 per square meter, a price competitive with traditional methods of hydrogen production.
http://swissinnovation.org/news/web/2012/06-121111-ce.html

Comparing Anorganic and Dye-Sensitized Solar Cells

(Empa, November 14, 2012)

Solar modules made from silicon are too inflexible and too expensive for many applications. The solution to those concerns is found in solar cells on flexible films. The Empa currently investigates two approaches: anorganic solar cells (CIGS-Cells) and dye-sensitized solar cells (DSSC), as well as other interesting topics such as the new natural gas hybrid car "CLEVER".
http://swissinnovation.org/news/web/2012/06-121114-7a.html

Used EV Batteries Power Homes

(ABB, November 15, 2012)

General Motors and ABB showed the next stage in battery reuse, the repackaging of five used Chevrolet Volt batteries into a modular unit capable of providing two hours of electricity needed by three to five average American homes. The uninterruptable power supply and grid power balancing system was demonstrated during GM's Electrification Experience. The prototype unit provided 25 kW of power and 50 kWh of energy to power all the support lighting and audiovisual equipment in an "off-grid" structure used for the event.
http://swissinnovation.org/news/web/2012/06-121115-3f.html

Carbon Neutral Heating System by Storing Summer Heat

(swissinfo.ch, November 21, 2012)

The ETH Zurich expects to be able to reduce CO2 emissions and save CHF 1 million by storing excess summer heat deep in the earth, and retrieving it in the cold of winter. By 2025, ETH Zurich expects their sprawling Campus Science City complex to be practically CO2 emission free. In summer excess heat is stored 200 metres under the earth's surface via a circulating water system, instead of being air-conditioned and released into the surrounding air. In winter the heat is pumped up again through the same water circulation system. Since the excess heat is stored in cool ground, electrically-driven heat pumps are used to help raise the temperature high enough to heat the campus buildings.
http://swissinnovation.org/news/web/2012/06-121121-cb.html

EPFL Heating System Beneficial for Lake Ecosystem

(EPFL, December 05, 2012)

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

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

Rapid Action to Retain Options

(ETH Zurich, December 17, 2012)

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

2013 Watt d'Or Awards for Energy Efficient Projects

(swissnex Boston, January 01, 2013)

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

EU Solar Project Led by Empa

(Empa, January 07, 2013)

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

Energy Prize For Fuel Cell Powered Post Bus

(Empa, January 11, 2013)

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

Great Oxidation through Multicellularity

(UZH, January 14, 2013)

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

Shrubs Disrupting Primary Carbon Stocking Ecosystem

(EPFL, January 17, 2013)

A group of scientists from WSL (Swiss Federal Institute for Forest, Snow and Landscape Research) and EPFL described why on the long run peatlands may not be able to continue fulfilling their role as the most effective

carbon stocking ecosystems. They studied the mechanisms behind a phenomenon known as shrub encroachment of peatlands: Complex plant-microbe interactions are at the root of this worldwide vegetation change. Peatlands (bogs, turf moors) are among the most important ecosystems worldwide for the storage of atmospheric carbon and thus for containing the climate warming process. In the last decades the peat (Sphagnum) mosses, whose decay produces the peat (turf), have come under pressure by vascular plants, mostly small shrubs. The scientists explained why vascular plants are at an advantage over peat mosses in a warmer climate.
http://swissinnovation.org/news/web/2013/06-130117-67.html

New World Record for Flexible Thin-Film Solar Cell Efficiency

(Empa, January 18, 2013)

In a remarkable feat, scientists at Empa, the Swiss Federal Laboratories for Materials Science and Technology, have developed thin film solar cells on flexible polymer foils with a new record efficiency of 20.4% for converting sunlight into electricity. The cells are based on CIGS semiconducting material (copper indium gallium (di)selenide) known for its potential to provide cost-effective solar electricity. The technology is currently awaiting scale-up for industrial applications. The team at Empa's Laboratory for Thin Film and Photovoltaics, led by Ayodhya N. Tiwari, has achieved a record 20.4% energy conversion efficiency for thin film CIGS solar cells on flexible polymer substrates, a building on the previous record of 18.7% achieved by the same team in May 2011.
http://swissinnovation.org/news/web/2013/06-130118-ed.html

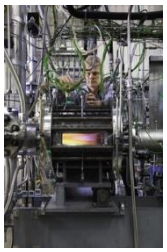
120,00 Years Ago: Significantly Higher Temperatures Than Today

(UNIBE, January 23, 2013)

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

CO2 Efficient Gas And Steam Power Plants

(PSI, January 24, 2013)



In many European countries, gas and steam power plants (CCGT plants), also known as combined cycle power plants, are included as options for a safe energy supply. In the 2050 Federal Government Energy Strategy, they are mentioned as a possible replacement for the nuclear power plants. Combined cycle power plants convert natural gas into electricity using a combination of gas and steam turbines, with very high efficiencies of around 60 percent. Furthermore, they are ideally suited for compensating production fluctuations from wind and solar power plants. However, their CO2 emissions, whilst the lowest of all conventional power plants using fossil fuels, are still significant. Researchers at the Paul Scherrer Institute are working on a solution for this within the framework of a European Union project.
http://swissinnovation.org/news/web/2013/06-130124-e8.html

Grokking Natural Climate Archives

(UNIBE, February 03, 2013)

Tree rings, ice cores and stalagmites are natural climate archives which allow us to reconstruct the environmental conditions of past epochs. However, reading those archives is no easy task: just now, scientists from the University of Bern; the Swiss Federal Institute for Forest, Snow, and Landscape (WSL); and the University of Mainz have demonstrated that the significance of yearly fluctuations, such as extreme temperatures and rainfalls, have been underestimated so far. They found, for example, that the growth of the tree rings was affected not only by the current weather, but also by the weather of the previous year and other growth factors. In general, stronger yearly fluctuations (eg. the air temperature) have been underestimated, and longer lasting trends have been overestimated, the researchers found.
http://swissinnovation.org/news/web/2013/06-130203-03.html

Terrific Microphones to Monitor Road Traffic

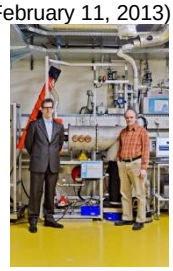
(EPFL, February 03, 2013)

An EPFL doctoral student has designed a microphone-based system that functions as an automatic road traffic sensor. The technology can determine not just how much traffic there is, but also how fast vehicles are going and even their size. Traffic noise isn't just noise. It can also be a veritable data mine, as Patrick Marmaroli has shown. The Electromagnetics and Acoustics Lab (LEMA) PhD student has designed a dual microphone system that uses the sound produced when tires roll over pavement to determine traffic volume. The system can also track a vehicle's speed and even determine its approximate size (i.e., whether a passing vehicle is a station wagon, compact, truck, etc). This information can then be used to provide traffic or air-pollution bulletins.

http://swissinnovation.org/news/web/2013/06-130203-91.html

New Institute of Biomass and Resource Efficiency

(PSI, February 11, 2013)



The Institute of Biomass and Resource Efficiency (IBRE) was founded by the two institutions, the Paul Scherrer Institute (PSI) and the University of Applied Sciences Northwestern Switzerland FHNW, at the start of 2013. The aim of this new institute is to tackle the issue of resource efficiency throughout Switzerland, concentrating simultaneously on energy and materials for the first time, and to thus make a fundamental contribution to the Federal Government's "Energy Strategy 2050". The focus is on the sustainable use of biomass. Prof. Dr. Timothy Griffin has been appointed the new head of the institute.
http://swissinnovation.org/news/web/2013/06-130211-f9.html

World Efficiency Record for Thin Film Silicon Solar Cells

(EPFL, February 12, 2013)

EPFL's Institute of Microengineering has reached a remarkable 10.7% efficiency single-junction microcrystalline silicon solar cell, clearly surpassing the previous world record of 10.1% held by the Japanese company Kaneka Corporation since 1998. Such significant efficiency, independently certified by the Fraunhofer Institute for Solar Energy Systems (ISE CalLab PV Cells), was achieved in addition with less than 2 micrometers of photovoltaic active material. The record has been independently confirmed at Fraunhofer Institute for Solar Energy Systems (ISE CalLab PV Cells), Freiburg, Germany.
http://swissinnovation.org/news/web/2013/06-130212-74.html

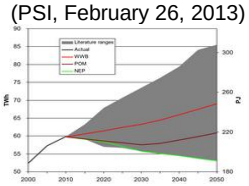
Sustainable Recycling in Developing Countries

(Empa, February 13, 2013)

