



## Science-Switzerland, June – July 2010

News on Swiss science, technology, education and innovation

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### R&D Expenditure In 2008 At New Record

(admin.ch, June 14, 2010)

According to the Federal Statistical Office, private enterprise, the Swiss government and the universities spent CHF 16.3 billion on R&D activities in 2008, setting a new record in Switzerland. This is an increase of CHF 3.2 billion (+24%) over 2004. This R&D expenditure accounts for 3% of the Gross Domestic Product (GDP), making Switzerland a country that is particularly active in the area of R&D. The commitment of private businesses with a total of almost CHF 12 billion is the driving force behind R&D activities in Switzerland. The second significant player is the higher education sector, which spent slightly more than CHF 3.9 billion. Although the government is only of secondary importance in the execution of R&D in Switzerland, it is very important for the funding of this type of activity (CHF 3.2 billion).

<http://tinyurl.com/00-100614a>

### 83% Of Swiss People Are Interested In Science

(ePresse – Le Temps, July 07, 2010)

The 2010 Eurobarometer survey reported that 83% of 1'021 persons polled in Switzerland admit to be interested in scientific matters. However, only 64% consider themselves well informed of scientific advances. This should thus encourage media to spread such news more intensively and for special science events to be organized by institutes and universities more often. This survey gives a positive indication in terms of the interest that Swiss – and Europeans – show towards science, especially its importance for the young generation. The Swiss support basic mainstream opinions but their skepticism about technological progress is above average.

<http://tinyurl.com/00-100707a>

### First Night Flight For Swiss Solar Plane

(swisster.ch – Solar Impulse, July 08, 2010)

André Borschberg, pilot and co-founder of the Solar Impulse project with Bertrand Piccard, successfully landed an experimental solar-powered plane following a 26-hour flight through the night, marking a crucial milestone in the Swiss team's goal to circle the world in a similar aircraft. This test flight shows that the plane can remain in the air indefinitely. The next step will be to fly the plane on a full day-night-day cycle. The HB-SIA prototype plane weighs just 1'600 kilograms and has a 63-meter wing span . The four engines are powered by electricity produced from 12'000 solar cells located in panels on the wings. The plane also incorporates half a ton of high-tech batteries that can store the solar energy for use at night.

<http://tinyurl.com/00-100708>



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## 1. Policy

### Subsidy For “Cleantech” Innovation

(OPET, June 01, 2010)

The need for clean technologies is of highest importance for Switzerland and has a tremendous economic potential. In order to promote “cleantech” projects, the Federal Office for Professional Education and Technology (OPET) has launched a cleantech innovation subsidy, which is one of the measures of President Doris Leuthard’s policy to foster Switzerland’s innovation capacity. The grant will be awarded by the Commission on Technology and Innovation (CTI). It aims at facilitating new partnerships between small and medium-sized enterprises (SME) and researchers who are active in Swiss universities. CHF 1 million has been allocated to the project.

<http://tinyurl.com/01-100601>

### International Graduates To Get Access To Local Job Market

(20min, June 07, 2010)

Foreigners who graduated from a Swiss university will have easier access to the local job market. The Parliament has decided to debate on this sensitive fact. Many regret that highly-qualified graduates are “lost” after so much money and efforts have been invested in their education. Following the discussions, a revision of the actual law is underway. In the future, foreigners with a Swiss university degree will be allowed to stay for six months in Switzerland after they’ve completed their studies in order to find a gainful employment.

<http://tinyurl.com/01-100607>

### International Strategy In Education, Research And Innovation

(admin.ch, June 20, 2010)

The Federal Council has adopted its new international strategy in terms of education, research and innovation (ERI) for the years to come. The Council aims to consolidate the country’s international competitiveness by distancing itself in the above fields. It also seeks to show itself to best advantage to be part of the global ERI group, proving to keep its status as one of the world’s most innovative countries. Three priorities have been defined: firstly, reinforce and extend international networks; secondly, support the exportation of education and the importation of talents to strengthen Switzerland’s scientific position; thirdly, promote the international recognition of Swiss education degrees.

<http://tinyurl.com/01-100620>

### Swiss Top Position In EU’s Research Program

(SNSF, June 24, 2010)

An analysis on the allocated funds for the next three years in the frame of the 7<sup>th</sup> European Research Program (ERP) tends to show that Switzerland’s research will keep its rank in the leading pack of the European competition, hoping to receive even more money than during the 6<sup>th</sup> ERP. Switzerland’s promotion for high-level fundamental research is positively rated by Europe’s Research Council.

<http://tinyurl.com/01-100624>

### 8 New National Research Programs

(SNSF, July 01, 2010)

The Swiss National Science Foundation (SNSF) will launch eight new National Research Programs (NRP): four in life sciences (chemical biology, renal function control, synaptic mechanisms of mental illnesses, membranous proteins as potential targets for the development of medical substances), three in the technological domain (robotics, quantum technologies, ultra fast molecular processes technologies) and one oriented on social sciences (vulnerability control over life’s course). The NRPs will be conducted in four cantonal universities and also in the two federal institutes of technology (EPFL and ETH Zurich). From 2010 to 2013, the Confederation will invest CHF 30 million every year.

<http://tinyurl.com/01-100701>

### Swiss Projects For Eastern Europe

(swissinfo.ch, July 09, 2010)

In 2006, the Swiss population voted positively to grant CHF 1 billion to East-European countries as part of the contribution of Switzerland to the enlargement of the EU. A vast number of projects have been initiated in diverse countries such as Poland and Estonia. For example, an Aarau-based company Trüb AG delivers digital identity cards and therefore digital signatures in Estonia. Switzerland also contributes to fight against crime in Estonia by implementing its knowledge and technology in this field, notably using “Virtobot”. This robot was designed at the University of Bern and can perform autopsies and delivers highly-precise 3-D pictures of corpses.

<http://tinyurl.com/01-100709>



## 2. Education

### Swiss Graduates Successful On Job

(news.admin.ch, May 31, 2010)

Approximately one year after obtaining their degree, more than two thirds of employed university graduates are successful professionally and almost nine out of ten view their jobs positively, irrespective of their objective employment conditions. These are the main findings of an analysis of professional success presented by the Federal Statistical Office (FSO), which also addresses current issues relating to universities such as the Bologna reform, the internationality and finances of universities, as well as student mobility.

<http://tinyurl.com/02-100531>

### Bologna Reform Extends Duration Of Studies

(ePresse – 20min, June 01, 2010)

Ten years after the introduction of the Bologna reform, studies tend to last longer than in the old system. The exchange rate among students has only slightly risen and a lot of doubt still remains concerning the promised increase in efficiency. A study from the Federal Office of Statistics shows that studies last approximately 6.3 years, about three months more than in the previous system. These results face criticisms from the politicians who are demanding more means to tackle those observations.

<http://tinyurl.com/02-100601a>

### Attractive Academia Despite Longer Studies

(ePresse – NZZ, June 01, 2010)

The Federal Office for Statistics reports the satisfaction of recent graduates. A 2007 poll constituted the core data for the studies, where 68% of the young alumni considered themselves as successful when taking into account salary, responsibility, job security, adequacy of the education, etc. Such a trend seems to be confirmed among all who have decided on an academic degree; and this concerns a growing part of the young generation. In 2008, 20% of newcomers for the bachelor's degree in universities came from abroad; this percentage rises to 45% for subsequent degrees (master, PhD). Foreign students accounted for 15.7% of all students. The duration of studies is about 4.1 years for the bachelor and 2.2 years for the master. The report shows a global tendency of a rising number of academic graduates, which proves to correspond to the situation of the job market.

<http://tinyurl.com/02-100601b>

### PhD Is A Rewarding Education

(ePresse – Berner Zeitung, June 08, 2010)

A study emanating from the University of Bern shows that the PhD is a worthwhile time investment for one's professional future. This conclusion can explain the increase of PhD candidates in the country, where Switzerland holds a leading position internationally. The question then arises as to whether or not the job market is ready to welcome such an inflow of highly-qualified graduates. Results show that only 3.4% of the 1,329 of the questioned people were not employed at the time of the study, but 20% of them were actually looking for a job. A central pre-occupation also concerns the job adequacy between qualifications and accomplished tasks; in this domain, more than 75% of graduates admit to be satisfied.

<http://tinyurl.com/02-100608>

### 6% Increase In Number Of Students

(admin.ch, June 22, 2010)

Almost 197,000 students frequented Swiss higher education institutes during the fall semester 2009/10. Compared to the previous year, this represents a 6% increase, which can be notably explained by the rising number of masters programs proposed. In universities, the number of women reached 50% of all students. Concerning foreign students, they accounted for 26% of all universities' students (+9.5% compared to 2008/09). Taking a look at PhD candidates, they were more than 20,000 of them; their number steeply increased in the last decade (+49%). Social sciences still attracted the biggest number of students (34%), followed by natural and exact sciences (17%), economic sciences (15%) and law (12%).

<http://tinyurl.com/02-100622>

### Four Medals For Switzerland At The International Biology Olympiads

(UNIBE, July 20, 2010)

Four young biologists from different Swiss high schools have won one silver and three bronze medals at the International Biology Olympiads (IBO), which took place in South Korea. With more than 200 participants from sixty nations, the competition was fierce and the level extremely high. On the experimental side for example, students were asked to determine the genotype of a plant using molecular biology or to measure the protein concentration and



enzymes activities in plant extracts using photo spectrometry. Switzerland has taken part in the IBO since 1999 and this is the third year in a row that the country brings four medals back home.

[www.olympiads.ch](http://www.olympiads.ch)

### Student Initiative For Uniformed Scholarships

(ePresse – AGEFI, July 21, 2010)

The Union of Swiss Students (USS) has launched its initiative for a harmonization of scholarships. The actual situation is very different from canton to canton and the USS would like to make regimes uniform among cantons, therefore guaranteeing equal chances for every students independently of their canton of origin. For example, the average amount for scholarships in the canton of Jura is CHF 87 whereas it reaches only CHF 17 in the canton of Schaffhausen. The USS has until January 2012 to collect the required 100'000 signatures.

<http://tinyurl.com/02-100721>

### More Female Professors At Swiss Universities

(ePresse – L'Express, July 30, 2010)

Although female professors are still outnumbered by their male counterparts at Swiss universities, the gap is getting smaller and smaller. In the last decade, the number of female professors has more than doubled to reach 574 in 2009 (16.4%). In other universities' positions, their number was also multiplied by a factor more than two. Most of the female professors are teaching human and social sciences and they represent 9% of all professors in the technical sciences domain.

<http://tinyurl.com/02-100730>

## 3. Life Science / Health Care

### Multi-Tasking Protein Discovered

(UNIGE, June 03, 2010)

Protecting DNA and working for the cell are the two main goals of an adaptable protein whose various facets have been discovered by David Shore's team at the University of Geneva. Apart from also protecting chromosome's ends, this molecule modulates gene expression and influences the activity of other modulating genes. Since proteins are vital to life, scientists are interested in unveiling the mechanisms that control their production within cells. This focused interest led the researchers from Geneva to discover a surprising multi-tasking protein in yeast. Since yeast is a singled-celled fungus which works like a mammal cell while being easier to manipulate, this discovery could lead to advances in gene's control in human cells.

<http://tinyurl.com/03-100603a>

### Precise Imaging To Explain Mental Deficiencies

(ePresse – Hebdo, June 03, 2010)

Cherine Fahim from the University of Lausanne scrutinized the grey matter of patients who suffer intellectual deficiencies. She concluded that even a few cm<sup>3</sup> less of grey matter could provoke mental retardation. She took a closer look at brains' morphologies using anatomic Magnetic Resonance Imaging (aMRI) to study three different deficiencies: autism, the X syndrome and Williams' syndrome. Thanks to very precise 3-D images of brain slices, it was observed that deficient patients have different thicknesses of neuronal matter compared to "normal" patients. A possible explanation could lie in the natural "pruning" process where redundant neurones are eliminated. In patients with deficiencies, the "pruning" could not be done properly, overloading the brain with data. Further observations could also lead to a biological explanation for why some patients have difficulties establishing social contacts.

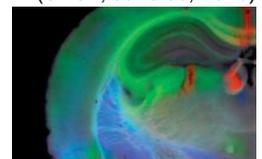
<http://tinyurl.com/03-100603b>

### New Method To Observe Brain Circuits

(SNSF, June 06, 2010)

The brain is a gigantic computer composed of billions of nerve cells which network to form sophisticated circuits. Researchers from the National Centre of Competence in Research (NCCR) Genetics at the Friedrich Miescher Institute in Basel have now developed a technique that can display these circuits. Genetically modified viruses allow researchers to identify specific networks of nerve cells in the brain. This technique will allow scientists to distinguish which cells constitute a circuit and which roles the different cells have.

<http://tinyurl.com/03-100606a>





## Improved Antibiotics To Fight Against Pathogenic Agents

(Horizonte Mag., June 06, 2010)

Infectious diseases account for the biggest challenge in health care. An increasing number of disease agents become more resistant to known antibiotics. Thus, research has to find new ways of fighting against those pathogenic cells. Researchers from the University of Zurich have apparently come up with a new class of antibiotics that are more effective against strains of *Pseudomonas aeruginosa*. Even though infections from *Pseudomonas* bacteria are relatively harmless for most people, they can be lethal for patients with weak immune systems. Prof. John Robinson's group has therefore opened a breach in the fight against this type of bacteria, for which the latest antibiotics were developed twenty years ago.