Recovery of raw materials from waste as a business model for developing countries: Empa, the Swiss Federal Laboratories for Materials Science and Technology, and the Swiss State Secretary for Economy Affairs (SECO) have been pursuing this approach since 2003. Since then, sustainable recycling systems for electrical and electronic waste (e-waste) have been developed successfully in various developing countries. Non-renewable raw materials such as copper and gold originate in many cases in developing countries. The availability of many metals, for example rare earth elements, is becoming noticeably more critical. Therefore, efficient management of these raw materials is more important than ever. The recycling of discarded consumer goods can make a big contribution; much of this recycling involves electronic devices and household equipment.
http://swissinnovation.org/news/web/2013/06-130213-44.html

Sustainable Electricity System

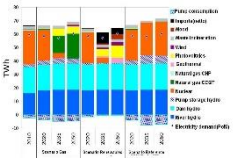
(PSI, February 26, 2013)



Switzerland is facing a potentially radical restructuring of its energy system in the light of the Federal Government's Energy Strategy 2050. One particular challenge associated with achieving the goals of the Strategy is realizing an electricity supply sector that responds to uncertain developments in electricity demand, national climate targets and the decision to phase out nuclear power. In order to investigate options for this transformation of the electricity sector, researchers at the Paul Scherrer Institute (PSI) are developing and analyzing a range of alternative scenarios of the future electricity system in Switzerland. These scenarios are developed, quantified and explored with an analytical tool built at PSI that simultaneously examines long-term developments (to 2050 and beyond) while accounting for seasonal and daytime fluctuations in electricity demand and supply.
http://swissinnovation.org/news/web/2013/06-130226-1e.html

Transformation of Electricity System

(PSI, March 14, 2013)



Researchers in the Energy Economics Group at the Paul Scherrer Institute PSI have used their model of the Swiss electricity system—STEM-E model—to analyze various electricity supply scenarios. They have concluded that alternatives to today's electricity supply are associated with different costs, risks and opportunities. Realising sustainability objectives such as climate protection while phasing out nuclear generation and making Switzerland's electricity supply independent of foreign countries raises many challenges. Under these circumstances the analysis by the PSI scientists suggests that costs of electricity production are likely to increase by at least 50 percent by 2050.
http://swissinnovation.org/news/web/2013/06-130314-77.html

Climate Change Affecting Mountain Forests

(ETH Zurich, March 14, 2013)

Mountain forests in the Alps react very differently but noticeably to a warmer climate. Even if the target of limiting the Earth's average temperature increase to 2 degrees were met, this would already prove too much of a challenge for some mountain forests. Under the leadership of Harald Bugmann, Professor of Forest Ecology at ETH Zurich, researchers have used computer models to

examine the extent to which, and speed at which, services derived from mountain forests are projected to change when the climate heats up. For the first time, climate scenarios were used that show how climate change would affect Switzerland if it were possible to restrict global warming to an increase of 2 degrees above pre-industrial conditions by the year 2100.
http://swissinnovation.org/news/web/2013/06-130314-75.html

7. Engineering / Robotics / Space

Dark Matter Near Sun

(UZH, August 09, 2012)

Astronomers at the University of Zurich and the ETH Zurich, together with other international researchers, have found large amounts of invisible "dark matter" near the Sun. Their results are consistent with the theory that the Milky Way Galaxy is surrounded by a massive "halo" of dark matter, but this is the first study of its kind to use a method rigorously tested against mock data from high quality simulations.
http://swissinnovation.org/news/web/2012/07-120809-ad.html

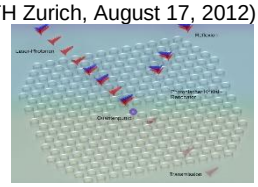
Electronic Engine for Rollator

(HSLU, August 16, 2012)

The Lucerne University of Applied Sciences is working on a new rollator, powered by an electronic drive. The internationally backed project aims to develop a modern walker which includes not only a supportive drive, but also an integrated tablet device for navigation and emergency applications. The venture is backed by 9 european institutions from Austria, Sweden and Switzerland who will provide EUR 3 million for the 36 months during which the project is executed und ther the lead of the iHomeLab of the Lucerne University of Applied Sciences.
http://swissinnovation.org/news/web/2012/07-120816-33.html

Ultra-Fast Light Switch Circuit

(ETH Zurich, August 17, 2012)



Future transistors could make use of light instead of electricity. Researchers of the ETH Zurich were able to engineer a precursor of such an optical transistor. They are the first to have engineered an optical switch able to either block a ray of light, or let the pass through, depending on the quantum state of the block.
http://swissinnovation.org/news/web/2012/07-120817-8e.html

Robot "Obelix" Travels Through Freiburg

(ETH Zurich, August 21, 2012)

A robot developed by the ETH Zurich, other European universities and industrial partners was able to navigate on cobblestones through numerous pedestrians in Freiburg im Breisgau. The robot, named Obelix, is designed to support people outdoors, for example by showing the way to the railway station or to act as a sightseeing guide. To do this, the robot has to be able to move like a pedestrian, crossing the road on crosswalks and obeying the traffic lights as well as avoiding other walkers. The robot was tested in Freiburg, where he had to travel a way of about 4 km from the university to the historic center of the city. He solved the task within 90 minutes.
http://swissinnovation.org/news/web/2012/07-120821-77.html

Researchers Uncover Clues to the Moon's Origins

(swissinfo.ch, August 30, 2012)

New findings by the University of Bern and the ETH Zurich suggest that the moon may have been formed in a high-velocity hit-and-run collision, a theory which explains the presence of Earth-like elements on the moon. It is widely accepted that the Earth's moon formed 4.5 billion years ago from an impact between the Earth and a celestial object the size of Mars called Theia. While simulations of the collision done over past decades suggested that the moon would have mostly been formed by material from Theia, the oxygen isotopes found on the moon are exactly the same as those found on Earth. This mystery is known as the "lunar paradox". The new model proposed by the scientists assumes higher velocities for the collision and offers an explanation for the lunar paradox.
http://swissinnovation.org/news/web/2012/07-120830-1b.html

A Step Towards Total Autopilot for Planes

(EPFL, September 20, 2012)

Three EPFL laboratories, commissioned by Honeywell and operating under the auspices of EPFL's Transportation Center, are working on this possibility by developing collision-prediction, avoidance, and real-time vision algorithms. "It is a project that confirms EPFL's unique expertise in the transport research field. The multidisciplinary character of the project unites three laboratories from three different Schools who have teamed up with a large company like Honeywell to remain as close as possible to industrial requirements", says Michaël Thémans, Associate Director of the Transportation Center.
http://swissinnovation.org/news/web/2012/07-120920-84.html

Autonomous Ultralight Unmanned Aerial Vehicle

(AlpICT, October 10, 2012)

The EPFL spin-off senseFly has announced the eBee at the Intergeo 2012 in Hannover. The eBee is an unmanned aerial vehicle intended for the surveying and mining industries. It weighs only 630g and its is able to fly its missions in strong breezes of up to 12m/s (45 km/h). The eBee fits into a single case that conforms to carry-on luggage standards. It includes a 16MP camera and the software Terra 3D to create a precise geo-referenced orthomosaic and digital elevation model (DEM) automatically.
http://swissinnovation.org/news/web/2012/07-121010-67.html

Earth Similar Planet Discovered Nearby

(20min.ch, October 17, 2012)

Astronomers at Geneva University have found a planet similar to Earth circling one of the stars closest to the earth: Alpha Centauri B. In terms of mass, the planet is roughly the same size as Earth. But unlike Earth, it only needs three days to circle its star. In other words, it is much closer to Alpha Centauri B than Mercury is to our Sun, and its temperature is estimated to be a roasting 1,200°C. Nevertheless, the yet-to-be-named planet has sparked the hopes of researchers. “There’s a very good prospect of detecting a planet in the habitable zone that is very close to us,” said Geneva Observatory’s Stephane Udry, head of a team of European planet hunters.
http://swissinnovation.org/news/web/2012/07-121017-06.html

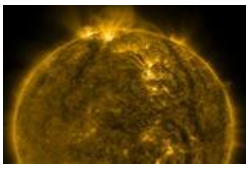
Swiss Space Project Wins European Grant

(ETH Zurich, October 19, 2012)

In 2017, a satellite named CHEOPS will be placed into orbit with the task of observing planets orbiting in other solar systems. The device is part of a Swiss space research project selected for the first S-class mission of the European Space Agency (ESA) was able to excel over 25 other project proposals. The research consortium is lead by the University of Bern and counts the University of Geneva, EPFL and ETH Zurich amongst its members. CHEOPS will be equipped with a special telescope of a meter and will be placed into orbit at an altitude of 800 km. From there, over the course of three years it will observe some 500 particularly bright stars and gather as much information as possible about their planets.
http://swissinnovation.org/news/web/2012/07-121019-6e.html