<http://tinyurl.com/03-100606b>

## Fungus To Boost Rice Growth

(myScience.ch – UNIL, June 11, 2010)

To survive and to optimize their growth, most plants establish symbiotic associations with special types of fungus. However, some crops like rice have a very modest or even inexistent response to an inoculation from such organisms. Researchers from the University of Lausanne (UNIL) managed to stimulate this response by naturally manipulating the genetics of the fungus and thereby increasing the growth of rice by a factor five. This study is a promising step to boost the production of crops such as rice or manioc which were considered as "capital" in terms of alimentary safety by the UN. The use of fungus is also an interesting ecological alternative to intensive phosphate fertilizers and is an GMO-free approach.

<http://tinyurl.com/03-100611a>



## Breakthrough In Golden Staphylococcus' Defence Mechanism

(UNIGE, June 11, 2010)

For 40 years, a barrier has impeded scientists from studying virulence factors that make the golden staphylococcus so dreadful. A team of researchers from the University of Geneva, in collaboration with the Hôpitaux Universitaires de Genève (HUG), has found a means to remove this obstacle. This discovery is a step forward in the fight against this bacteria which is feared for his capacity to develop multiple resistance to antibiotics. The golden staphylococcus, being present in the bodies of about 30% the population, is the source of serious infections, some of them lethal. These infections are normally treated with antibiotics but in half of the cases, the evolution of the infections is problematic since strains develop a resistance to a widespread type of antibiotics.

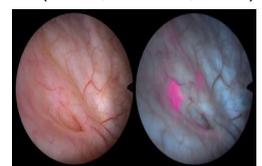
<http://tinyurl.com/03-100611b>

## New Method For Bladder Cancer Detection

(EPFL, June 11, 2010)

Researchers at the EPFL have established a procedure where cancerous tumors in the bladder become fluorescent and are more easily discoverable under blue light. Bladder cancer is the fourth most common cancer in men and the eighth most common in women in the U.S. Being extremely difficult to detect in its early stages, even by the trained eye of a urologist, the importance of increasing its detection is paramount for the complete removal of the tumors which helps to delay tumor recurrence. The procedure drastically helps diagnostics and surgical removal. In the future, similar procedures could be used for colon cancer or other tumors found in the hollow organs.

<http://tinyurl.com/03-100611e>



## Drug Delivery Nanoparticles

(myScience, June 14, 2010)

Thanks to nanotechnologies, it is now possible to build microcapsules and convey them in the body where they release drugs in the most effective way. These small gel particles can be controlled in size and orientation from outside a patient's body. This is a promising advance combining magnetic and temperature sensitive materials that scientists from Fribourg have developed. The nucleus of a single particle is coated with a micro gel polymer network which swells with water depending on the temperature.

<http://tinyurl.com/03-100614>

## Improved Therapy Of Salmonella Infections

(ETH Zurich, June 16, 2010)

The microbiologist Prof. Hardt from ETH Zurich has patented an alternative and enhanced probiotic *Escherichia coli* (*E. coli*) strains with increased competitive properties against diarrhea-causing Salmonella strains. *E. coli*



strains are often observed in high numbers in the faeces of humans and mice suffering from *S. Typhimurium* diarrhea. During therapeutic treatment of an infected individual with the probiotic of interest, gene transfer is likely to occur. Natural selection will automatically enhance the growth of those clones which have acquired beneficial additional genetic information. These clones with improved properties can be isolated easily from the faeces of the treated individual without gene technology. The method can be developed for humans applications as well.

<http://tinyurl.com/03-100616>

### Alexander-Von-Humboldt Prize At ETH Zurich

The ETH Zurich Prof. Ulrike Kutay has been awarded the Alexander-von-Humboldt Prize with a total prize money of EUR 5 million. Together with her team, she focuses on the structure, functions and dynamics of the nucleus of eukaryote-cells. For example, she studies how the envelope of a cell builds itself before mitosis (cell division). She is world-famous for her research on the transport of bulky molecules through the nucleus. The prize is awarded by the German federal ministry for education and research to scientists who are active abroad and plan to continue research in Germany in the future.

(ETH Life, June 16, 2010)



<http://tinyurl.com/03-100616b>

### New Medicine To Treat Leukemia Patients

After several clinical trials, the Tasigna drug reduces leukemia-causing protein faster than the Glivec (the actual widespread medicine), resulting in lower rates of cancer progression even as early as 12 months. Regulatory submissions are under way worldwide, with applications currently filed in the EU, Switzerland and Japan, after the U.S. Food and Drug Administration (FDA) approved Novartis' newly developed treatment for patients diagnosed with chronic myeloid leukemia, providing a major advance for people with this blood cancer.

<http://tinyurl.com/03-100618a>

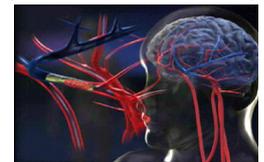
(myScience.ch – Novartis, June 18, 2010)

### Real-Time Detection Of Embolism In Blood Flux

Prof Cédric Bornand from the Engineering and Management School VD (HEIG-VD), together with the ABMI company and Fribourg's School of Engineers and Architects, has developed an instrument which can control the brain's perfusion and detect embolisms (air or solid) in blood. ABMI's device emits impulses and records the echo, which is analyzed to output the blood's flux composition. The core innovation of the NEUROMON project lies in its algorithm which allows a real-time classification of solid and gaseous particles. The device is easily portable and can thus be used in ambulances.

<http://tinyurl.com/03-100618b>

(HEIG-VD, June 18, 2010)



### Biotech And Medtech Companies Rank In Top Position

The actual period is favorable for Swiss biotech and medtech companies. The Swiss Biotech Association reports that enterprises have generated more than CHF 9 billion in 2009 and employed more than 19,000 people, a 20% increase in comparison to 2006. With its leading-edge research in its universities and federal institutes of technology (EPFL and ETH Zurich), this propitious environment creates a fertile soil for young firms to grow and technology transfer to take place. In 2008, Switzerland had more than 250 biotech companies which ranked at Europe's fifth position; it also has the highest concentration of biotech companies in comparison to its GDP and its population. Concerning medtech firms, Switzerland is home to about 500 of them, the majority having a turnover of less than CHF 5 million. Around 45,000 are employed in this sector, ranking the country at the top place in Europe.

<http://tinyurl.com/03-100622>

(ePresse – AGEFI, June 22, 2010)

### P4 Highest-Security Lab To Study Lethal Viruses

Switzerland has inaugurated a new high-security biological complex where lethal viruses such as Ebola, Marburg or Lassa will be studied. In effect, three goals will be pursued: diagnose the presence of the most infectious human pathogenic agents, train specialists and conduct researches to develop tests for known microbes as well as for those which have not yet been identified. This P4 center – the highest in security standards – will cultivate viruses and use guinea-pigs for experiments.

<http://tinyurl.com/03-100624a>

(ePresse – Le Temps, June 24, 2010)

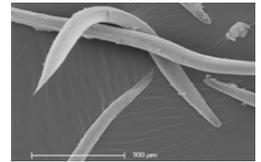


## Micro Worms To Protect Corn

Every year, leaf beetles cause more than USD 1 billion-worth of damages; in Europe where it has existed for twenty years, financial consequences could also be important. The diseased corn can defend itself by emitting a specific odorous message that entices natural enemies – small worms called nematodes – of the devastating agents. In an effort to yield a more efficient process, researchers from the University of Neuchâtel have succeeded in increasing nematodes' reaction speed by following a thorough selection process. Open-fields experiments in Hungary concurred lab tests.

<http://tinyurl.com/03-100625b>

(UNINE, June 25, 2010)



## Genetic Engineering To Fight Blindness

Physicians from Basel and Lausanne have used genetic engineering to cure retinitis pigmentosa, the number one cause of hereditary adult blindness in economically developed countries. Scientists restore vision introducing a bacterial protein into the remaining but non-functional cone photoreceptors of the retina of mice. This process does not only reactivate the cone cells' ability to interact with the rest of the visual system, it also prompts sophisticated visually guided behavior. In fact, this protein restarts a cascade of mechanisms similar to those of a retina to convert luminous stimuli into nervous messages. The scientists were able to validate their results in light insensitive human retinas in vitro, which were able to respond to light again after treatment.

<http://tinyurl.com/03-100625d>

(ePresse – Le Temps, June 25, 2010)

## Bacteria To Explain Intestinal Flora

Researchers from the University of Bern have made new findings on the intestine immune system with the help of a self-grown bacteria. It does not only react to disease agents but also to harmless bacteria in the intestine itself. The underlying mechanisms of this behavior are explained by scientists who use a bacteria with special properties that colonize the intestine before disappearing from the body. The mutant agents induce the same immune response in the intestine that normal bacteria do, but they are incapable of reproduction. On one hand the immune system of the intestine can determine how strong an antibody response will be and on the other hand that it is oblivious to an appropriate antibody response. This fosters the development of specific inoculation substances.

<http://tinyurl.com/03-100625e>

(UNIBE, June 25, 2010)



## Proton Pump Generates Energy From Food And Oxygen

Experiments performed at the Paul Scherrer Institute clarify an important step in how energy is gained from food. A central process in any living organism is that food reacts with oxygen from the air and, in the process, energy is released that is used for the production of a substance known as Adenosine triphosphate (ATP). ATP can store this energy and distribute it throughout the whole organism. Until recently, it was not known how protons are transported across a membrane within the cell. Scientists determined the structure of the responsible molecule and used this result to show that part of the molecule acts as a tiny piston, pushing protons through the membrane.

<http://tinyurl.com/03-100628>

(PSI, June 28, 2010)

## Intelligent UV Sun Cream Filter

The Zurich-based start-up Blueshift, winner of the Venture Prize co-organized by McKinsey and ETH Zurich, has developed an innovative cream which adapts itself according to the intensity of sun rays. Bernd Walzel and Daniel Fitzgerald succeeded in finding an intelligent filter whose components induce a photochemical reaction that modifies the filter's protection index from 15 to 30. The outlook is interesting since the solar market represents CHF 2.1 billion and increases by 8-10% every year. Norway and Switzerland are also the European countries with the highest number melanoma detected each year.

<http://tinyurl.com/03-100629>

(ePresse - Le Temps, June 29, 2010)

## Online Check For Skin Cancer

Skin cancer is the most common cancer affliction in Switzerland. A new online check should help to diagnose the disease in its early stages. By self-checking, beauty spots are verified via internet by dermatologists. This control is lead by Prof. Reinhard Dummer of Zurich's University Hospital.

[www.skincheck.ch](http://www.skincheck.ch)

(SF, June 29, 2010)



### Insulin Patch For Diabetics

(Le Temps, June 29, 2010)

Until now, the most widespread treatment against diabetes was an insulin injection using a syringe. Thus, many companies have focused on the development of an insulin patch to cure what experts tend to consider an epidemic. This is what the Swiss-based firm CeQur has been doing: it has produced a half millimeter thick patch that can continuously diffuse insulin without requiring a battery. The system consists of a button that, when pressed, triggers a small needle to periodically enter the skin to induce catheterization subcutaneously way. It is estimated that 230 million people suffer from diabetes all over the world.

<http://tinyurl.com/03-100629b>

### Bone Cotton Wool For Bone Regeneration

(ETH transfer, June 29, 2010)

Given the world's demographic shift towards an older population, an inevitable rise of orthopedic injuries and disease is expected. This has triggered research at ETH Zurich to find fully synthetic alternative bone substitute materials to those currently being used, which exhibit brittleness, are difficult to shape and have constricted bioactivity. Indeed, the combination of both a ceramic and a polymer within one material results in composites that have the ductility of a polymer and the bioactivity of the calcium phosphate phase. The resulting new Bone Cotton Wool is very flexible and easy to shape due to its cotton wool-like appearance. Besides bone regeneration, it can be used in dental applications.



<http://tinyurl.com/03-100629d>

### Efficient Cancer Drugs With Radioactive Isotopes

(PSI, July 02, 2010)

The Paul Scherrer Institute (PSI) is known for its proton therapy complex equipment to treat cancer affections. It also helps to produce specific drugs to treat patients who suffer from certain types of cancer. In effect, it has begun to deliver dose rates to Lucerne's hospital where medicine containing radioactive isotopes were administered to patients affected by B-cell Non-Hodgkin-Lymphoma (NHL), which infests the lymphatic system. Clinical trials have positively concluded that the PSI-developed drug significantly increases patients' life expectancies and did not impair their quality of living.



<http://tinyurl.com/03-100702>

### Spinal Column Research In 3-D

(SNSF, July 03, 2010)

Back pains or spinal column lesions should be better cured, thanks to the 26 research groups of a SNSF supported research program, which has been active for five years. One of the projects was to recreate the backbone in 3-D in order to get a better view of intervertebral discs, vertebral bodies, etc. The new method will assist physicians in diagnosing problems and the goal is to foster the development of implants for intervertebral discs' prostheses.

<http://tinyurl.com/03-100703>

### Silver Polymer Coatings Kill Bacteria Strains

(EMPA, July 05, 2010)

Empa researchers have explained how different production conditions affect the properties of new polymer coatings containing silver nanoparticles. Using their results, they were able to tailor coatings that can kill bacteria while preserving human tissues from damage. In effect, silver ions are very efficient when killing bacteria and have a big advantage over antibiotics, namely that they are active against hundreds of bacterial strains. They should however not be used in high concentrations where they could severely damage human cells and tissues.



<http://tinyurl.com/03-100705>

### DNA-Repairing Protein Discovered

(UZH, July 09, 2010)

Researchers from the University of Zurich have discovered a new DNA-repairing protein. This protein and its mechanism help to better understand and treat hereditary diseases such as Fanconi anemia. More efficient treatments and cancer therapies will also be improved.