Planets Affect Solar Climate

(Empa, November 28, 2012)



The Sun determines the course of the planets. But the planets may also exert an influence on the Sun. Their configurations appear to be responsible for long-term cycles of increased solar activity. Scientists at Eawag and the ETH Zurich, in collaboration with colleagues from Spain and Australia, have compared cycles of solar magnetic activity over the past 10,000 years – as reconstructed from ice cores – with the action of the planets. The agreement observed is very striking, raising hopes that our ability to forecast periods of intense solar activity may ultimately be improved. This is becoming increasingly important as our society is ever-more dependent on technologies such as satellite communications and navigation systems – as well as power grids – which can be disabled by major solar eruptions.
http://swissinnovation.org/news/web/2012/07-121128-b0.html

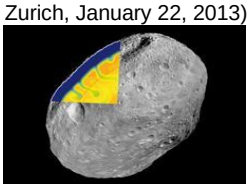
Become a "Citizen Scientist"

(ETH Zurich, January 21, 2013)

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

Asteroid With Active Past

(ETH Zurich, January 22, 2013)



While studying a meteorite from Vesta, geoscientists found evidence that planet-like dynamic processes also occurred in the asteroid. Simulations by scientist Gregor Golabek from ETH Zurich confirmed this assumption. Based on images taken by the NASA mission “Dawn”, the beholder cannot help but dismiss the asteroid Vesta as “dead” rock. However, the latest findings reveal that the asteroid with a mean diameter of about 516 kilometres has had an active past. Using mineralogical and crystallographic analyses of the meteorite Northwest Africa 5480, a so-called diogenite which came from Vesta, researchers from the Goethe University Frankfurt found evidence that similar dynamic processes to those that occur in planets initially took place inside Vesta. Numerical simulations

by geophysicist Gregor Golabek using ETH Zurich's Brutus Cluster reinforce this hypothesis.
http://swissinnovation.org/news/web/2013/07-130122-d9.html

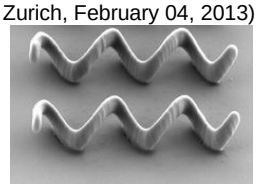
Space Transporter Albert Einstein

(Swiss Government, January 30, 2013)

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

Record Smallest Medical Robots

(ETH Zurich, February 04, 2013)



In the Multi-Scale-Robotics-Lab of the ETH Zurich, researchers are developing minuscule robots who may replace scalpels in the future and are capable of transporting drugs to a targeted location in the body. Important advances in applying the technology have now been made. The robots are controlled by magnetic fields and are modelled in a helical way, inspired by the way some bacteria move with the help of flagella. The robots also hold a record in the Guinness Book of Records 2012 for being the smallest medical robots.
http://swissinnovation.org/news/web/2013/07-130204-35.html

"Robots on Tour" in Zurich

(UZH, March 11, 2013)

On the occasion of the 25th Anniversary of the Artificial Intelligence Lab at the University of Zurich robot researchers from around the world presented their latest developments to a wide audience in Zurich . One highlight was the newest robot developed by Professor Rolf Pfeifer's team from the University of Zurich. "Roboy" has tendons and bones, just like a human. As "muscles" to move his limbs, numerous small motors are used. He can also wave and press hands, in addition to being able to speak. Another highlight was the brain-wave controlled wheelchair developed by the EPFL.
http://swissinnovation.org/news/web/2013/07-130311-94.html

8. Physics / Chemistry / Math

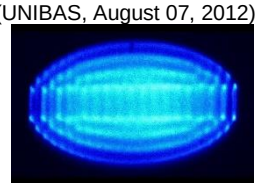
Revealing the Outer Reaches of the Universe

(EPFL, August 02, 2012)

The European Extremely Large Telescope Project (E-ELT) has officially been launched. This enormous telescope, with a diameter of nearly 40m, will be built in Chili and will include technologies developed at EPFL. The spectacular project will lop a few meters off the top of Cerro Armazones, in Chili. But it's well worth it: with the principal 39.3 m-diameter mirror, we'll be able to observe stars and galaxies – both nearby and in the far reaches of the universe - with a level of detail that is unimaginable today.
http://swissinnovation.org/news/web/2012/08-120802-b4.html

Controlled Chemical Reactions With Single Molecules

(UNIBAS, August 07, 2012)



Scientists of the University of Basel have succeeded in transferring a charge between two single localised molecules. In combination with a computer simulation, they demonstrated how Energy is converted during a chemical reaction. The results were published in the cover story of "Chemical Physics Letters". The precise control necessary was achieved by conducting the experiment in a vacuum with temperatures approximating the absolute zero point. The molecules with an electric charge were held in the field of an ion trap and fixed in a laser-cooled Coulomb crystal. The researchers further increased the precision by controlling both the vibrational energy and the rotational energy, allowing them to observe the charge transfer from a single nitrogen molecule to another.
http://swissinnovation.org/news/web/2012/08-120807-5b.html

LHC Experiment Collects Record Amount of Data

(Cern, August 08, 2012)

A higher energy level, more computing power and better software allowed the LHCb experiment at CERN to collect a record amount of data this year. It has already surpassed the amount it collected in all of 2011 and is poised to double that amount by the end of 2012. In January through July, the LHCb detector collected 1 inverse femtobarn of data, which is a measurement of the number of particle collisions recorded in the detector. An inverse femtobarn is equivalent to 70 trillion particle-producing proton-proton collisions.
http://swissinnovation.org/news/web/2012/08-120808-7a.html

Insights from LHC Experiments

(Cern, August 13, 2012)

Experiments using heavy ions at CERN's Large Hadron Collider (LHC) are advancing understanding of the primordial universe. Just after the big bang, quarks and gluons – basic building blocks of matter – were not confined inside composite particles such as protons and neutrons, as they are today. Instead, they moved freely in a state of matter known as "quark–gluon plasma". Collisions of lead ions in the LHC, the world's most powerful particle accelerator, recreate for a fleeting moment conditions similar to those of the early universe. By examining these collisions, the experiments have been able to make more precise measurements of the properties of matter under these extreme conditions.
http://swissinnovation.org/news/web/2012/08-120813-4c.html

Storing and Analyzing 25 PB of Data: A Worldwide Effort

(Cern, August 15, 2012)

Big science takes both big data and big cooperation. For the Large Hadron Collider (LHC) at CERN, storing, analyzing and accessing 25 petabytes of data each year requires a worldwide effort that spans more than 100 institutions in 36 countries. The LHC produces a million gigabytes of data every single second, too much for any single institution or computing center to handle. It's not realistic for one facility to house and analyze that much information, so to share the load, CERN outsources some of the data storage and processing to more than 150 computing centers all around the world via the Worldwide LHC Computing Grid.
http://swissinnovation.org/news/web/2012/08-120815-6d.html

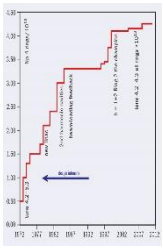
African School of Physics

(Cern, August 21, 2012)

Forty-nine students from 15 African countries plus one student from Iran are currently attending the African School of Physics 2012. The school is a unique opportunity for young African students to receive training in cutting-edge physics research. "Attending a school like this is an opportunity no student should miss. This school unlocks one's mind and we are so exposed to many exciting things happening in the world of physics. It's just amazing!" says Suzan Phumudzo Bvumbi from the University of Johannesburg, South Africa. The lecturers are experts from the US, South Africa, Ghana, France, Belgium, Sweden, Switzerland, Italy, the UK and CERN. The school receives support from a number of scientific institutions worldwide that want to support higher education in Africa.
http://swissinnovation.org/news/web/2012/08-120821-34.html

40 Year Old Proton-Synchrotron Booster of CERN

(Cern, August 23, 2012)



Originally designed to boost the performance of CERN's Proton Synchrotron in the early 1970s, the PS Booster is still operating in the LHC era with its highest availability and flexibility – far beyond its original specifications. It is a CERN tradition that new machines use existing accelerators as injectors, and the LHC is no exception. Clearly, all of the accelerators of the proton-injector chain had to undergo major upgrade programmes to be fit for the new machine. The ongoing consolidation and upgrade programme aims to operate the PSB throughout the lifetime of the LHC. This will ensure that it remains one of CERN's backbone accelerators for the foreseeable future.
http://swissinnovation.org/news/web/2012/08-120823-b0.html

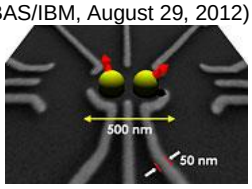
Smaller, Stronger Magnets for the HL-LHC

(Cern, August 28, 2012)

Magnet size is crucial to an accelerator as it determines the final circumference and power. This spring, Fermilab unveiled a 10.4 Tesla magnet that is shorter than the 8 Tesla magnets currently installed in the LHC. These new magnets will be a valuable asset to the HL-LHC. The success of the HL-LHC hinges on two essential conditions: the installation of more powerful magnets, and the addition of extra collimators. However, one of the key questions is how to insert additional collimators in a 27 km ring already full to bursting. The answer is to replace the current magnets by shorter but more powerful magnets. Fermilab unveiled a 10.4 Tesla 2 m long prototype magnet. Soon, an 11 m long magnet should see the light of day, improving on the existing 14 m long magnets.
http://swissinnovation.org/news/web/2012/08-120828-62.html

Unexpected Cooling Phenomena for Quantum Computing

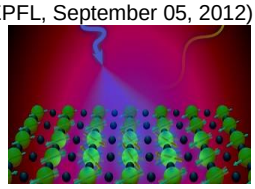
(UNIBAS/IBM, August 29, 2012)



The team around professor Dominik Zumbühl, in cooperation with the IBM research lab in Rüschlikon and the ETH Zurich, has observed that an established law of nature is violated in nanostructures at extremely low temperatures. This discovery could have important implications for the construction of a quantum computer. The previously unknown aspect of physics is, how electron spins move tens of micrometers in a semiconductor with their orientations synchronously rotating along the path similar to a couple dancing the waltz, the famous Viennese ballroom dance where couples rotate. This is an important step in the development of spin-based transistors that are electrically programmable.
http://swissinnovation.org/news/web/2012/08-120829-85.html

Using Magnetism to Understand Superconductivity

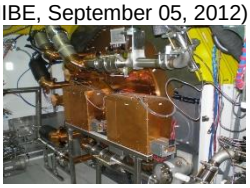
(EPFL, September 05, 2012)



Research being done in EPFL's Laboratory for Quantum Magnetism (LQM) could give physicists a tool to use in their search for new superconducting materials. There are some ceramics that are excellent insulators at room temperature but that become perfect conductors when submersed in liquid nitrogen. However, this phenomenon, known as "high temperature" superconductivity, is not at all well understood by physicists. They theorize that at these temperatures, the collective quantum magnetic properties of the atoms in the material might come into play. But studying the magnetic properties of these materials at this minuscule scale would require years of effort. Scientists from Brookhaven National Laboratory (BNL), Switzerland's Paul Scherrer Institut (PSI), and EPFL have unveiled the phenomena at work at this atomic scale.
http://swissinnovation.org/news/web/2012/08-120905-16.html

First Results on Neutrino Properties

(UNIBE, September 05, 2012)



The international project of the "Enriched Xenon Observatory" (EXO-200) includes over 80 researchers from around the globe in the search for the quantum properties of the neutrino particle. Physicists assumed that neutrinos would act differently than other particles, and were trying to observe that in the EXO-200. However, the scientists did not detect any divergent behaviour and have also found indications that the mass of neutrinos is extremely low. The Swiss scientists were involved in building the cooling system, choosing the construction materials and participated in the analysis of the data through a control room situated in Bern.
http://swissinnovation.org/news/web/2012/08-120905-7a.html

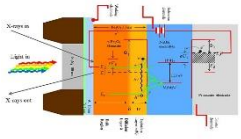
Germanium Lasers for Faster Computer Chips

(PSI, September 10, 2012)

Paul Scherrer Institute (PSI) researchers have investigated how they could make the semiconductor Germanium emit laser light. As a laser material, Germanium together with Silicon could form the basis for innovative computer chips in which information would be transferred partially in the form of light. This technology would revolutionise data streaming within chips and give a boost to the performance of electronics. The researchers have demonstrated that Germanium must be put under strain by an external force in order to turn it into a laser material. The decisive investigations were carried out by the scientists at the Swiss Light Source (SLS) at PSI and their results have recently appeared in the scientific journal 'Physical Review Letters'.
http://swissinnovation.org/news/web/2012/08-120910-10.html

Understanding Solar Hydrogen Production in Photoelectrochemical Cells

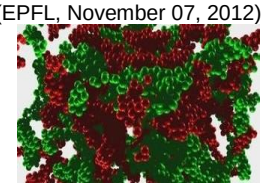
(Empa, October 29, 2012)



Hydrogen production by solar water splitting in photoelectrochemical cells (PEC) has long been considered the holy grail of sustainable energy research. Iron oxide is a promising electrode material. An international team of researchers led by Empa, the Swiss Federal Laboratories for Materials Science and Technology, have now gained in-depth insights into the electronic structure of an iron oxide electrode – while it was in operation. Their groundbreaking experiment demonstrated the formation of two different types of electron holes at the semiconductor-liquid interface under the exact conditions, at which the photocurrent arises. Quantitative analysis of their spectral signatures revealed that both types of holes, contrary to earlier speculation and historical perception, contribute to the resulting photocurrent. This opens up new possibilities for an affordable hydrogen production from solar energy.
http://swissinnovation.org/news/web/2012/08-121029-09.html

New Type of Gel with Great Potential

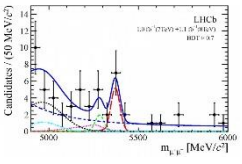
(EPFL, November 07, 2012)



Controlling and modifying at will the transparency, electrical properties, and stiffness of a gel – such are the promises of a new discovery by physicists at EPFL and the University of Cambridge. This marks an important step for materials used in healthcare, high-tech, and the cosmetics industry: from contact lenses to ink, from sensors to medical electrodes and even breast implants. The researchers have discovered how to combine two gels in such a way that they can monitor and change the properties of the new material.
http://swissinnovation.org/news/web/2012/08-121107-61.html

First Evidence for the B0s → μμ Decay

(Cern, November 12, 2012)



The LHCb Collaboration has announced the result of the branching ratio measurement of the B0s meson decay into μ+μ- pair to be (3.2+1.5-1.2)x10-9. Both experimental and theoretical physicists were impatiently waiting for this result, an important milestone of the LHCb program. The significance of the measurement is 3.5σ and therefore is classified as the first evidence for the B0s →μμ decay. The result is in agreement with the

Standard Model prediction of (3.54±0.30)x10-9. LHCb physicists had previously presented this year the lowest published limit of 4.5x10-9 for this decay, which allowed to strongly squeeze the parameters of supersymmetric extensions of the Standard Model (SUSY). The measurement presented today squeezes the parameter space even more.
http://swissinnovation.org/news/web/2012/08-121112-15.html

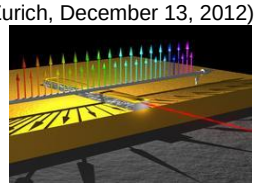
Cold Imitators Made of Light And Atoms

(ETH Zurich, November 28, 2012)

The properties of basic electronic components can be simulated with ultracold atoms that flow through structures made of laser light. This is the result of work in which scientists at ETH Zurich use a new generation of quantum experiments to explore the behaviour of electronic currents in a regime where predictions are often difficult to make. The researchers at ETH Zurich put cold lithium atoms in the role of the electrons, and channel them through tiny restrictions formed by laser light. "With our work, we extend the concept of quantum simulation towards transport phenomena", explains Jean-Philippe Brantut, one of the senior staff members involved in the project.
http://swissinnovation.org/news/web/2012/08-121128-ae.html

Cutting Light With a Comb

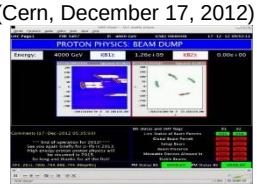
(ETH Zurich, December 13, 2012)



Quantum physicists from ETH Zurich have discovered special properties in a laser, thanks to which portable devices can be built to analyse gases and liquids accurately and reliably in the future. Together with his colleagues from the group of Jérôme Faist, professor of quantum electronics, Hugi has now discovered special properties in a very small, broadband laser, thanks to which it should be possible to build small, yet accurate, analysis devices – so-called spectrometers – with such lasers in the future. This could lead to portable measuring devices for wastewater or a device that an airport's security force can use to analyse the air in the event of a terrorist threat.
http://swissinnovation.org/news/web/2012/08-121213-d4.html

First LHC Protons Run Ends With New Milestone

(Cern, December 17, 2012)



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

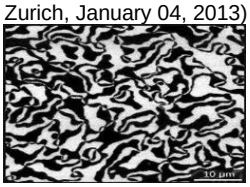
ALMA Sheds Light on Planet-Forming Gas Streams

(UNIGE, January 03, 2013)

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

Big Bang Under the Microscope

(ETH Zurich, January 04, 2013)



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

Proton Size Puzzle Reinforced!