<http://tinyurl.com/03-100709>

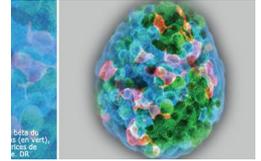


## Grant Awarded For Diabetes Research

Prof. Pedro Herrera from the University of Geneva was granted USD 750'000 from the Juvenile Diabetes Research Foundation to conduct a research project on the improvement of the regeneration of beta cells (producing insulin) in the pancreas of mice affected by diabetes. The group had already shown that a regeneration process could take place in a certain transgenic type of adult mice thanks to a spontaneous reprogramming of alpha cells (that produce the glucagon hormone) into beta cells. The study will last three years and will help to explore the mechanisms of such a process. Earlier this year, Prof. Herrera was granted more than USD 1 million from the Institute of Diabetes and Digestive and Kidney Diseases Special.

<http://tinyurl.com/03-100712>

(UNIGE, July 12, 2010)



## Promising Treatment To Relieve Patients With Spinal Cord Lesions

Lesions of the spinal cord lead to paralysis and also often to unchecked and painful muscular contractions called spasms. Researchers from the University of Zurich and ETH Zurich have shown that rats treated to stimulate the growth of nervous fibers recover some of their motor capacity and suffer less from spasms. Martin Schwab and his team have developed antibody treatments that kill Nogo-A protein, responsible for hindering the growth of nervous fibres of the spinal cord after a lesion. These promising treatments and observations on rats might be carried forward to humans.

<http://tinyurl.com/03-100713a>

(SNSF, July 13, 2010)



## Network Of Genes And « Savoir Vivre » To Explain Longevity

Professor Johan Auwerx and his team from EPFL write in a report that a complex network of genes combined with a low-calorie diet and physical exercise seem to be the basis of high life expectancy. Researchers have determined that longevity involves a network of roughly 750 genes, one third of them being very important notably in their ability to generate energy from food. This network is not the only factor affecting longevity. Certain habits of "savoir vivre" with respect to food and physical activity also play a significant role. The next step will be to better understand the interactions between genes and these life modes and find chemical compounds that can reproduce them.

<http://tinyurl.com/03-100713b>

(EPFL, July 13, 2010)

## Pheromone Dictates Termites' Social Behavior

The research team of Professor Laurent Keller from the University of Lausanne, in collaboration with Japanese researchers from the University of Okayama, have identified a pheromone emitted by termites which determines whether the insect will become a queen or a worker. Termites are profoundly social insects, sharing a strong sense of hierarchy with well-established social classes. By emitting this substance, the queen termite sends a strong signal of command to other termites. Termites' eggs also emit this pheromone but this time to attract workers to take good care of them. The fate of every termite then heavily relies on the presence of this precious chemical substance.

<http://tinyurl.com/03-100714>

(UNIL, July 14, 2010)

## Life Expectancy Model For AIDS Patients

Survival chances of patients living with AIDS in Southern Sahara following antiretroviral therapy (ART) can now be calculated. An international research team led by the University of Bern has established two risk models based on observations. Such prognoses are very important to determine which clinical treatment to choose and to advise patients on the different steps they will go through during their ART. Matthias Egger and team was able to identify risk factors and estimate the death probability of patients during the first year of their therapy.

<http://tinyurl.com/03-100716a>

(UNIBE, July 16, 2010)

## Silver Coating On Implants To Prevent Rejection Problem

Researchers from the University of Fribourg have discovered a new method to make implant surfaces inhospitable to bacteria. Thanks to an antibacterial layer composed of silver bonds, infections should not anymore happen in implant surgery. Prof. Fromm is working for the project «New Anti-Bacterial Coatings for Implant Materials» financed by the Swiss National Fund and her aim has been to solve the implant rejection problem caused by bacte-

(UNIFR, July 19, 2010)



ria which are present on implant that multiply and cause chronic infections. These bacteria are difficult to treat because they are more and more resistant to antibiotics and because they are not easily reachable due to the poor blood supply on implants' surfaces.

<http://tinyurl.com/03-100719b>

### Pollinator Parasite Discovered

ETH Zurich's researchers Regula Schmid and Martina Tognazzo have discovered and described a new parasite of an important pollinator. They have been able to differentiate it from its twin species thanks to its genes and its size. The single-cell organism lives in the intestines of bumble-bees and is a descendant of a long-known parasite. Both types survive the winter season in the intestines of a bumble-bee queen before spreading during spring when the queen founds a colony. The parasites spread in the bumblebees' excrement. Consequently, there is a risk of infection both in the nest and on flowers, where the bumblebees leave their excrement while looking for nectar.

<http://tinyurl.com/03-100719a>

(ETH Life, July 19, 2010)



### New X-Ray Technique

Traditional X-ray images can clearly distinguish between bones and soft tissue, with muscles, cartilage, tendons and soft-tissue tumours all look virtually identical. The phase-contrast technique developed a few years ago at the Paul Scherrer Institute (PSI) enables X-ray images to be produced that clearly distinguish between these tissue types. Researchers at the PSI and the Chinese Academy of Science have now further developed the technique to such an extent that, in the future, it will be as simple to use as conventional X-rays. They anticipate that the process will help tumours to be detected in medical practices and could also help identify hazardous objects in luggage at airports.

<http://tinyurl.com/03-100722>

(PSI, July 22, 2010)



### 4<sup>th</sup> Highest Life Expectancy

The statistics for 2009 compiled and published by the Japanese Ministry of Health, Labor and Welfare showed both Japanese women and men extended their average life expectancy to new records — 86.44 years for women and 79.59 years for men. Switzerland ranks fourth for women (84.4 years) and shares the third spot with Iceland for men (79.7 years).

<http://tinyurl.com/03-100726b>

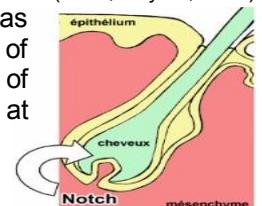
(Washington Times, July 26, 2010)

### Intercellular Communication

Professor Paolo Dotto from the biochemistry department at the University of Lausanne has discovered the importance of a signaling path that plays an essential role in the good working of organs. It has been known since the beginning of the 20<sup>th</sup> century that the development of certain tumours is linked to the breakdown of communication between epithelial cells located at the surface of organs. A defect in this communication channel (the "Notch" communication channel) for sub lying mesenchymal cells, which give organs their shape, can therefore impede the good functioning of organs.

<http://tinyurl.com/03-100726c>

(UNIL, July 26, 2010)

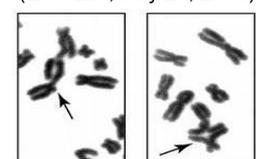


### New DNA Protein Discovered

Researchers from ETH Zurich and the University of Zurich discovered a new protein FAN1 that participates in the repair process of damaged DNA. This knowledge could be used when fighting against certain types of tumors. It also helps to understand the underlying mechanisms of Fanconi anemia, a hereditary disease that increases the risks of cancer. Biologists were also able to describe the different functions of the protein, such as the cutting and degrading of DNA strings. Observations made on patients will be compared to the discoveries made Prof. Jiricny and his team to narrow down possible treatments.

<http://tinyurl.com/03-100727>

(ETH Life, July 27, 2010)





## European Grant For Geneticist

(UNIBE, July 30, 2010)

The geneticist and cell biologist Mariusz Nowacki from the University of Bern was awarded a "Starting Grant" by the European Research Council of CHF 2 million. His research focuses on the heredity processes and he has discovered a new role of ribonucleic acid (RNA), the genetic information transmitter. Indeed, he found out that it was also responsible for genetically modifying the DNA. RNA molecules are also known to repair damaged genes. This international prize rewards Prof. Nowacki for his work on epigenetics, the study of cell properties that are passed on to daughter cells.

<http://tinyurl.com/03-100730c>



## 4. Nano / Micro Technology / Material Science

### Boosted Supraconductivity In Nanostructures

(EPFL, June 10, 2010)

An international team of researchers led by Prof. Klaus Kern at EPFL has shown that so-called quantum size effects can stimulate supraconductivity in nanostructured materials. Experiments using tin have proved a 60% increase in the supraconductivity gap for quantum effects. This discovery opens new perspectives in nanostructured materials.

<http://tinyurl.com/04-100610>

### "Intelligent Material" Program Launched

(SNSF, June 17, 2010)

Intelligent materials have a considerable innovation potential that Switzerland's industry could make available for the future. The National Research Program NRP 62 will act as a co-operator between the Swiss National Science Foundation (SNSF) and the Innovation Promotion Agency CTI. Such kinds of material can change their properties if externally stimulated and return to their initial state when the stimulation is halted. Room for innovation is important, especially when combined to intelligent structures and systems. Institutes such as EMPA, ETH Zurich, EPFL and cantonal universities will focus on a panel of 21 selected projects, ranging from surgery tools to catalysers and instruments for the measurement of blood sugar, etc.

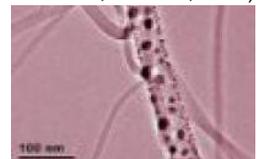
<http://tinyurl.com/04-100617a>

### Organic Nanowires To Build Electronic Components

(myScience.ch - EMPA, June 17, 2010)

EMPA researchers have developed a new method to synthesize complex organic nanowires and connect them conductively to form a circuit, with the perspective of constructing electronic and optoelectronic components. They are promising candidates for the fabrication of cheap, large and flexible optical and micro- & nano-electronic technical parts such as transistors, diodes and sensors. Scientists can now manufacture nanowires – 10 to 50 nm in diameter and 100 µm long – with different properties. These wires can then be assembled in networks.

<http://tinyurl.com/04-100617b>

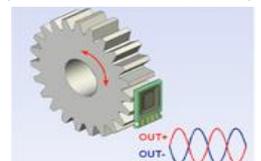


### World's Smallest Coding Device

(HEIG-VD, June 18, 2010)

The Electronic and Microelectronic Lab of the Engineering and Management School VD (HEIG-VD) has developed an integrated circuit in a submicron technology for the POSI SA firm. The aim of this project is to have an inductive micro system for the measurement of position. POSI SA already produces inductive sensors based on micro spools integrated onto silicon. The final product corresponds to the world's smallest inductive coding device, insensitive to magnetic fields, robust against miscellaneous contaminations and yielding a position measurement with a sub micron precision.

<http://tinyurl.com/04-100618>

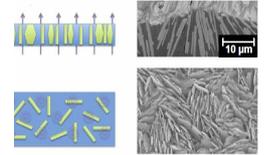




## Lighter And Stronger Reinforced Composites

(ETH transfer, June 28, 2010)

A new technology from ETH Zurich allows to control the orientation of reinforcing elements in polymer-based advanced composites. The process relies on the use of magnetic nanoparticles to enable the orientation of non-magnetic reinforcing particles (e.g. fiber, rods) in a fluid, followed by the consolidation of the aligned structure. Composite materials with reinforcing particles embedded in a matrix material are extensively used in construction, aerospace, automobile and medical industries. Though this reinforcement enhances the mechanical strength and stiffness of the matrix, it is limited to one specific direction. It results in a ten-fold increase in compression stiffness perpendicular to the film surface and a local control to reinforce regions of high stress concentration.

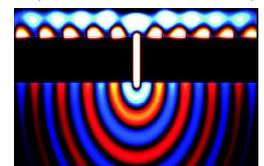


<http://tinyurl.com/04-100628>

## Leading-Edge Research In Infrared Chemical Sensing

(CSEM, June 30, 2010)

The EU has awarded a grant of EUR 2.8 million to the project PLAISIR (Plasmonic Innovative Sensing in the Infrared) led by the Center for Electronics and Microtechnology (CSEM). The goals of the project are to create ultra-sensitive chemical sensors and smarter, cheaper infrared (IR) photodetectors. Developments will also enhance Spectroscopic Chemical Sensing (SCS) systems to help detect CO<sub>2</sub> and glucose. In addition, the advances in technology will help developing better IR cameras. Nanotechnology will be used as it has the ability to confine and control light at both wavelength and sub-wavelength scales through a phenomenon known as plasmonics.

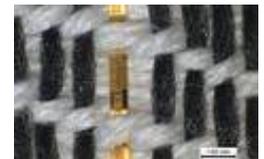


<http://tinyurl.com/04-100630>

## Electronics Integrated To Textile

(ETH Zurich, July 02, 2010)

Electrical engineers at ETH Zurich have developed an intelligent material where cotton, sensors and conductive fibers are sewn together. The textile can be mass produced and also washed. The group of Prof. Gerhard Tröster was able to integrate thin-film electronics and miniaturized chips onto plastic threads. This new way of mixing electronics and textile can be produced using normal industrial techniques.

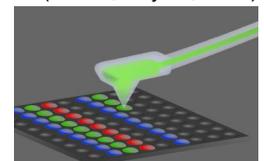


<http://tinyurl.com/04-100702>

## World's Smallest Syringe

(CSEM, July 07, 2010)

Scientists from the Swiss Center for Electronics and Microtechnology (CSEM) and Lund University have successfully developed antibody microarrays. Each individual spot of the array has a level of miniaturization that has never been achieved before (nanometer scale). Antibody microarrays enable the analysis of the presence of multiple biomolecules, typically proteins, and have applications in the detection of disease-related biomarker signatures. NADIS, short for Nanoscale Dispensing, was developed to deposit liquid volumes as small as attoliters (10<sup>-18</sup> liters). Another key application of this nanoscale liquid-delivery technique technology was already demonstrated when tiny amounts of liquids were injected into living cells. This pioneering work makes NADIS the smallest syringe in the world.