(PSI, January 07, 2013)

An international team of scientists confirms the surprisingly small proton radius with laser spectroscopy of exotic hydrogen. The initial results puzzled the world three years ago: the size of the proton, measured in exotic hydrogen, yielded a value significantly smaller than

the one from previous investigations of regular hydrogen or electron-proton-scattering. A new measurement by the same team confirms the value of the electric charge radius and makes it possible for the first time to determine the magnetic radius of the proton via laser spectroscopy of muonic hydrogen. The experiments were carried out at the Paul Scherrer Institut (PSI), which is the only research institute in the world providing the necessary amount of muons.
http://swissinnovation.org/news/web/2013/08-130107-fe.html

Lead-Proton Run on LHC at CERN

(Cern, January 16, 2013)

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

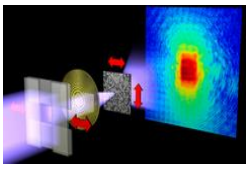
Superconductivity Leading to High Luminosity at CERN

(Cern, January 28, 2013)

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

Imaging Fluctuations with X-Ray Microscopy

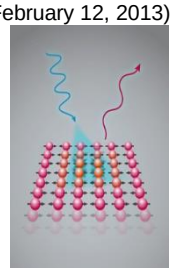
(PSI, February 07, 2013)



X-rays allow an inside look at structures that cannot be imaged using visible light. They are used to investigate nanoscale structures of objects as varied as single cells or magnetic storage media. Yet, high-resolution images impose extreme constraints on both the X ray microscope and the samples under investigation. Researchers at the Technische Universität München, and the Paul Scherrer Institut now showed how to relax these conditions without loss of image quality. They further showed how to image objects featuring fast fluctuations, such as the rapid switching events that determine the life time of data storage in magnetic materials. They demonstrated their method with an experiment at the Swiss synchrotron SLS and with computer simulations.
http://swissinnovation.org/news/web/2013/08-130207-b4.html

Superconductors with Intriguing Properties

(PSI, February 12, 2013)



PSI-Scientists demonstrate that magnetic interactions are of fundamental importance for iron-based high-temperature superconductors. For a long time, scientists and engineers have longed for a material that would conduct electricity at room temperature without any losses. More than 25 years ago scientists first discovered materials that were superconducting at relatively high temperatures: the cuprate-superconductors (copper-based superconductors). Iron-based high-temperature superconductors – a new class of materials discovered only a few years ago – also have this property. Together with Chinese and German collaborators, scientists at the Paul Scherrer Institute in Villigen (Switzerland) have now gained new insights into these superconductors. The experimental results indicate that magnetic interactions are of fundamental importance in the phenomenon of high-temperature superconductivity. This knowledge could contribute to the development of superconductors with improved technical properties in the future.
http://swissinnovation.org/news/web/2013/08-130212-e4.html

CERN Courier Goes Digital

(Cern, February 13, 2013)

The CERN Courier dates back to August 1959, when the first issue appeared, consisting of 8 black-and-white pages. Since then it has seen many changes in design and layout, leading to the current full-colour editions of more than 50 pages on average. It went on the web for the first time in October 1998, when IOP Publishing took over the production work. Now another step forward with a digital edition provides yet another means to access

the content beyond the web and print editions, which continue as before.
http://swissinnovation.org/news/web/2013/08-130213-b2.html

Ageing Process of Fuel Cells

(PSI, February 13, 2013)

Hydrogen fuel cells are an attractive technology for energy conversion, as they are considered to be a clean technology, particularly for motor cars. However, several technological challenges still need to be overcome if they are to gain a significant market presence. These include their service lifespan, which depends, amongst other things, on the robustness of the polymer membrane that acts as the electrolyte in a cell. Researchers at the Paul Scherrer Institute PSI have gained valuable insights into one of the most common mechanisms of degradation in these membranes.
http://swissinnovation.org/news/web/2013/08-130213-e7.html

New Results Back that CERN Particle Is a Higgs Boson

(CERN, March 14, 2013)

At the Moriond Conference, the ATLAS and CMS collaborations at CERN's Large Hadron Collider (LHC) presented preliminary new results that further elucidate the particle discovered last year. Having analysed two and a half times more data than was available for the discovery announcement in July, they find that the new particle is looking more and more like a Higgs boson, the particle linked to the mechanism that gives mass to elementary particles. It remains an open question, however, whether this is the Higgs boson of the Standard Model of particle physics, or possibly the lightest of several bosons predicted in some theories that go beyond the Standard Model.
http://swissinnovation.org/news/web/2013/08-130314-73.html

9. Architecture / Design

Awards for Swiss Architecture in Brasil

(ETH Zurich, August 24, 2012)

The two architecture professors of the ETH Zurich, Alfredo Brillembourg and Hubert Klumpner have been awarded with the Global Holcim Award Silver for their building in the favela Paraisópolis in São Paulo. In the previous year they had already received the Golden Regional Holcim Award for the same project. It includes a terraced public space with areas for urban agriculture, a water management system, a public amphitheater, a music school, a small concert hall, sports facilities, public spaces and transport infrastructure. It prevents further erosion and dangerous mudslides on the steep slopes and provides social and cultural infrastructure. The two architects also received the Golden Lion during the 13th architectural biennale in Venice for a similar building, the "Torre David /Gran Horizonte" in Caracas, the capital of Venezuela.
http://swissinnovation.org/news/web/2012/09-120824-36.html

Europe's Longest Building to Become Energy Efficient

(EPFL, August 27, 2012)

From above, it almost looks like part of the Great Wall of China. Lignon, a massive architectural complex built between 1963 and 1972, is now part of Geneva's cultural heritage. With a length of 1.5 km, it is the longest building in Europe and houses some 6,500 people. But the entire architectural design, audacious at the time, no longer meets contemporary energy consumption standards. The government of Geneva and the Lignon property owners' group thus approached EPFL to study options that would improve the building's energy consumption while still preserving its unique character. The resulting suggestions will enable the complex to reach a level of energy efficiency compatible with the Minergie standard, as well as reducing CO2 emissions by thousands of tons.
http://swissinnovation.org/news/web/2012/09-120827-b7.html

Pushing Natural Light into the Heart of Buildings

(EPFL, November 30, 2012)

Through a research project designed at MIT and continued at EPFL, researchers have designed windows that can bring natural light deep into a building. This technology was recently integrated into six floors of an ultra-modern building in Tokyo. The system, which is positioned on the top of the glass, must be able to collect and redirect light in the entire room. Additionally, it must prevent the sunrays from descending below the horizontal, to avoid creating glare for occupants. Following the principal of a standard window size, adequate illumination up to about 6 meters can be achieved. The new techology makes it generally possible to double that depth.
http://swissinnovation.org/news/web/2012/09-121130-de.html

Graduates of HEAD Geneva Selected at International Festival of Fashion

(HEAD, January 02, 2013)

For the second consecutive year, two graduates of HEAD Geneva have been selected at the International Festival of Fashion and Photography in Hyères. Camille Kunz and Xenia Laffely have sucessfully passed the first round by presenting the collections they were awarded their

degrees for: "The Boy vanishes pour la première" and "Tu n'auras pas d'autre icône que moi et tu mangeras ton père pour la seconde. " The two collections of the young fashion designers have already been awarded during the presentation of Fashion Design at HEAD Geneva. Camille Kunz is the winner of the Fashion Angels HEAD, and Xenia Laffely received the 2012 award of Excellence in Design Fashion from the Hans Wilsdorf Foundation.
http://swissinnovation.org/news/web/2013/09-130102-75.html

Augmented Reality by EPFL + ECAO in NYC

(EPFL, February 22, 2013)

For the first time, EPFL has been the guest of the renowned Eyebeam Art and Technology Center in New York. Throughout more than 500 square meters, the EPFL + ECAL Lab displayed its new works in augmented reality, where physical objects and digital representations were combined. The EPFL + ECAL Lab exhibited exceptional works carried out by, among others, the Designers Cem Sever, Thibault Brevet, Liron Kroll and Thomas Eberwein. The place of honor went to the Gimme More project, the Americanized version of the Give Me More exhibition, awarded the DMY International Design Festival prize in Berlin.
http://swissinnovation.org/news/web/2013/09-130222-30.html

10. Economy, Social Sciences & Humanities

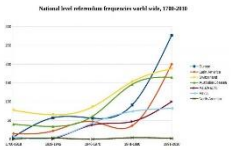
Evaluating the Significance of Banks

(ETH Zurich, August 02, 2012)

“Too central to fail” instead of “too big to fail”: whether banks pose a risk to the financial system when they get into distress has more to do with their level of networking than with their size. Economic researchers at ETH Zurich have developed a method to deduce the “systemic importance” of banks from their complex connections within financial networks.
http://swissinnovation.org/news/web/2012/10-120802-cc.html

Civil Society Profits Most from Direct Democracy

(UZH, August 16, 2012)



As more countries adopt forms of direct democracy, the amount of votings increases. The most successful initiators of such votes are not oppositional parties, who win in 24.9% of the cases, but rather civil societies with a success rate of 38.4%, as scientists of the University of Zurich discovered. Ruling parties win 31.1% of the votes they initiate.
http://swissinnovation.org/news/web/2012/10-120816-a7.html

Cogito-Prize for Research Combining Astronomy and Archaeology

(UZH, September 13, 2012)

The astronomer and archaeologist Rita Gautschy is the first woman to received the Cogito-Prize. She was awarded the prize for her research using solar and lunar eclipses to verify the antique chronologies. She used approximately one hundred eclipses recorded in neo-babylonian sources to evaluate the reliability of antique observations and calculated the time deviation caused by the variation in day length.
http://swissinnovation.org/news/web/2012/10-120913-3f.html

An Interactive Database for Antique Carved Gems

(UNIFR, October 08, 2012)

Véronique Dasen, Professor for archeology at the University of Fribourg, is working on implementing a novel approach to the research of antique relics. In collaboration with the Museum of Fine Arts in Budapest, she is going to make a database of carved gemstones available to the public. In a further step, the images of the database are going to be linked to an interactive and expandable e-book on the subject: a digital publication of the book "Studies of Magical Gems" of Campbell Bonner (1950).
http://swissinnovation.org/news/web/2012/10-121008-8b.html

Decreasing Wage Discrimination

(Swiss Government, December 21, 2012)

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

Most Important Historical Bernese Newspaper Online

(UNIBE, January 10, 2013)

The "Gazette de Berne", the most important newspaper of Berne in the 18th century, is accessible online. The library of the University of Berne provides this service online through "DigiBern". 40'000 pages can be browsed and searched interactively. The journal was published twice a week from 1689 to 1798, a single issue containing four or eight pages. The news are mostly composed of the news from foreign cities, as the events from Switzerland and Berne were

subject to a magisterial censorship. Together with the "Intelligenzblatt für die Stadt Bern", which was published from 1834 to 1922, two centuries of Bernese newspapers are accessible online. The next project is the digitalization of the issues of "Der Bund" dating from 1850 to 1994.
http://swissinnovation.org/news/web/2013/10-130110-c4.html

New Tool for Measuring Financial Risk

(UNIL, January 14, 2013)

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

Eastern Europe: Growth Rings Linked to Climate and Cultural History

(UNIBE, January 15, 2013)

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

Increasing Economic Performance by Investing in Education

(SERI, February 15, 2013)

Skills have become the global currency of 21st-century economies. People with poor skills face a much greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits. Moreover, they are 1.4 times more likely to report health problems and 1.5 times more likely to have low levels of general trust as individuals with the highest level of foundation skills. In the 2009 PISA tests of 15-year-olds, Switzerland is among the top performing OECD countries in reading (rank 14), mathematics (rank 8) and science (rank 15). Switzerland spent 6.0% of its GDP on education in 2009 (OECD average: 6.2%). In 2009, 50% of Swiss citizens participated in continuing non-formal education (OECD average: 34%).
http://swissinnovation.org/news/web/2013/10-130215-5b.html

Correlation between Bus Frequency and Passenger Number

(EPFL, February 18, 2013)

Scientists from the EPFL analyzed attendance data from bus transit. The researchers found that an increase in the frequency of lines can have double the impact on their use. As part of a research project on combined mobility launched in 2009 by PostBus and the Transportation Center at EPFL have addressed these issues. The researchers analyzed data collected over four years (2007-2010) on 147 lines in three areas served by PostBus: Valais, the east, and the north of the country. The results are clear: an increase in the rate of a route almost always results in an increase in passengers that exceeds the proportional increase. For all lines analyzed, a 7.5% increase in supply leads to an increase in passengers of nearly 15%.
http://swissinnovation.org/news/web/2013/10-130218-23.html

The Venice Time Machine: Science, Humanities And The Arts Unite

(EPFL, February 23, 2013)

EPFL and Ca' Foscari University have launched a trans-disciplinary center for education, research and public engagement in science and art in Venice. Venice itself is to become the subject of the research program Venice Time Machine – a historical and geographical simulation of the city that is one of the most well-documented in the world. The nascent project is in collaboration with Telecom Italia, the Center's first industrial partner and host for the center, offering office and lab space at its Future Center in Venice – a research center on the role of telecommunications in economic development.
http://swissinnovation.org/news/web/2013/10-130223-ac.html

How Social Networks Fail

(ETH Zurich, March 13, 2013)

Social networks can disband, if the investment an user has to make is higher than the resulting utility. This can lead to a cascade of people leaving the network, and ultimately doom the site. According to researchers from the ETH Zurich, even Facebook might not be immune to this. They investigated the decline of "Friendster", which boasted 100 million users in it's prime time. However,

the users left the network in an exponentially growing count until the network failed. The scientists found that after the redesign of the site in 2009, the users had to invest too much and got too little out of the network and chose to switch to better products offered by the competition.
http://swissinnovation.org/news/web/2013/10-130313-bf.html

Ancient Sundial Recovered

(UNIBAS, March 14, 2013)

During excavations in the Valley of the Kings in Egypt, a research team from the University of Basel found one of the oldest sundials. The artefact was recovered in the area of the stone huts, which were used by the workers in the 13th century BC. The clock may have been used to measure the working hours. The earliest sundials known from the archaeological record are the obelisks (3500 BC) and shadow clocks (1500 BC) from ancient Egyptian astronomy and Babylonian astronomy.
http://swissinnovation.org/news/web/2013/10-130314-ec.html

11. Technology Transfer / IPR / Patents

Five Years of Venture Kick Supporting Innovative Start-Ups

(Venture Kick, September 26, 2012)

The privately funded initiative venture kick, which supports innovative start-up projects, celebrates its birthday. Five years ago, a jury pool of investors and experts met for the first time to carefully evaluate promising business ideas from Swiss universities. Each month, eight projects get the chance to present themselves to a jury. The four most promising receive a grant and automatically qualify for the second round held three months later, where the two best teams receive another grant. In the third and final round, taking place six months later, the winner for a final grant is chosen. The privately funded initiative aims to double the number of spin-offs by speeding up the founding process and turning start-ups to be more attractive for investors. Since the start of the initiative in the fall of 2007, more than 245 project teams have been awarded more than CHF 9 Million in grants. This has led to the creation of nearly 200 companies, over 1600 new jobs and about CHF 300 Million in financing volumes.
http://swissinnovation.org/news/web/2012/11-120926-a0.html

Smart Micro Grid System on Wheels

(ETH Zurich, October 12, 2012)

Two students of the ETH Zurich decided to tackle this problem and created a mobile in the framework of their Master's project. After six months of development, they recently showcased the result: the “Smart Micro Grid System” (SMiG) – a compact system that goes on a trailer. What sets SMiG apart from existing systems is the possibility of controlling between eight and twenty household lines centrally by computer. At peak times, when all the lights are on and people are cooking, an automatic warning system prevents the system from being overloaded.
http://swissinnovation.org/news/web/2012/11-121012-42.html

Fynomer Protein Scaffold Technology in Demand

(bioworld.com, October 19, 2012)

Covagen AG signed its first drug discovery deal, a pact worth potentially up to US$146 million with Mitsubishi Tanabe Pharma Corp. that involves its Fynomer protein scaffold technology. Covagen was spun out from the Swiss Federal Institute of Technology Zurich (ETH Zurich) in 2007. Fynomers are low-molecular-weight protein binders that are derived from from the Src homology 3 (SH3) domain of Fyn tyrosine kinase. The molecular format is highly flexible and lends itself to the creation of different types of fusion proteins, with differing valencies. The alliance will focus on the development of bispecific antibody-Fynomer fusions, called FynomAbs, which comprise a conventional antibody fused to a pair of Fynomers.
http://swissinnovation.org/news/web/2012/11-121019-43.html

The Top 100 Startups of Switzerland

(IFJ, October 29, 2012)

For the second time, the 100 best Swiss startups have been chosen by a panel of 100 startup experts out of 100'000 new companies founded since 2007. This time, HouseTrip from Lausanne, a web platform for vacation homes, made it to the top of the ranking this year. They are followed by two startups based in Zürich: InSphero, an internationally leading supplier of micro-tissues, and GetYourGuide, the world's biggest tour and activities platform. All of the remaining featured startups are also geared towards global markets and the majority of them are representatives of the high-growth IT, life-sciences and clean-tech industries.
http://swissinnovation.org/news/web/2012/11-121029-fc.html