<http://tinyurl.com/04-100707>

## Watch Making Expertise Combined

(CSEM, July 13, 2010)

The Swiss Center for Electronics and Microtechnology (CSEM) and the Haute Ecole Arc Ingénierie have joined forces in the watchmaking arena by signing a framework agreement on cooperation. This move represents a merge of technical and scientific expertise in the area of microtechnology in the service of watchmaking, covering the entire Neuchâtel region. With this partnership, CSEM and the HE-Arc Ingénierie will reinforce the innovation process by disseminating new technologies to industry. CSEM will contribute to this partnership with its multidisciplinary skills in microsystems technology, precision mechanics and robotics. The HE-Arc Ingénierie will contribute with its state-of-the-art expertise in the conception and design of watchmaking movements and components and will also act as a specialist in multi-body simulations and in the development of tools for designing non-circular gears.

<http://tinyurl.com/04-100713>

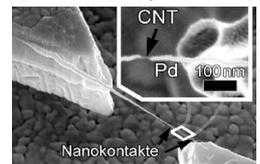


## Carbon Nano Tubes As Transistor Building Block

Researchers from ETH Zurich have built a new transistor where a Carbon NanoTube (CNT) with outstanding properties hangs above the two contact points. Scientists succeeded in avoiding impurities in the CNT during the fabrication process and were therefore able to assemble the components of the transistor without gate hysteresis. The tip of the CNT was even coated with palladium to improve electrical contact. This opens the way for the production of nanosensors and electro mechanical components that require very few energy.

<http://tinyurl.com/04-100715>

(ETH Life, July 15, 2010)



## Benefits And Potential Risks Of Nanomaterials In Paints

Nanomaterials have a positive effect when covering a façade as they can slow down the deterioration, caused by UV radiation, and prove to be a good alternative to the biocide problem. In addition, nanoparticles allow the production of innovative products for heat insulation and self-cleaning surfaces. Empa has launched, in cooperation with industrial partners, the “Nanohouse” project that studies the technology transfer feasibility by analyzing the benefits and potential risks of nanotechnological coating throughout the life cycle of a product, focusing particularly on the release of nanoparticles from the coating and their behaviour once freed in the environment.

<http://tinyurl.com/04-100720>

(EMPA, July 20, 2010)

## Graphene Nanoribbons For Transistors

Scientists from Empa, the Max Planck Institute for Polymer Research, ETH Zürich and the Universities of Zürich und Bern have managed for the first time to grow graphene ribbons that are just a few nanometres wide using a simple surface-based chemical method. Graphene ribbons are considered to be «hot candidates» for future electronics applications as their properties can be adjusted through width and edge shape. Graphene consists of 2-D carbon layers and possesses a number of outstanding properties. Graphene is harder than diamond, extremely tear-resistant, impermeable to gases and it is also an excellent electrical and thermal conductor. The newly developed method allows to create graphene ribbons with band gaps, which can be further used as switches.

<http://tinyurl.com/04-100722>

(EMPA, July 22, 2010)



## New Nanotech Research Center

The new CHF 90-million nanotechnology research center of IBM in Zurich will be ready at the end of the year on the shores of lake Zurich. The center is dedicated to basic research in confined environments where very delicate experiments will be conducted. For example, some laboratories will be vibration-free, shielded against electromagnetic radiation and the temperature will be regulated to a 0.1°C precision. In clean rooms, micro and nano structures will be developed in solid materials. ETH Zurich, as co-financing institution, will have access to the cutting-edge laboratory facilities. Empa will also be collaborating in different projects.

<http://tinyurl.com/04-100726>

(Tages Anzeiger, July 26, 2010)

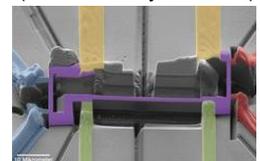


## Promising High-Temperature Superconductors

Researchers under the supervision of Prof. Bertram Batlogg from ETH Zurich have grown superconductive crystals from different elements of a special type of high-temperature superconductors. They have studied the causes of superconductivity in these crystals and measured critical electric and magnetic fields that inevitably break the superconductive states. Results for the developed materials are promising.

<http://tinyurl.com/04-100727>

(ETH Life, July 27, 2010)



## Nano Structured Surfaces For More Efficient Solar Cells

Empa researchers have succeeded in growing sea-urchin shaped nanostructures from minute balls of polystyrene beads using a simple electrochemical process. The spines of the sea urchin consist of zinc oxide nanowires. The structured surface should help increasing the efficiency of photovoltaic devices since it is expected to have excellent light scattering properties. This means the surface will be able to absorb significantly more sunlight and

(EMPA, July 29, 2010)





therefore be able to convert radiated energy into electricity more efficiently. This process also benefits from the fact that polystyrene is cheap and ubiquitous.

<http://tinyurl.com/04-100729a>

## Polymer Semiconductors

Semiconductors made from polymer materials are becoming increasingly important for the electronics industry as a basis for transistors, solar cells or LEDs, showing important advantages when compared to conventional materials. They are lightweight, flexible and very cheap to produce. In order to find the optimal material, one has to know how different polymers mix together and how the various components contribute to the properties of the material. Researchers from the Paul Scherrer Institute and the University of Cambridge have developed a method that allows them to determine the detailed structure of the material within a blend, both in the bulk and on the surface.

<http://tinyurl.com/04-100729c>

(PSI, July 29, 2010)



## 5. Information & Communications Technology

### Futuristic Cryptographic Protocol

An innovative process known as quantum cryptography uses photons instead of numerical codes to transmit secret messages. This means that encrypted messages can no longer be intercepted undetected. This revolutionary technology was developed by researchers from the National Centre of Competence in Research “Quantum Photonics” and is marketed by the company ID Quantique based in Geneva. The system has already been used to safely transmit results of votings in Switzerland.

<http://tinyurl.com/05-100606>

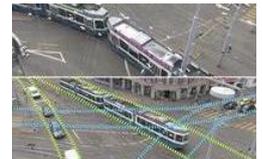
(SNSF, June 06, 2010)

### Smart Computer Learns From Video

ETH Zurich researchers have written a computer program that is able to analyze temporal and spatial patterns of moving objects in road traffic and that it is capable of learning. Video sequences are input and the algorithm analyzes them, outputting rules governing the flow of traffic. This would be a significant aid in traffic monitoring since the computer can detect anomalies from normal situations. In their next project, researchers will attempt to train the computer to recognize visual concepts, to trawl Internet pages in search of specific images and automatically find the correct image, including those that are not labeled accordingly.

<http://tinyurl.com/05-100623a>

(ETH Life, June 23, 2010)



### Vodafone Innovation Prize 2010

Prof. Helmut Bölcskei at ETH Zurich was awarded the Vodafone Innovation Prize 2010 for his algorithm that makes mobile phones, telephones or minicomputers faster and more efficient. The algorithm allows extremely high transfer rates – up to 1Gb – while still preserving the batteries of devices. The «Single Tree-Search Sphere Decoding» (STS-SD) method is a breakthrough in the domain of high-power receptors radio systems. Experts think that it will soon equip all receptor devices. The Vodafone Foundation encourages scientific research in the realm of mobile communication; prize money is EUR 25'000.

<http://tinyurl.com/05-100629>

(ETH Zurich, June 29, 2010)

### Water-Cooling System For Supercomputers

The cooling of computer systems in computer centers offers an important and yet large unused potential increase in efficiency and sustainability. In fact, it is estimated that such centers consume up to 2% of world's electricity production. Aquasar, a novel hot-water-cooling type of supercomputer developed at IBM's research center in Zurich and implemented at ETH Zurich, exhibits this technique. Its components are cooled using 60°C warm water which leads to a 40% reduction in the energy consumption compared to air-cooled systems. The excess heat is also pumped into a loop to heat the building. The overall CO<sub>2</sub> emission can thus be diminished by almost 85%.

<http://tinyurl.com/05-100706>

(crn.de – IBM Zurich, July 06, 2010)





## Creation Of Banking IT Lab

(AGEFI, July 09, 2010)

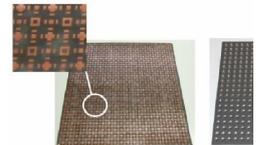
Credit Suisse has announced the creation of a center dedicated to the development of informatics at EPFL. The Swiss bank will rejoin Logitech and Debiopharm and it will be the first third-sector company to be in the newly inaugurated sector of the campus. Credit Suisse aims at fostering scientific collaborations between EPFL researchers and students and internal informatics analysts. Cloud computing, finding innovative financial solutions and improving the bank's network efficiency are three topics on which research will focus.

<http://tinyurl.com/05-100709>

## Thin Wideband Radar Absorbers

(ETH Zurich, July 12, 2010)

Radar absorbers are structures which cover a device and minimize the reflection of incident electromagnetic waves. With the appearance of the metamaterial concept, some new absorbers based on frequency selective surfaces (FSS) have been proposed. Scientists from ETH Zurich have invented an alternative absorber with improved absorptive properties while still being very thin and light. The design of "perforated FSS absorbers" has the advantage of broadening the spectral response of the absorber in a very efficient way (14 – 26 GHz). An interesting feature is also that the fabrication process is simple, requiring only one hole per unit cell.



<http://tinyurl.com/05-100712a>

## Increasing Cyber Crime

(Swisster.ch, July 14, 2010)

Cyber crime has increased by around a third over the first half of the year compared to 2009, according to High-Tech Bridge, a Geneva-based company specializing in "ethical hacking" to test clients' IT security systems. The first six months of 2010 witnesses a surge in cyber attacks such as the theft of confidential data. The main reason seems to be because of the financial crisis. Industrial espionage can provide a cash-saving strategy to win market shares. Unethical IT experts, many from Eastern European countries, are responsible for this increase. High-Tech Bridge makes use of digital forensics and penetration testing to test a company's defensive strategies.

<http://tinyurl.com/05-100714>

## Post-Process Algorithm For Stronger 3-D Effects

(ETH Life, July 26, 2010)

In order not to cause headaches when watching 3-D movies, the stereoscopic effect has to be cautiously handled. During film production, this step is costly and complex. Researchers from the Disney Research Zurich at ETH Zurich have developed a method to subsequently process the depth impression of 3-D images. It will allow to convert 2-D into 3-D images in an efficient way. To have a 3-D illusion, our brain needs different images for the left and right eyes. The bigger this difference between the two patterns, the stronger the 3-D effect. To stay in the viewers "comfort zone", each view must be post-processed. The new algorithm is able to maximize this discrepancy by also taking the time parameter into account.

<http://tinyurl.com/05-100726>

## Unobtrusive Wearable Human-To-Machine Wireless Interface

(CSEM, July 27, 2010)

The objectives of the Wear-a-BAN project are to investigate and demonstrate ultra low-power wireless body-area-network technologies for enabling unobtrusive human to machine interfaces into market segments such as smart and interactive textiles, robotics for augmented reality assistance and rehabilitation and natural interfacing devices for video gaming. Wear-a-BAN will enable major technological breakthroughs that will generate strong societal impact by increasing the comfort, health and security for a wide category of users in the European population. This Human-Machine-Interface (HMI) could become more intuitive or natural by integrating motional and emotional information, parameters that are difficult to express with standard HMI devices.

<http://tinyurl.com/05-100727>

## UN Project For Updated African Maps

(UNIGE, July 29, 2010)

Many African regions are not mapped in an adequate manner. The missing or outdated information is a handicap for humanitarian teams that have to intervene on the field when a natural catastrophe occurred or in wartime periods. A team from the University of Geneva has launched the AfricaMap project which aims at developing a web-based interface which allows to update map projections by asking volunteers to share their knowledge and resources. Hewlett-Packard (HP) Labs helps the scientists by giving out a USD 81'000 grant.





The University of Geneva was the only university among 52 higher-education institutions to have been selected by HP.

<http://tinyurl.com/05-100729>

## Google Fellowship For Swiss Researcher

(ETH Life, July 30, 2010)

Roland Angst, PhD student at ETH Zurich, is one of the fourteen recipients of the Google European Doctoral Fellowship for his thesis on mechanical vision. With the help of new mathematical models, he optimizes the reconstruction of 3-D images from 2-D pictures. The “structure from motion” method is inspired by the brain’s mechanisms to take advantage of 3-D information from movement. The algorithm analyzes the position of reference points from different photographs taken from different angles and recreates the shapes of objects.



Roland Angst is also working on how the computer program could output images even if data is partially missing.

<http://tinyurl.com/05-100730>

## 6. Energy / Environment

### Efficiency Project Submission

(Swissmem, June 01, 10)

The workshop “myclimate“ honors the Switzerland’s best students’ projects for innovative ideas in the environment protection domain such as energy efficiency and awareness raising concerning climate change. Since 2007, more than 2’500 students have taken part to the initiative. This year, 90 projects were submitted. The 2010 winner project proposed by three students from the Lernzentren in Zurich optimizes electric lightning in an apprenticeship workshop. Second and third place projects deal with water consumption and dynamo-based lightning respectively.

<http://tinyurl.com/06-100601>

### Defence Mechanism Of Plants Unlocked

(UNIBAS, June 02, 2010)

Debris of bacteria suffice to trigger a defence reaction against pest. Researchers from the Universities of Basel and Wurzburg show how plants and their natural immune system deal with noxious germs or harmful processes such as decomposition. The research team has identified receptors in the membrane of plants’ cells that detect debris of the bacteria’s mobility organs, even in vanishing quantities. The membrane’s stimulation by pathogenic agents actively stimulates the immune system which activates the release of appropriate defence genes, the production of anti microbial substances and enzymes to besiege infiltrated bacteria.

<http://tinyurl.com/06-100602>

### Renewable Energy Fund For Developing Countries

(news.admin.ch, June 03, 2010)

The State Secretariat for Economic Affairs will contribute financially to a program promoting the scaling-up of renewable energy sources in developing countries. The objective is to foster an eco-friendly energy supply through a series of investments, measures to improve the investment climate as well as private-sector incentives. The SREP (Scaling-up Renewable Energy in Low-Income Countries) is a program under the Climate Investment Funds (CIF), under the aegis of the World Bank Group. As the largest climate funds worldwide, the CIF are designed to support developing and transition countries in meeting carbon emission reduction targets as they attain economic growth. The CIF also serve as a valuable source of experience for a future global climate financing architecture.

<http://tinyurl.com/06-100603>

### Boosting Energy Efficiency

(Swissmem, June 07, 2010)

The Swiss Mechanical and Electrical Engineering Industries Swissmem will amplify the association’s activities in the energy efficiency domain. Interested members will be given the opportunity to join two working groups that will be responsible to lead the project. Swissmem wants to actively contribute to sharing experience among its members and bring together different centers of competencies to achieve innovative developments.

<http://tinyurl.com/06-100607>



## Further Advances In Glacier Observations

(ETH Zurich, June 08, 2010)

Natural climate fluctuations such as variations in the Atlantic currents probably influenced glacial retreat in the Alps in the last century. A study shows that they correlate with times of particularly striking glacial retreat, but also with times of growth. A team of glaciologists, notably from ETH Zurich, has compiled all the available data on thirty Swiss glaciers of various sizes to design a model that can be used to determine the development of the glaciers since 1908 with high temporal and spatial resolutions. The results show that the individual glaciers lose mass at different rates and the mass balance of the Swiss glaciers correlates with the Atlantic Multidecadal Oscillation, a natural phenomenon in which the surface temperature of the Atlantic rises and falls again in cycles.



<http://tinyurl.com/06-100608>

## Swiss Sensor Technology for Farmers in Africa

(SNSF, June 10, 2010)

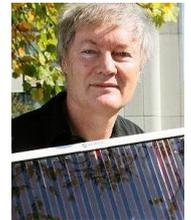
The National Centre of Competence in Research “MICS – Mobile Information and Communication Systems” develops measurement technology for monitoring the environment. Small farmers in Africa may now benefit from this technology dubbed SensorScope. The system, which links together various sensors that measure environmental factors such as temperature and humidity with high temporal and spatial resolution, all within wireless networks, yields invaluable data to determine when is the best time to sow. The long-term goal is to send this information via SMS.

<http://tinyurl.com/06-100610>

## 2010 Millennium Prize Awarded To Michael Grätzel At EPFL

(EPFL, June 14, 2010)

President of the Republic of Finland Tarja Halonen handed the 2010 Millennium Prize (EUR 800'000) to Prof. Michael Grätzel who is the father of third generation Dye-Sensitized Solar (DSS) cells known as Grätzel cells. Inspired by photosynthesis, this unique form of low-cost solar cells has only recently been commercialized. The technology is a promising alternative to standard silicon photovoltaics, which are less efficient in low-sunshine conditions and more expensive to produce. Besides this technology, he has been working on the improvement of lithium-ion batteries and hydrogen extraction process. The Millennium Technology Prize is the largest technology prize in the world and is awarded only once every two years.



<http://tinyurl.com/06-100614>

## Ocean Current Explains Climate Change

(ETH Zurich, June 18, 2010)

The cold water tongue that emerges in the eastern equatorial Pacific has a decisive effect on regional and global climate. A new study conducted at ETH Zurich shows that the cooling and expansion of the subpolar oceans around 1.8 million years ago led to the development of the modern cold tongue in the tropical Pacific. Scientists were able to successfully reconstruct the process of the leveling out of the thermocline from samples of sediments originating from the southern and northern polar oceans. Geochemical analyses were performed to study the samples and explain phenomena such as El Niño, which is the resulting effect of a periodical warming of this cold water tongue.



<http://tinyurl.com/06-100618a>

## Eco-friendly CO<sub>2</sub> Capture From Air

(ETH Zurich, June 18, 2010)

Two PhD students from ETH Zurich filter CO<sub>2</sub> out of the air in a way that is completely environmentally friendly and emission-free. The novel apparatus can separate CO<sub>2</sub> from air in an energy-efficient manner before re-releasing it as pure raw material. This pure CO<sub>2</sub> can then be processed to synthetic liquid fuel. Both the capture of CO<sub>2</sub> and its conversion to liquid fuels are performed using solar energy. The spin-off “Climeworks” will mainly focus on R&D, especially the filter material which lies at the heart of the innovative process.



<http://tinyurl.com/06-100618b>

## Swiss Solar Technology Association

(ePresse, June 21, 2010)

An association to promote solar energies and raise awareness in the domain of solar technologies has been created in Neuchâtel. It is a non-profitable and non-political association that will strive to spread information concern-



ing knowledge linked to solar technologies to its members and to the public. It will also foster technology transfer and create networks of solar energy protagonists to encourage the exchange of information. The president is Daniele Oppizzi, CEO of greentechnologies SA.

[www.polesolaire.ch](http://www.polesolaire.ch)

### Reduced Energy Consumption In Switzerland

(news.admin.ch, June 22, 2010)

Switzerland's overall energy consumption in 2009 fell by 2.5% compared to 2008. The main reasons for the fall in consumption were the warmer weather and the weak economy. There was a clear drop in consumption of the combustibles heating oil and gas. Also, the current trend of substituting petrol with diesel fuel has continued unabated. Electricity consumption fell by 2.1%. Once again increased use was made of energy from wood and from other renewable sources. Above average growth was seen in the field of solar heating (+13.2%) and use of ambient heat (+8.6%) in 2009.

<http://tinyurl.com/06-100622>

### PSI In The European Energy Research Alliance

(PSI, June 23, 2010)

The Paul Scherrer Institute (PSI) has been invited, as a member of the European Energy Research Alliance (EERA), to contribute with other institutions in a number of newly initiated European energy research programs. The European Commission's new Strategic Energy Technology tries to avoid overlapping projects and works on fostering leading research institutions to work on joint research programs. PSI, Switzerland's largest research center, builds and operates complex large-scale research facilities and makes them available to the research community.



<http://tinyurl.com/06-100623a>

### Cleantech Platform For Switzerland

(Swissmem, June 23, 2010)

The new OSEC exportation platform Cleantech Switzerland proposes a large panel of services to the cleantech sector such as an online database of companies and an e-newsletter ([www.cleantech-switzerland.com](http://www.cleantech-switzerland.com)). This service aims at facilitating the entry to worldwide cleantech markets and to engage in concrete business relations. This web gateway will also give Swiss firms a wide visibility to other companies and institutions active in that domain.



<http://tinyurl.com/06-100623b>

### Shell Geochemistry To Study Climate Change

(UNIL, June 24, 2010)

In geosciences, information on past climatic changes is a key to help understand changes in the future. In this context fossils within sediments represent geological archives that are useful for long-term evaluations of climate change. In lake sediments, the chemical and isotopic compositions of fossil ostracod shells are important tools to reconstruct past environmental conditions. Ostracod shells were analysed by Laurent Decrouy at the University of Lausanne to determine the influence of the environment and the biology on their oxygen and carbon isotope compositions as well as their trace element contents.

<http://tinyurl.com/06-100624a>

### Decline Of Freshwater Species

(myScience.ch - EAWAG, June 24, 2010)

The decline of biodiversity represents a loss of natural capital for future generations. Freshwater ecosystems are particularly affected, as they harbor disproportionately high levels of biodiversity. What is widely underestimated, according to scientists from the aquatic research institute Eawag, is the extent to which reduced habitat diversity also prevents species formation, thus accelerating the spiral of decline. Changes in the same processes that led to the development of existing species are often responsible for a decrease in the apparition of new species. Genetic adaptations to ecologically distinct niches are then no longer required; young species merge into a single hybrid form and the emergence of new species ceases.



<http://tinyurl.com/06-100624c>



## Nordic Humid Zones Responsible For Methane Emissions

(UNIBE, June 25, 2010)

40'000 years ago, a climate warming period led to a massive increase of methane concentration in the atmosphere. An international team supervised by the University of Bern found that this rise was due to humid zones in Nordic areas. Results disprove the controversial hypothesis that explained that methane emissions from oceans' bed were responsible for the high atmospheric methane concentration and thus for global warming. The team used a precise measurement method to determine the isotropic fingerprints of methane coming from terrestrial or underwater sources in ice cores.

<http://tinyurl.com/06-100625a>



## Sustainability of Second Generation Biofuel

(admin.ch, June 29, 2010)

An interdisciplinary team headed by researcher Rainer Zah has been studying the sustainability environmentally friendly second generation biofuels. They calculated that between 10% and 40% of current fuel requirements could be supplied in a sustainable manner in Switzerland by second generation biofuels. The investigation, which was carried out for the Swiss Centre for Technology Assessment, also concluded that the most environmentally friendly biofuels are primarily those that are manufactured using waste products and left-over materials such as green waste, saw-mill waste and waste wood. The more important question is how to diversify the energy supply for the mobility sector to ensure that the most appropriate drive technology is used for various travel needs.

<http://tinyurl.com/06-100629>

## Innovative Research For Better Swiss Wines

(ePresse – AGEFI, July 07, 2010)

Facing fierce competition from imported wines that account for 63% of Switzerland's consumption, Swiss wine makers invest in R&D to reach excellence for their vintage. Projects conducted by the federal research group Agroscope ACW, engineering schools of Changins and Sion or EPFL demonstrate a will to obtain an optimal prize to quality ratio. Two innovative studies launched in 2007 entitled "sensory characterization of 'wine reduction' problems" and "local oak barrels for local wines" will help wine-growers to produce better and more tasty wines but also give them essential predictive information about wine making processes.

<http://tinyurl.com/06-100707>

## Decrease In CO<sub>2</sub> Emissions In 2009

(admin.ch, July 09, 2010)

Statistics from the Federal Environment Office indicate a 1% decrease in CO<sub>2</sub> emissions between 2008 and 2009. This decrease concerns fuels as well as combustibles and seems to be a consequence of the economical downturn. Total CO<sub>2</sub> emissions in Switzerland, taking in account the buying of foreign emission certificates, are 7.6% lower than the 1990 levels (the law on CO<sub>2</sub> aims a 10% reduction in the 2008-2012 period). Greenhouse gases' emissions have also globally diminished by about 2.2%, being 1.5% below the 1990 levels. This decrease is in line with the goals set in the Kyoto Protocol for Switzerland.

<http://tinyurl.com/06-100709a>

## Switzerland To Host Preparatory Meeting For Mexico Climate Conference

(admin.ch, July 09, 2010)

Switzerland intends to make a contribution to the ongoing climate process by hosting an informal meeting of climate ministers in Geneva in September 2010. The meeting will help to prepare the United Nations Climate Change Conference scheduled in late November in Cancún and will focus on the long-term financing of climate protection. 30 countries from all continents and negotiating groups will be invited to attend the conference. The key issue to be addressed is how the funds for climate change mitigation and adaptation should be mobilised, managed and allocated from 2020 onwards.

<http://tinyurl.com/06-100709b>

## Positive Assessment For Energy Research

(admin.ch, July 12, 2010)

The Federal Energy Office (FEO) draws a positive assessment concerning research in the energy domain in 2009. Last year, the FEO granted CHF 21 million – CHF 3 million devoted to demonstration projects. In the report, many projects have contributed to the influence of Swiss research in energy abroad. Interesting works include a new void-type insulation which could decrease the electricity consumption of eco-friendly refrigerators by as much as 80%.

<http://tinyurl.com/06-100712>



## Environmental Influence On Genetically Modified Wheat

(SNSF, July 13, 2010)

In the greenhouse, lines of genetically modified wheat carrying a resistance gene against the fungal disease mildew have a yield that is up to twice as high as that of control plants. In the field however, this ratio is reversed for certain, but not all, wheat lines. A study performed within the National Research Program «Benefits and Risks of the Deliberate Release of Genetically Modified Plants» (NRP 59) concludes from these results that data from the greenhouse cannot be applied to the situation in the field and that therefore field trials are important. For the first time, researchers working at the University of Zurich have described how significant the differences between greenhouse and field trials really are.

<http://tinyurl.com/06-100713a>

## Underground Heat Exchanger At ETH Zurich

(ETH Life, July 13, 2010)

A groundbreaking project is currently being implemented on the Hönggerberg Campus of ETH Zurich. Waste heat from buildings on the Science City Campus will be stored in the earth during the summer through 800 ground probes. The same heat in a "refined" form will be reused for heating in winter. The manufacturers are convinced that the new ground-storage energy concept will revolutionize the running costs of buildings in Switzerland.

<http://tinyurl.com/06-100713b>



## Fungus' Decomposition Property Analyzed

(EMPA, July 15, 2010)

An international team, with the cooperation of Francis Schwarze from Empa, has sequenced the entire genetic material of the common split gill mushroom, a widespread distributed wood corrosive fungus. The 13'000-gene genome gives insights into the unique enzyme-based digestive apparatus with which the "noble rot" fungus attacks and gradually degrades wood, causing white rot. It is this capacity that researchers have exploited to improve the tonal qualities of wood used to make violins. Genetic modifications could lead to specific decomposition processes that could be monitored in order to be optimized.

<http://tinyurl.com/06-100715>



## Exposition On Climate

(SNSF, July 21, 2010)

One of the largest and most successful exhibitions on the weather, climate, and humankind is coming to Switzerland. The big exhibition "2 Degrees – Weather, Humans and Their Climate" focuses on our many-sided relationships to the weather and climate. It demonstrates how closely connected we are with weather and climate. 2 Degrees takes a multilayered and surprising look at the fascinating topics of weather and climate. What makes weather? How does climate work? Visitors will also gain insights into the questions studied by climate researchers both today and in the past.