22 Spin-Offs from ETH Zurich in 2012

(ETH Zurich, January 07, 2013)

As concrete figures reflect, researchers are taking the plunge and striking out on their own more and more frequently. For many talented young scientists, founding their own firm constitutes an attractive alternative to a scientific

career or working in the private sector. Members of ETH Zurich founded twenty-two spin-offs last year. The number of company foundations has thus remained constantly high in the last five years. “We can now reap the fruits of all the development work we have put in recent years,” says Roland Siegwart, Vice-President of Research and Corporate Relations. The “ETH Zurich spin-off” label is well established – due in no small part to many successful young companies that have emerged from the university in recent years. Together, the spin-offs received over ten million Swiss Francs in investments.
http://swissinnovation.org/news/web/2013/11-130107-69.html

Successful Empa Spin-Off

(Empa, January 17, 2013)

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

Startups Glycemicon and Koring Win VentureKick Competition

(Venture Kick, January 28, 2013)

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

Recovery Signs for MEM Industries

(swissmem.ch, February 27, 2013)

The situation of the Swiss mechanical and electrical engineering industries (MEM industries) is showing some initial signs of recovery. While incoming orders in the MEM industries saw massive declines during the last 18 months or so, the 4th quarter of 2012 showed the first signs of recovery. According to Swissmem's quarterly statistics, incoming orders rose by 9.8% compared to the same period of the previous year. Sales figures also developed in a positive direction: revenues rose by 6.5% in the 4th quarter of 2012 and by 3% over the full twelve months. Large companies (with over 250 employees) were the main contributors to this growth. The growth in revenues at SMEs was much more sluggish. In the short term the slight increase in export prices (+0.9%) is helping businesses to increase their competitiveness.
http://swissinnovation.org/news/web/2013/11-130227-50.html

Internet Startup Realizes Partial Exit

(AlpICT, March 13, 2013)

Silp and x28, a leading technology provider in the online recruiting industry, have entered into a strategic partnership. The management team of x28 invests in the social recruiting startup and two seasoned industry experts from x28 join Silp’s board of directors. Silp, an Internet startup from Zurich, focuses on talent matching for passive candidates. Silp successfully opened its doors for candidates last August. x28 is one of the leading technology providers in the online recruiting industry and emerged 2008 out of OE GmbH (founded in 1999). x28’s technology portfolio is broad and reaches from ontologies, a semantic job search engine, and career recommender systems to spidering, extraction, and matching algorithms. These technologies perfectly complement Silp’s portfolio and allow improving the automatic aggregation of candidate profiles (crawling, extraction) as well as adding semantics to the matching.
http://swissinnovation.org/news/web/2013/11-130313-47.html

Swiss National Start-Up Team for 2013

(Venturelab, March 21, 2013)

Venturelab today announces the names of the 20 young promising entrepreneurs selected to join the Swiss National Startup team. This year again, the initiative has attracted a record number of applicants. More than 130 contenders have strived to be awarded the chance to join the team of startups that will be flown to Boston next June. The venture leaders program aims at promoting Swiss start-ups with a global potential by offering selectees a 10 day long U.S based business development program. The venture leaders program – the highlight of venturelab, the national start-up

training program – has been one of the keystones behind the success of numerous Swiss startups in the past 12 years.
http://swissinnovation.org/news/web/2013/11-130321-21.html

Strong IPR Growth in 2012

(SERI, March 25, 2013)

International filings for patents, trademarks and industrial designs under WIPO-administered intellectual property (IP) systems saw continued strong growth in 2012. In 2012, international patent applications filed under the Patent Cooperation Treaty (PCT) grew by 6.6% on 2011. With 4,194 applications, Switzerland accounted for 2.2% of the PCT applications filed in 2012 (8th slot). Chinese telecommunications company ZTE, with its 3,906 published PCT applications, was the largest filer in 2012. International trademark applications filed under the Madrid system grew by 4.1% in 2012. With 2,898 applications, Switzerland accounted for 6.6% of the Madrid applications filed in 2012 (4th slot). International industrial design applications filed under the Hague system grew by 3.3% on 2011. France, Germany and Switzerland accounted for 62.8% of total designs (Switzerland: 2,447 applications, 19.6%, 2nd slot).
http://swissinnovation.org/news/web/2013/11-130325-80.html

12. General Interest

Newly Elected CERN Council President

(Cern, September 20, 2012)

The Council elected Professor Agnieszka Zalewska as its 21st President for a period of one year renewable twice, with a mandate starting on 1 January 2013. Professor Zalewska takes over from Michel Spiro who comes to the conclusion of his three-year term at the end of December. "The coming years will be fascinating, but demanding, as we prepare the LHC for running at higher energies and implement the updated European Strategy for Particle Physics," said Zalewska. "CERN and its Council will become my only priority, and I would like to thank the Council members and outgoing President for the confidence they have placed in me."
http://swissinnovation.org/news/web/2012/12-120920-29.html

Cern Open Access Initiative Launched

(Cern, October 01, 2012)

Representatives from the science funding agencies and library communities of 29 countries are meeting at CERN to launch the SCOAP3 Open Access initiative. Open Access revolutionizes the traditional scientific publishing model with scientific papers being made freely available to all, and publishers paid directly for their indispensable peer-review services to the community. The objective of SCOAP3 is to grant unrestricted access to scientific articles appearing in scientific journals in the field of particle physics, which so far have only been available to scientists through certain university libraries, and generally unavailable to a wider public. SCOAP3 now brings Open Access to those papers.
http://swissinnovation.org/news/web/2012/12-121001-9a.html

Effective Rowing Simulator

(ETH Zurich, October 29, 2012)

The Sensory-Motor Systems Lab has announced the M3-Rowing simulator together with a survey investigating how effective the simulation is. For the survey, eight oarsmen were used. Four were chosen to train on the water, four trained with the simulation. On the beginning and the end of the survey, the performance was evaluated. As both groups performed better, the scientists of the ETH Zurich were able to prove the validity of training with the simulation they created.
http://swissinnovation.org/news/web/2012/12-121029-5a.html

Diagnosis of Glaucoma with Telemetric Sensor

(EPFL, November 06, 2012)

Specializing in the diagnosis of glaucoma, the EPFL spin-off Sensimed has just completed a major round of financing and obtained CHF 17 million. The company developed a non-invasive device based on a telemetric sensor embedded in a soft contact lens, the Triggerfish®, that enables a new treatment for glaucoma. This disease affecting around 3% of the population results in the deterioration of the field of vision and, if untreated, leads to blindness. The system provides individualized profiles in fluctuations of the interocular pressure (IOP) over 24 hours, to model and analyze. These profiles are centralized in a database with other information on the patient's health and previous treatments. Modeling algorithms then process these elements to identify disease patterns and differentiate the types of glaucoma to further customize treatment.
http://swissinnovation.org/news/web/2012/12-121106-58.html

CERN Is Granted of Observer Status to the United Nations General Assembly

(Cern, December 14, 2012)

The United Nations General Assembly in New York adopted a resolution granting CERN observer status. This status gives the Organization the right to participate in the work of the General Assembly and to attend its sessions as an observer. The resolution to grant observer status to CERN was submitted by the Organization's two Host States, Switzerland and France, and was supported by its eighteen other Member States as well as by several non-Member States. The main factor behind it was that CERN's activities cover areas of considerable interest to the

General Assembly. CERN and the United Nations are both actively involved in disseminating knowledge in the fields of science and technology, particularly with a view to development.
http://swissinnovation.org/news/web/2012/12-121214-20.html

TIME Honours Fabiola Gianotti and the Higgs-Like Boson

(Cern, December 19, 2012)

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

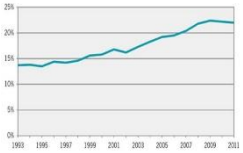
EmpaNews available for iPad

(Empa, December 20, 2012)

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

Increased Employment in Science & Technology

(SERI, February 23, 2013)



MONET is a system of indicators designed to measure progress towards sustainable development in Switzerland. Sustainable development implies in particular that the economic efficiency of a society and its productive, social and human capital are maintained or improved over time. According to MONET, the key indicator 'human resources in science and technology' is on the right track: The percentage of people educated and working in scientific and technical fields has grown steadily since the 1990s. In 2011, some 962,000 people had training and employment in scientific and technical fields, which corresponds to more than one fifth of working persons (22.0%, from 13.7% in 1993). This shows how well Switzerland is adjusting to increased competition worldwide. Switzerland is therefore slightly above the average of EU-27 countries (20.5%).
http://swissinnovation.org/news/web/2013/12-130223-d2.html

Swiss Public Finances 2011-2014: Balanced Accounts

(Swiss Government, February 28, 2013)