[www.2grad.ch](http://www.2grad.ch)

## New Closed Loop Model For CO<sub>2</sub> Emissions

(ETH Life, July 22, 2010)

A central and not well understood element of the climate model is the CO<sub>2</sub> closed loop. To what extent is CO<sub>2</sub> exhaled from the soil and plants depending on temperature? The answer was still unclear but researchers from ETH Zurich and the research institute Agroscope ART have now defined a global valid unit value for the temporary temperature sensitivity of CO<sub>2</sub> emissions. This dependence on temperature proves to be weaker than originally thought. Other factors such as humidity, vegetation activity, etc. must also be taken in account. The long-term dynamics of the environment as well as short-term effects must also be considered when dealing with the CO<sub>2</sub> cycle.

<http://tinyurl.com/06-100722>



## Monitoring Of Renewable Energy Network

(ePresse – Le Nouvelliste, July 24, 2010)

The laboratory of industrial electronics of the school of applied sciences (HES-SO) in Valais is working on the optimization of networks of renewable energies. Indeed, these installations are spread throughout the whole country and are dependent on unstable external conditions. As a consequence, energy injection points into the network are multiplied, making the quality of the current to fluctuate. The HES-SO focuses on regulating this complex network



of sources and on synchronizing them by enhancing the performance of converters by developing a model of the system to provide efficient solutions to possible network failures.

<http://tinyurl.com/06-100724>

### First Hot-Air Balloon Expedition Over Kilimandjaro

The first hot-air balloon expedition above the Kilimandjaro has been given green light by Tanzanian authorities. Scientists from the Department of Geosciences at the University of Fribourg will conduct studies on volcanic activity and glaciology. This expedition gives the opportunity to researchers to be very close to the volcano and its environment, thus allowing to perform measurements in the best possible conditions. Infrared detection and traditional photography will be used to analyze volcanic gas fumes and glaciers. This will contribute to the understanding of the influence of volcanism on climate change.

<http://tinyurl.com/06-100727>

(UNIFR, July 27, 2010)



### Wastewater Treatment Done Cost And Energy Effective

While Switzerland's wastewater treatment plants have high technical standards, the elimination of nutrients remains costly and energy-intensive. Eawag has now further developed a biological process which simplifies the removal of nitrogen from sludge digester liquid, reducing costs by 50% for this treatment step. The key to the new method is a bacterial process discovered around 15 years ago by Eawag and Dutch scientists where the anammox bacteria can convert ammonium to harmless nitrogen gas without the need for an external carbon source. The new highly-efficient process has already been adopted by a number of wastewater treatment plants.

<http://tinyurl.com/06-100728>

(EAWAG, July 28, 2010)



### Genetically Modified Crops Authorized

Syngenta, the Swiss-based agricultural chemicals and seed company, was among producers given the go-ahead to export genetically-modified (GM) maize to the EU. The European Commission (EC) authorized the import of six types of maize used as animal feed. EU regulators have been divided over the use of GM crops. The EC approved the import of the maize varieties because they were "scientifically sound". The union's executive arm proposed new rules that would allow EU countries to decide individually if they want to ban or authorize GM crops.

<http://tinyurl.com/06-100729>

(swisster.ch, July 29, 2010)

## 7. Engineering / Robotics / Space

### Origins Of Planet Earth

For the first time, an international team of researchers led by Prof. Bernard Bourdon from ETH Zurich has incorporated extensive geochemical data on the formation of Earth into a model – with surprising results. How long it took for the Earth to reach its eventual size and what the accretion of the planet was like is much disputed among the experts. Scientists attempt to test the theory by fully considering all the known parameters in a model for the first time. In their study, Bourdon and his team now demonstrate that there are several models that are compatible with the chemical observations.

<http://tinyurl.com/07-100531>

(ETH Zurich, May 31, 2010)



### Space Lab For University Of Zurich

The highest lab of the University of Zurich is located in space. A team of researchers led by Prof. Oliver Ullrich will be able to do research aboard the International Space Station (ISS). The one-of-a-kind experiment studies how human cells can adapt to different gravity conditions. It will also investigate if this accommodation is foremost possible and in the positive case, it will take a look at how this latter can be improved. Many disturbances due to weightlessness such as dysfunctions of the immune system and bones' growth are already known and this unique experiment could help find corresponding therapies.

<http://tinyurl.com/07-100617>

(myScience.ch – UZH, June 17, 2010)





## Robots With Insect Instincts

Swarm robotics is offering innovative solutions to real-world problems by creating a new form of artificial intelligence based on insect-like instincts. Mirko Kovac, from EPFL's Laboratory of Intelligent Systems has created an innovative perching mechanism where robot flies head first into the object, a tree for example – without being destroyed – and attaches to almost any type of surface using sharp prongs. It then detaches on command. The goal is to create robots that can travel in swarms over rough terrain to come to the aide of catastrophe victims. The lab's most recent innovation, perching a robot, saves valuable energy by allowing the robot to rest like insects or birds do.

<http://tinyurl.com/07-100624>

(EPFL, June 24, 2010)



## KPMG Inspiration Grant For Hybrid Pneumatic Engine

The Hybrid Pneumatic Engine designed by Prof. Lino Guzzella's group from ETH Zurich has been awarded KPMG 1<sup>st</sup> Inspiration Grant. The engine is to be used for vehicles in order to reduce CO<sub>2</sub> emissions by using a pressurized air tank which is connected to the motor. The process also allows to gain energy from braking and is a promising and cheaper alternative to electro hybrid technology. The second grant goes to the Microfluidics' project from Prof. Nicolas Durand from EPFL. It enables efficient and affordable diagnosis through a smart combination of micro engineering and medical applications thanks to micro fluids. The prize money of the grant is CHF 100'000.

<http://tinyurl.com/07-100629a>

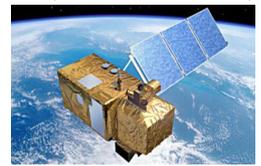
(EPFL – June 29, 2010)

## New Generation Of High Precision Satellites

The University of Zurich, through Michael Schaeppman from the Institute of Geography, together with other research teams and the European Space Agency (ESA), develops new satellites than can process more information and achieve higher precision. "Sentinels", each containing two to three satellites, are the new generation of Earth-observing devices. For example, "Sentinel 2" will be launched in 2010 with an optical system that can achieve image precision of 10x10 meters on the Earth's surface. The development of ESA's new satellite generation is part of the Global Monitoring for Environment and Security Program.

<http://tinyurl.com/07-100629b>

(UZH, June 29, 2010)



## Atomic Clock For Galileo's Navigation System

The EU and Switzerland have come to an agreement concerning a cooperation for the development of Galileo's navigation system. In effect, the Neuchâtel-based firm Spectra Time should equip the satellites of the project with its atomic clock. The EU is trying to build its own civil positioning system. So far, every person around the globe relies on the Global Positioning System (GPS) controlled by the US army, giving rise to potential dysfunctions of the system in case of a military conflict. From 2014 onwards, 30 satellites should deliver highly precise information.

<http://www.baz.ch>

(epresse – Basler Zeitung, June 30, 2010)

## Autonomous Avalanche Drone

Every year in Switzerland alone, 25 persons die on average in avalanche accidents. 90% of all victims survive if they can be recovered within the first 15 minutes. A new autonomous drone dubbed "alcedo" was developed to facilitate the localization of avalanche victims. It is equipped with four separately controllable rotors to maintain a stable position even against strong winds and these enable the machine to reach a top speed of 50 km/h. An ultrasonic sensor measures the distance off ground and maintains the small helicopter at a constant flight height of 2.5 meters. A low weight and a compact construction allow skiers to carry it around.

<http://tinyurl.com/07-100701>

(myScience.ch – July 01, 2010)



## Highly Precise Mass Spectrometer For Solar System Boundary Observation

A high-tech device designed at the University of Bern rotates the Earth on board the US Ixos satellite which delivers pictures of the pitch-black boundary of our solar system. The measurements show that the heliosphere is not a uniform envelope that wraps our solar system but much more resembles a balloon without any envelope. On the outskirts, a constant battle takes place between ionizing external rays and internal solar wind. To be able to observe such a phenomenon, a Swiss miniaturized and highly precise mass spectrometer technique was used.

<http://tinyurl.com/07-100705>

(ePresse – UNIBE, July 05, 2010)

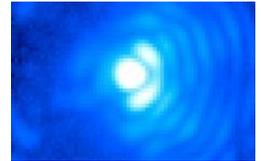


## Swiss Optical Device To Observe Remote Exoplanets

(ETH Life, July 07, 2010)

The Very Large Telescope in Chile delivers new image acquisitions that show exoplanets in a very detailed way even with poor light conditions. These were made possible thanks to an optical device developed to a large extent by the Astronomical Institute of ETH Zurich and the University of Leiden. Coronagraphs are used as telescopic attachments designed to block out the direct light from a star so that nearby objects can be resolved. The new system called Apodizing Phase Plate uses such a device to minimize a star's light. Scientists were able to gather information on the temperature and the atmosphere of exoplanets.

<http://tinyurl.com/07-100707>



## Venture Kick Award For Flying Robot

(ePresse - AGEFI, July 12, 2010)

The EPFL spin-off Sensefly has won the third round of the Venture Kick program. The drone developed by the start-up is a ready-to-use flying robot that takes pictures over an area of 1 km<sup>2</sup>. After landing, the drone uploads the photographs on a computer that can be further processed to have a quick overview of one's fields. The ETH Zurich spin-off Malcisbo and its "sweet vaccines" was also amongst the winners of the third round. Both firms will receive a prize money of CHF 100'000. Since 2007, Venture Kick has distributed around CHF 4.5 million to 129 young Swiss companies that have in turn raised about CHF 45 million and created 500 jobs.

<http://tinyurl.com/07-100712>

## Swiss Satellite In Orbit

(ePresse – Der Bund, July 13, 2010)

Switzerland has its own satellite, Tlsat-1, which was developed at the Tessin-based Supsi school. The satellite will analyze the effect of single free oxygen atoms on lead. Tlsat-1 is part of the US CubeSat program, whose goal is to foster students to build mini satellites together with companies. Satellites have to have a 10cm lateral length and a maximum weight of one kilogram.

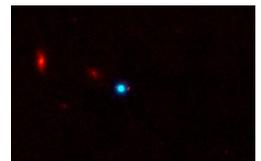
<http://tinyurl.com/07-100712b>

## Quasar Acting As Cosmic Lens

(EPFL, July 16, 2010)

The EPFL's Laboratory of Astrophysics has for the first time observed a quasar that is located between the Earth and a more distant galaxy and acts as a gravitational lens, a phenomenon that illustrates Albert Einstein's theory of general relativity and will make entirely new kinds of observations possible. Gravitational lenses are caused by massive objects such as stars or galaxies that bend rays of light passing nearby. A quasar is the heart of a galaxy, consisting of a super massive black hole. The small fraction of the galaxy's mass that is close enough to be swallowed up by the black hole emits light before disappearing forever.

<http://tinyurl.com/07-100716>



## Probe Rosetta Getting Closer To Asteroid Lutetia

(ePresse – NZZ, July 21, 2010)

The European comet probe Rosetta is getting closer to the asteroid Lutetia, the biggest ever asteroid to have been observed by a probe (100 km in diameter, 3'000 km away when at closest distance). The University of Bern played an important role in developing the probe, which is designed to take pictures of rocks. Data from highly precise instruments and photographs should deliver insights on early times of the solar system, in particular if certain types of minerals are to be found. Researchers also want to determine whether Lutetia has an atmosphere. The next goal of Rosetta is the Tschurjumow-Gerasimenko comet about 7.1 billion kilometers away that it should reach in November 2014.

<http://tinyurl.com/07-100721>

## Swiss Electric Sports Car Wins Competition

(ETH Life, July 23, 2010)

The electric sports car Furka, developed and designed by ETH Zurich and the technical school of Lucerne, won both the dynamic (acceleration, energy efficiency during endurance race, etc.) and static (engineering design, sustainability, business plan, etc.) competitions that took place during the first race of the Formula Student's season in Silverstone. It ranked first in the 1A category that contains only emission-free vehicles. The engine, composed of two electric motors and lithium-polymer batteries, outputs 82 horse powers, reaches





100km/h in 3.5 seconds, weighs only 200 kilograms and has a 22 kilometers' range in race mode. This first round attracted 100 teams (2'500 students) from 30 countries.

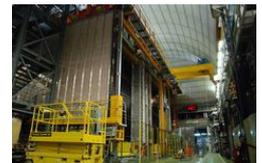
<http://tinyurl.com/07-100723>

## 8. Physics / Chemistry / Maths

### Tau Neutrino Likely Observed In Opera Detector

(ETH Zurich, June 01, 2010)

After over two years of data taking, the first tau neutrino has apparently been observed in the OPERA detector. Launched in 1997, the Opera project in the Gran Sasso underground laboratory is searching for tau neutrinos from so-called neutrino oscillations, the transmutation of a muon neutrino into a tau neutrino. The project is the first – and so far only – one which has most likely identified the newly created neutrino through neutrino oscillation. The observation of such a faint event would imply that neutrino would have a mass, a hypothesis which goes beyond the present Standard Model. Researchers from various institutions such as CERN and ETH Zurich will have to find other similar events to establish the neutrino-oscillation theory.



<http://tinyurl.com/08-100601>

### CERN's New Exhibition On "Universe Of Particles"

(myScience.ch – CERN, June 15, 2010)

CERN has recently started operating the LHC, one of the most sophisticated scientific tools ever built to explore new territories of knowledge. To share this exciting adventure with the general public, CERN is opening a visitor center that is as high-tech and futuristic as its accelerator. The entire Universe is made up of particles. But where do they come from? What laws govern their behaviour? The purpose of the "Universe of particles" exhibition is for visitors to confront the great questions of contemporary physics, currently being explored by the CERN via the LHC and other accelerators. Every year the Laboratory plays host to more than 35'000 visitors and gives training courses to hundreds of students and teachers.