The public finance situation recovered slightly in 2011. The overall fiscal balance of the general government is set to remain more or less at breakeven in 2012 despite the economic slowdown. The Confederation, social security funds, cantons and communes should post balanced accounts in 2013. The overall fiscal balance of the general government should improve again from 2014 onward. Moreover, the debt ratio should continue to decline in all sectors over the next few years. Between 2010 and 2011, the general government's deficit/surplus ratio increased by 0.1 percentage points, and reached 0.3% of nominal GDP. The communes and cantons posted negative results, while the Confederation and social security funds achieved surpluses. This improvement was due primarily to the additional disability insurance receipts from VAT and the revision of the Unemployment Insurance Act.
http://swissinnovation.org/news/web/2013/12-130228-43.html

Positive Trends for Gender Equality

(Swiss Government, March 04, 2013)

The educational level of women and men is trending towards equality while career and study choices remain gender-specific. The economic activity rate of women has risen considerably, in particular through part-time work. However the share of managerial and supervisory positions held by women has stagnated at around a third. Men are more likely to be victims of violence in the public sphere; women on the other hand suffer more from domestic violence. These are findings from the Federal Statistical Office's (FSO) gender equality indicators.
http://swissinnovation.org/news/web/2013/12-130304-d9.html

13. Calls for Grants/Awards

Master Program Ecology for International BA Students

(UZH, October 23, 2012)

The Master Program Ecology at University of Zurich invites all international Biology Bachelor students to apply now for the new structured route that starts with the fall term 2013. In the program one can learn about the links between organisms, populations, communities, and ecosystems. These links, which include processes such as predation, mutualism, and parasitism, determine how environmental change will impact

ecological communities, and the services that humans derive from them.
http://swissinnovation.org/news/web/2012/13-121023-56.html

Education and Research in Humanitarian Action Offered in English

(UNIGE, October 29, 2012)

The Geneva Centre for Education and Research in Humanitarian Action (CERAH) has reformed it's educational system and now offers all courses in English. Most notable are the six new Certificates of Advanced Studies (CAS), which will be held between February and May 2013. These seven-week courses will focus on Strategic Development and Management of Humanitarian Action; Health in Humanitarian Emergencies; Communication and Advocacy for Humanitarian Projects; Legal Environment of Humanitarian Action; Disaster Management; Human Resources Management in Humanitarian Settings.
http://swissinnovation.org/news/web/2012/13-121029-c0.html

SwissLitho And Flatev Awarded Final Venture Kick

(Venture Kick, November 08, 2012)

Two Zürich based start-ups are the new beneficiaries of the final grant by Venture Kick, receiving CHF 130,000. The ETH Zurich spin-off SwissLitho can produce the smallest nanostructures in the world with its “NanoFrazor” product and is in the Guinness World Record book with its innovation. The company has already built the smallest Matterhorn and the smallest 3D world map. The young company Flatev develops a new capsule machine to make fresh tortillas at the push of a button. The tortillas are prepared in 35 seconds, similar to how capsule coffee is made.
http://swissinnovation.org/news/web/2012/13-121108-5a.html

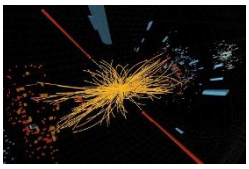
International Exploratory Workshops

(SNSF, November 11, 2012)

The International Exploratory Workshops of the Swiss National Science Foundation (SNSF) enable researchers working in Switzerland to organise workshops with partners from abroad. The workshops can last between two and five days. Up to 30 participants from different institutions can participate. The SNSF will fund a maximum of ten researchers. The seminar is to take place in Switzerland, but exceptions can be granted if justified. The call for this funding instrument is always open, however there are three cut-off dates per year when the evaluation process begins. The next cut-off dates are: 06 March 2013; 05 June 2013; 09 October 2013.
http://swissinnovation.org/news/web/2012/13-121111-f3.html

New Horizons in Physics Prize Awarded to ETH Zurich

(ETH Zurich & Cern, December 13, 2012)



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

Apply now for Google Science Fair 2013

(Cern, January 01, 2013)

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

English Master Program in Health Sciences at the University of Lucerne

(UNILU, January 30, 2013)

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

Win a 10-Day Startup Development Program in Boston

(Venture Kick, January 31, 2013)

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

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

Apply for Summer Programs of the Graduate Institute in Geneva

(GIG, February 04, 2013)

The applications are open for the Graduate Institute Summer Programmes to be offered at the Institute in June and July 2013. Participants wishing to take advantage of the unique opportunity to study international affairs in Geneva during Summer can apply now. The following courses are offered: Summer Programme on International Affairs and Multilateral Governance, June 24 to July 12, 2013. Summer Programme on the WTO, International Trade and Development, July 1 to July 12, 2013. Both programmes are delivered by regular faculty and include visits and meetings with senior officials from Geneva-based international organisations. Participants can earn up to 9 European credits.
http://swissinnovation.org/news/web/2013/13-130204-f3.html

Apply for 2013 International Create Challenge

(AlpICT, February 05, 2013)

The goal of the 2013 International Create Challenge (ICC'2013) is to foster the creation of start-ups within the framework of Human & Media Computing. The ICC'2013 is an initiative supported by the National Centre of Competence in Research (NCCR) on Interactive Multimodal Information Management (IM2, www.im2.ch), via its association (AIM2), and the Idiap Research Institute (Idiap, www.idiap.ch). The ICC'2013 is a free of charge 3-week immersive technology transfer accelerator program giving entrepreneurs the unique opportunity to develop their original idea towards a "Minimum Viable Product" (e.g., demonstrator, product prototype) in collaboration with groups of entrepreneurs and researchers. The ICC'2013 combines the availability of state-of-the-art technologies, cutting edge research, mentor-led coaching, and micro-seed investment. Application deadline is June 14, 2013.
http://swissinnovation.org/news/web/2013/13-130205-7a.html

Apply Now for Geneva Summer Schools 2013

(UNIGE, March 01, 2013)

The University of Geneva is pleased to announce the Geneva Summer Schools 2013 course offering. Course enrollment is now open. The Geneva Summer Schools are a great opportunity to take short-term courses at a renowned university and to experience life in an international city! All courses are taught in English, and students may receive ECTS credits for their participation. The courses are designed for upper-year undergraduates or Master's degree students, but PhD students are also welcome to apply. The Geneva Summer Schools 2013 course offering includes the following 6 courses: Understanding Global Governance, International Law, Global Health and Human Rights, Cultural Heritage Law: Past, Present, Future, New Trends in 18th-Century Criticism, and International Education Policy and Governance.
http://swissinnovation.org/news/web/2013/13-130301-6d.html

Life Science Career Day 2013

(UNIL, March 12, 2013)

The UNIL will host the second edition of the Life Science Career Day on May 3, 2013. On this day, scientists from diverse backgrounds will share their professional careers. Several themes will be on display, including research, journalism, start-ups, intellectual property, sustainable development, agri-food and health, non-governmental organizations. This event is organized by the School of Biology and the Graduate School of FBM in collaboration with the Geneva Graduate School of Neuroscience.
http://swissinnovation.org/news/web/2013/13-130312-46.html

Swiss NanoConvention 2013 in Basel

(Empa, March 12, 2013)

The Swiss NanoConvention 2013 in Basel is the prime showcase for nanotechnology in Switzerland, jointly organized by the «who-is-who» in the Swiss nano scene. It is the venue for meeting the great minds in nanoscience and -technology. It will be held from May 23-24, 2013 at Messe Basel. The Swiss NanoConvention brings together Swiss and international leaders from science and industry in the field of «nano», key figures in innovation and technology, entrepreneurs, investors, administrators and politicians. The Swiss NanoConvention is a platform for connecting people, networking, debating and exchanging ideas – or even generating new ones. Key players are able to gather the best available information on the potential, but also on the risks of one of the key emerging technologies of the 21st century, and its opportunities for innovative technologies, products and services.
http://swissinnovation.org/news/web/2013/13-130312-29.html

Apply for the «Prix Média» 2013

(Swiss Academies, March 21, 2013)

It is the aim of the Swiss Academies of Arts and Sciences to advance the dialogue between science and society. With the «Prix Média», they support journalists and researchers who make complex subjects accessible to a wider audience. The amount of CHF 10'000.- is awarded annually in each of four disciplines: human and social sciences, natural sciences, medicine and engineering sciences. The Swiss Academies of Arts and Sciences price media publications of outstanding quality that are easily understandable and have been published in a Swiss medium appearing on a regular basis. Full consideration is given to publications that appeared

between 16 June 2012 and 15 June 2013, and closing date is on 15 June 2013.
http://swissinnovation.org/news/web/2013/13-130321-ad.html