<http://tinyurl.com/08-100615>

### SESAME Project In Middle-East With Swiss Support

(admin.ch, June 18, 2010)

The Federal Council has approved the observer status of Switzerland to the SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) project in Allan, Jordania. This first synchrotron center in the Middle-East will be used for fundamental research in physics and applied research on materials. It contributes to the peaceful development and scientific cooperation in the region. The SESAME project was born in the late nineties when numerous Middle-East countries gathered and expressed their wish to continue using the German BESSY synchrotron which was being dismantled. The Paul Scherrer Institute is an active collaborator and supports the project.

<http://tinyurl.com/08-100618>

### Ultra Fast Magnetic Memories To Replace Hard Disks

(myScience.ch – PSI, June 25, 2010)

Researchers from the Paul Scherrer Institute and the University of Konstanz have thoroughly studied magnetic bands and shown that they do not only allow very high memory densities but also faster access time than today's hard disks. These so-called "racetrack hard disks" allow the production of shock-proof memory devices that should soon replace the actual hard disks. In nanowires of the racetracks, the information is encoded as magnetic bits but here, a magnetic field causes the bits to flow, the nanowires staying fixed. High densities can be achieved since nanowires can be stacked a few nanometers apart. The rapidity of orienting magnetic domain allow racetracks to be 100'000 times faster than actual hard disks.

<http://tinyurl.com/08-100625>

### Unexpected Discovery: Proton Is Smaller Than Assumed

(PSI, July 08, 2010)

At the Paul Scherrer Institute, Swiss and international researchers have measured the size of the proton to a unheard-of precision. It was observed that the elementary particle is 4% smaller in volume than expected, a result which weakens quantum physics, especially quantum electrodynamics that describes light-matter interactions. A challenge awaits physicists for a correction to be made to either the quantum theory or to the value of the Rydberg





constant. For the experiment, physicists have created an exotic hydrogen atom by replacing the electron by a smaller muon particle, therefore facilitating proton interactions.

<http://tinyurl.com/08-100708>

### International Award For Swiss Astrophysicist

Prof. Michel Mayor from the University of Geneva has been awarded the 2010 Viktor Ambartsumian International Prize for his extraordinary contributions to the domain of planetary systems. Indeed, in 1995, Prof. Mayor and his colleague Didier Queloz discovered 51 Pegasi b, the first exoplanet. To this day, most of the nearly 500 exoplanets have been revealed by Prof. Mayor and his team. This prize (USD 500'000) has been instituted by the President of Armenia in 2009 and this is the first year it is awarded. It corresponds to one of the most important distinction in astrophysics.

<http://tinyurl.com/08-100720>

(UNIGE, July 20, 2010)



### Heisenberg's Uncertainty Principle Outwitted

Heisenberg's uncertainty principle illustrates the difference between classical and quantum mechanics. The principle bounds the uncertainties about the outcomes of two incompatible measurements, such as position and momentum, on a particle. However, if the particle is prepared entangled with a quantum memory, it might be possible to predict the outcomes for both measurement choices precisely. Physicists from ETH Zurich, the Ludwig-Maximilian University in Munich and the University of Darmstadt have extended the uncertainty principle to incorporate this case, providing a lower bound on the uncertainties, which depends on the amount of entanglement between the particle and the quantum memory.

<http://tinyurl.com/08-100726a>

(ETH Life, July 26, 2010)



### Plans For Next Giant Particle Collider

Scientists have announced plans to build a successor to the Large Hadron Collider (LHC), the world's biggest atom smasher located outside Geneva. Plans for the CHF 10.5 billion, 50-kilometer tunnel called the International Linear Collider were presented to the International Conference on High Energy Physics in Paris. It could be built in Japan, Russia, the United States or at CERN, the home of the current collider. Scientists want a new-generation machine that will shoot them straight. The new collider would accelerate electrons and positrons, their antimatter equivalent. It is hoped to be built by 2025.

<http://tinyurl.com/08-100726b>

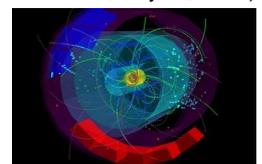
(swissinfo.ch, July 26, 2010)

### First Results From Large Hadron Collider at CERN

First results from the Large Hadron Collider (LHC) at CERN are being revealed at ICHEP, world's largest international conference on particle physics in Paris. The spokespersons of the four major experiments presented measurements from the first three months of successful LHC operation at 3.5 TeV per beam, an energy 3.5 times higher than previously achieved at a particle accelerator. With these first measurements, the experiments are rediscovering the particles that lie at the heart of the Standard Model – the package that contains current understanding of the particles of matter and the forces that act between them. This is an essential step before moving on to make discoveries.

<http://tinyurl.com/08-100726c>

(myScience.ch – CERN, July 26, 2010)



### Two Bronze Medals At International Chemistry Olympiads

Alain Vaucher from Fribourg and Yannick Suter from Aarau, two high school students, have both won a bronze medal at the International Chemistry Olympiads (ICO) that were held in Tokyo. 270 students from 73 countries gathered in Japan to take experimental as well as theoretical exams. Participants were for example asked to calculate how much energy a lithium-ion battery can store and what the details of the energetic processes were. The motto "Chemistry: the key to our future" also gave the students the opportunity to discover new cultures and foster international exchanges. It is the 24<sup>th</sup> time that Switzerland participates in the ICO since they were created in 1968.

[www.olympiads.ch](http://www.olympiads.ch)

(July 27, 2010)





## Model To Explain Trophic Networks

A research group composed of ecologists and mathematicians succeeded to model the complexity of trophic systems. Scientists from the Universities of Fribourg and Geneva have developed new tools to decipher these “road maps” indicating who eats who in ecosystems. Their statistical model allows to predict the structure of these networks considering every underlying characteristic of each involved species. Biological factors leading to the observed regularities of trophic networks such as size were carefully examined and gathered to express the problem mathematically.

<http://tinyurl.com/08-100728>

(UNIFR, July 28, 2010)



## 9. Architecture / Design

### Tech & Design Collaboration Wins International Prize

(EPFL+ECAL Lab, June 16, 2010)

“Give Me More”, an exploration into augmented reality by the EPFL+ECAL (University of art and design Lausanne) Lab made a sensation in Berlin, attracting several thousands of visitors as well as catching the Festival Jury’s attention. The DMY Festival prize rewards a project which includes installations by the students in the first edition of the postgraduate course in augmented reality for designers. The principle is to go beyond a technological demonstration to become a new medium, letting actual content take centre stage.

<http://tinyurl.com/09-100616>

### Switzerland’s Highest Building

(www.primetower.ch, July 07, 2010)

The 126-metre Prime Tower, Switzerland’s highest building, and the adjoining Platform office complex in Zurich have reached the topping-out stage. At the ceremony held to mark this event, the main players in the project expressed their confidence that the two buildings will be completed on schedule by May 2011. 68% of the rental area has already been let. The building will be certified according to “green property”, a new Swiss sustainability rating, and certification to the international LEED standard is planned, thus helping to spearhead environmental responsibility, meeting tenants’ future sustainability requirements.

<http://tinyurl.com/09-100707>

### Housing Prize Awarded For Compact City Urban Model

(UNINE, July 29, 2010)

Patrick Rérat, geographer from the University of Neuchâtel, was awarded the Bengt Turner Prize 2010 for his work analyzing the issues and criticisms of a sustainable development urbanization model called the “compact city”. His point of view is that cities can continue to grow but not without control. The prize is given out by the European Network for Housing Research which selects the best scientific paper written by young European researchers in the domain of housing.

<http://tinyurl.com/09-100729>



## 10. Economy, Social Sciences & Humanities

### eBooks At National Library

(news.admin.ch, June 03, 2010)

The Swiss National Library now offers a digitization on request service for out-of-copyright books. This new paid service is known as “eBooks on Demand” (EOD). The National Library already lists more than 100’000 books available for digitization, which can be provided as a PDF to customers; on request, a paperback may also be supplied. “eBooks on Demand” is a project of the National Library and over 20 other libraries in ten European countries

[www.books2ebooks.eu](http://www.books2ebooks.eu)

<http://tinyurl.com/10-100603>

### New Chartered Financial Analyst Program Partner

(ePresse – AGEFI, June 04, 2010)

In addition to the University of St. Gallen, the University of Lausanne (UNIL) is proud to be the second Swiss partner of the prestigious Chartered Financial Analyst (CFA) Program. From the point of view of UNIL’s finance Prof.



Eric Jondeau, "this partnership will help make Switzerland's economy be more dynamic and raise the level of knowledge and professional competencies that the world of finance requires."

<http://tinyurl.com/10-100604>

### Zurich Wants More Innovative Firms

(ePresse – Tages Anzeiger, June 16, 2010)

Between 2002 and 2008, more than 4'000 new firms have officially registered and more than 25'000 jobs were created in the canton of Zurich. Besides a solid banking and insurance environment, Zurich, where 9% of Swiss jobs are located, wants to create a fertile soil for domains that lie close to industry such as information technology, cleantech or life sciences. The Technopark foundation strives to achieve this goal in a perspective to make the city the most important innovation center of Switzerland in fifteen years time. This could not be done without the active collaboration from both ETH Zurich and the University of Zurich which are constantly trying to keep their positions in international rankings.

<http://tinyurl.com/10-100616a>

### 2010 Richard-Ernst Medal Awarded To Kofi Annan

(myScience.ch – ETH, June 18, 2010)

Kofi Annan, UN's former General Secretary, has been awarded the Richard-Ernst Medal from ETH Zurich. During his speech, the Peace Nobel Laureate invoked scientists to provide their discoveries and knowledge to poor people. He also talked about climate change and famine around the world, two challenges that the Swiss Institute of Technology is tackling. The conference was followed by a Q&A session where young scientists debated with Mr Annan around the question: "How should science be conducted in the future in order to best serve world's community?" The Richard-Ernst lecture promotes the exchange between research and the public, and also aims at sharpening the awareness for essential matters of the future.

<http://tinyurl.com/10-100618a>

### New Brain Memory Theory Formulated

(UNIBE, June 18, 2010)

Conscious and unconscious learning are not inevitably using different areas of the brain. Research conducted at the University of Bern shows that specificities of the learning situation are predominant over the involvement of a brain's area. Prof. Katarina Henke has formulated a new memory theory that distinguishes two memory systems. The criteria used is however not consciousness but the specifications of the learning situation that calls a determinate processing of the information. The theory also identifies three ways of handling data: quick learning of flexible connections, slow learning of rigid relationships and fast learning of single pieces of information.

<http://tinyurl.com/10-100618c>

### Study On Life Course's Vulnerabilities

(UNIL, June 24, 2010)

Directed by Dario Spini from the University of Lausanne, together with the University of Geneva, the research center LIVES will analyze challenges of post-industrial economies and societies and their effects on the development of vulnerability in terms of social exclusion and precariousness. It will create concrete indicators of vulnerability that will be employed in comparative, longitudinal analysis of the effects of socio-structural and personal resources on overcoming vulnerability across the life course. With its emphasis on an interdisciplinary life-course approach, LIVES provides the leadership necessary to pave new ways in Swiss social sciences.



<http://tinyurl.com/10-100624a>

### Value Of Banking Secrecy For Swiss Banks

(SNSF, June 24, 2010)

A study conducted within the National Centre of Competence in Research (NCCR) "FINRISK - Financial Valuation and Risk Management" suggests that some Swiss banks could continue to thrive even if they are not allowed to keep their secrets. The study set forth the hypotheses that the more important and valuable banking secrecy, the greater the share prices react to positive or negative news. The study conservatively estimates banking secrecy to account for 8-15% of a bank's total value in some cases, while in other cases it has little or no apparent impact on value. The researchers at the NCCR FINRISK conclude that removing secrecy would be costly for some, but surprisingly not all Swiss banks.

<http://tinyurl.com/10-100624b>



## Aesthetic Viewers

(UNIBE, July 02, 2010)

Only a small minority of human beings experience a letter or a number as a color. In two different studies, psychologists from the University of Bern have shown that such persons – called aesthetics viewers – have a better memory and are more creative. Aesthetics viewers experience many simultaneous perceptions: odors, sounds, tastes and colors can connect in arbitrary way. It has been observed that there are more aesthetics viewers among artists than in a random sample of the population; artists also proved to perform better at memory tests.

<http://tinyurl.com/10-100702a>

## Antic Synagogue Discovered In Galilee

(UNIBE, July 08, 2010)

An international research team involving the University of Bern discovered a synagogue from the Roman-Byzantine epoch in the ruins of an antic Galilean village in Israel. First estimations tend to indicate that it dates back to 400-500 AC, thanks to coins that were found close by. Galilee played an important role in traditions during the early Christian and rabbi times. Excavations are part of the international Kinneret Regional Project conducted in Israel.

<http://tinyurl.com/10-100708>



## Launch Of Cooperative Projects In Developing Countries

(myScience.ch – UNIL, July 08, 2010)

Three projects from the University of Lausanne (UNIL) were selected in the frame of the program “Research partnerships with developing countries” that was co-initiated by the Swiss National Scientific Research Fund and the Swiss Agency for Development and Cooperation. They aim at improving public health, food security and entrepreneurial performances in African as well as South American countries. These research collaborations will reinforce the scientific potential of UNIL partners in Kenya, Uganda and Colombia. Altogether, the three projects will be granted more than CHF 1.2 million.

<http://tinyurl.com/10-100708b>

## Innovative Persons Are More Successful

(myScience.ch – FHNW, July 08, 2010)

Innovative entrepreneurs as well as those that clearly spot markets opportunities have better prospects. This is shown in a study from the economics' school FHNW after having studied new independent entrepreneurs in last decade's context. Every person who has founded his/her firm and who sees the implementation of an idea as a driving force for personal autonomy comes more often with new products and services on the market. They also foresee more future innovation. In effect, around one third of the companies have introduced a new or strongly improved product or service and 20% have realized a procedure innovation. The survey also shows that companies founded by women have a higher survival probability than those founded by men.

<http://tinyurl.com/10-100708c>

## Swiss History Articles In Online Database

(ETH Life, July 13, 2010)

State archives of the cantons of Zurich, Zug, Basel and Thurgau as well as archives from ETH Zurich have jointly launched a common searchable database [www.archivesonline.org](http://www.archivesonline.org). Visitors can search articles and data from the past 1'200 years of Swiss history. The search process has been simplified via internet and archives that already work with the scopeQuery and CMISTAR systems will directly be accessible. More information will regularly be added onto the server.

<http://tinyurl.com/10-100713a>

## World's First Online Finance Observatory

(ePresse – TDG, July 13, 2010)

Two former professors from the University of Geneva, Philippe Braillard and Henri Schwamm, have launched the [www.finwatcher.com](http://www.finwatcher.com) website that provides visitors with strategic documents coming from 350 sources (12% are located in Switzerland, 40% in Europe, 25% in the US and Canada, 8% in Latin America, Russia and Australia and 15% come from intl. organizations). This website is the world's first observatory of banking and financial activities.

<http://tinyurl.com/10-100713b>

## Risk-Capital Network Online

(ePresse – AGEFI, July 13, 2010)

Founded in 2009, the EPFL-based start-up Cofundit has launched an interactive internet platform in the risk-capital domain. In effect, SMEs and start-ups have more and more trouble finding fundings from public organs. Private



equity funds also tend to lend money in a very precautionary way after the 2009 economic crisis. Confundit aims to fragment funding demands and propose interesting investments to risk capitalists who want to invest in a company. To gather financing, the start-up uses the crowd funding method, which takes advantage of social media and that has proven to be successful in Anglo-Saxon countries.

<http://tinyurl.com/10-100713c>

### Simulating Crowd Disasters

To avoid crowd disasters, the sociologist Dirk Helbling from ETH Zurich has modelled the flow of visitors during events. With simulations, live monitoring at potential risk places and well-defined emergency procedures, the overall risk can be massively decreased. He analyzed the phenomenon of crowd turbulence that arises when people forming the crowd are glued to each other because of the lack of space. A sort of shockwave propagates through the crowd, making it difficult to keep one's balance and contact with the ground. Movements are not controlled independently anymore.

<http://tinyurl.com/10-100727>

(ETH Life, July 27, 2010)



### Financial Research Software

ProFinance is getting a firmer ground in the world of financial research by proposing its outsourcing services to managers. The founders of the society: Francis Kahn, Claude Morgenegg and Nicolas Cazade based themselves on the fact that banks and managing directors have to spend more time with their clients and have less human as well as financial resources to do research. ProFinance is a management software based on white label, which is a commercial principle that makes a tool available to the public without giving any notice of the origin of the source or its brand.

<http://tinyurl.com/10-100730a>

(e-Press – AGEFI, July 30, 2010)

### Less Companies Created In 2008

In 2008, 11'600 companies were created in Switzerland, which represents a 3.2% decrease compared to the previous year. The number of jobs created also diminished from 23'100 to 21'800. On average, each newly founded firm created 1.9 jobs and most of them (81%) are active in the services domain. 55% of the companies have activities that were labelled as being scientific and/or technical. About one third of the enterprises were created with the participation of women. These results are reported by the Federal Statistical Office in its latest press release.

<http://tinyurl.com/10-100730b>

(admin.ch, July 30, 2010)

### Indexing Brainstorming Results

Researchers in the National Centre of Competence in Research "IM2 – Interactive Multimodal Information Management" have perfected an index-based system for indexing brainstorming results at a team level. TableMind consists of a tabletop in the form of a huge touch screen. There is room for a team of four people around the table. Each of them has a post-it pad at their place for writing down notes, drawing diagrams or drawing directly on the table with their finger. The outcome is a file with ideas which can be processed at a later date.

<http://tinyurl.com/10-100730c>

(SNSF, July 30, 2010)



### Human-Built Structures Discovered In Amazon Basin

Geographers from the University of Bern took part in an expedition which unveils structures that were built by an extinct civilization in the Bolivian savannah. The presence of human constructions have been confirmed by images from the GoogleEarth software and satellites. Researchers have listed all potential human-built structures on a map representing 4'500 km<sup>2</sup>. From this systemic mapping, a connected network of canals, reservoirs, roads, etc. started to emerge to form a complete communication grid. The civilization is thought to have existed between 400 and 1'400 AD.

<http://tinyurl.com/10-100731a>

(Le Temps – UNIBE, July 31, 2010)





## 11. Technology Transfer / IPR / Patents

### Academic Innovation Quarter Attracts Companies

(swissinfo.ch – EPFL, June 02, 2010)

Nokia, EPFL and ETH Zurich inaugurated a long-term research program to "invent the services of the future". Nokia is opening a laboratory on the EPFL campus. The accord is part of the institute's new industrial strategy adopted last year and its transformation into a global research center. A start-up incubator, coaching services, study programs in entrepreneurship and innovation programs aim to stimulate links between the labs and businesses. The science park on campus is currently home to more than 100 small firms and investors. The next stage of the EPFL's business strategy involves the creation of an innovation quarter, comprising ten ten-story buildings financed by private industry to be rented as laboratories on campus.



<http://tinyurl.com/11-100602>

### Best Five Swiss Start-Ups Honoured

(EPFL, June 18, 2010)

The Wigier Foundation has honoured Switzerland's five best start-ups of the year. From nanotechnology to medical innovations and from web applications to energy conversion, all companies have an important potential in their respective domain. The prize is awarded every year to young Swiss entrepreneurs who have developed an innovation concept that is promising in both economical and also job-creating terms.

<http://tinyurl.com/11-100618>

### International R&D Winners

(R&D Mag, July 07, 2010)

R&D Magazine has announced the winners of the 48th Annual R&D 100 Awards, which single out the 100 most technologically significant products introduced on the marketplace over the last year. The IBM research center in Zurich has made it into the top 100 for its Zone Trusted Information Channel that plugs into the USB port of any computer and creates a direct and secure channel to a bank's online transaction server, bypassing the PC that could be infected by malicious software or susceptible to hacker attacks. Sensimed AG, a spin-off from EPFL and ST Microelectronics, has also been selected for its triggerfish product that monitors eyes' intraocular pressure continuously up to 24 hours.



<http://tinyurl.com/11-100707>

### Academic Enterprise Awards At Swiss Technical University

(ETH Zurich, July 15, 2010)

ETH Zurich will host the next 2011 ACES Academic Enterprise Awards, a pan-European program to recognise excellence among university spin-off companies and involving several technology multinationals. They are judged by the Science|Business media network and business schools INSEAD and ESADE in association with Microsoft, BP and GE. The awards will attract nominations from all countries and industrial sectors - and recognize university entrepreneurs who have excelled at bridging the gap between lab and market by starting their own technology companies. Nominations for the awards may be submitted by any qualifying entrepreneur who is using technology developed at European universities or public research institutes.

[www.sciencebusiness.net/aces](http://www.sciencebusiness.net/aces)

### "Pioneer Grants" To Foster Technology Transfer

(ETH Life, July 26, 2010)

Pioneer Grants is the new research support grant of ETH Zurich. Roland Siegwart, ETH Zurich's research head, is convinced that this grant will close the loop between basic research and team work with the industry. He also recognizes the role that ETH Zurich has in fostering technology transfer. With a maximal prize money of CHF 150'000 per project, PhD candidates as well as Master students are entitled to submit their own ideas based on a research project where a new finding has been developed. Active collaboration with the industry will be sought and spin-off creation will also be encouraged.



<http://tinyurl.com/11-100726a>

### Swiss Federal Institute of Intellectual Property

[www.ige.ch/en.html](http://www.ige.ch/en.html)



## Swiss Technology Transfer Association

[www.switt.ch](http://www.switt.ch)

## 12. General Interest

### Statistical Overview Of Switzerland's Mobility

(admin.ch, June 21, 2010)

The Federal Statistical Office recently published a report on mobility and transports in Switzerland. General services to transport people have more than doubled between 1970 and 2008. Concerning the transportation of goods, this evolution is even more marked. In 2009, 5.4 millions engine vehicles were registered in the country, there were 71'000 km of roads and 5'100 km of railways. It is estimated that the transportation sector accounts for one third of the total energy consumption and 37% of CO<sub>2</sub> emissions. In 2005, total costs of road traffic reached CHF 70.5 billion and those of the railway traffic CHF 11.4 billion.

<http://tinyurl.com/12-100621>

### 2'000km Adventure Along Swiss Borders

(swissinfo.ch, June 24, 2010)

Hiking, biking, climbing and kayaking around Switzerland's borders in three months: this is the challenge that US-based mountaineer and journalist John Harlin III, 54, has set himself. The tour around Switzerland represents a distance of 1'900 kilometers that he plans to do using muscle power only. He started on June 23 in St Gingolph, on the southern shore of Lake Geneva, traveling counter-clockwise around the country. He'll be carrying a bevy of gadgetry to post daily reports, pictures, and short videos, each geotagged to reveal on a map exactly where he took them and when.



<http://tinyurl.com/12-100624>

### Switzerland Counts 15 Companies In Fortune 500 Global List

(domain-b.com, July 12, 2010)

The Fortune 500 global list based on the total global sales figures of companies, ranked Wal-Mart Stores at No 1, which had 2009 revenues of USD 408.21 billion followed by Royal Dutch Shell with USD 285.12 billion, Exxon Mobil with USD 284.65 billion, BP with USD 246 billion and the world's largest carmaker Toyota Motors with USD 204 billion. Oil and Gas companies continued with their near monopoly in the Fortune list as 5 energy companies are ranked in the top 10. US dominance in the top 10 showed a decline with only two American companies making it to the top 10 list while China's growing influence as a economic giant is reflected with three Chinese companies in the top 10 list in 2010. Switzerland counts 15 companies in the 2010 list, Nestlé leading at number 44, followed by Zurich Financial Service (#83) and Credit Suisse (#150).

<http://tinyurl.com/12-100712>

### Swiss Libraries In Statistics

(admin.ch, July 29, 2010)

As the last report from the Federal Statistical Office shows, Swiss libraries were proposing more than 48.3 million books in 2009 with a rough 1.7 million increase of all the items made available in comparison to 2008. Around 253'000 thousands users were counted, totaling more than 4 million loans. Besides books and reviews, Swiss libraries offer manuscripts, iconographic and cartographic documents, sound recordings and other media to borrow.

<http://tinyurl.com/12-100729>



## Upcoming Science and Technology Related Events

### 3<sup>rd</sup> International NanoBio Conference

August 24-27, 2010

<http://www.nanobio.ethz.ch/>

Nanobio, nanomedical, nanotoxicology  
Hönggerberg Campus, ETH Zurich

### Swissmem Symposium 2010

August 26, 2010

<http://tinyurl.com/swissmem2010>

Innovation and Liquidity in actual environment  
Lake Side, Zurich

### CTI Medtech Event 2010

August 31, 2010

<http://www.swiss-innovation.com>

Kultur Casino, Bern

### Micro10

September 2-4, 2010

<http://www.micro10.ch>

Espace Louis-Agassiz 1, Neuchâtel

### 3<sup>rd</sup> Industry Day

September 17, 2010

<http://www.industryday.ethz.ch>

Biomaterials, microsystems, analytics  
and diagnostics  
ETH Zurich, Campus Hönggerberg

### Blue Tech 2010

September 12-16, 2010

<http://www.blue-tech.ch>

Renewable energies and efficient energy solutions  
Casino Theater Neumarkt, Winterthur

### BioValley Life Science Week 2010

September 21-23, 2010

<http://www.lifesciencesweek.ch>

Europe's largest Pharma and Biotech Cluster, Basel

### Forum EPFL

October 12-20, 2010

<http://forum.epfl.ch>

Switzerland's biggest recruiting fair  
EPFL campus

### 3<sup>rd</sup> Motor Summit 2010

October 26-28, 2010

<http://www.motorsummit.ch>

Zentrum Glockenhof, Zurich

### 5<sup>th</sup> Swiss Innovation Forum

November 4, 2010

<http://www.swiss-innovation.com>

Novartis Campus, Basel

### swissnexDay 2010

November 8, 2010

<http://www.swissnex.org>

Internationalisation of Swiss higher education institu-  
tions  
EPFL and ECAL campus, Lausanne

### House Building and Energy Fair 2010

November 11-14, 2010

<http://tinyurl.com/bern2010>

BEA bern expo, Bern

### Swisstech 2010

November 16-19, 2010

<http://www.swisstech2010.com>

Europe's central fair for the subcontracting industries  
Messe, Basel

### 2011 Academic Enterprise Award Europe

February 2011

<http://www.sciencebusiness.net/aces>

ETH Zurich

## Science-Switzerland Back Numbers

[http://www.swissinnovation.org/Science-Switzerland\\_AprMay\\_2010.pdf](http://www.swissinnovation.org/Science-Switzerland_AprMay_2010.pdf)

[http://www.swissinnovation.org/Science-Switzerland\\_FebMar\\_2010.pdf](http://www.swissinnovation.org/Science-Switzerland_FebMar_2010.pdf)

[http://www.swissinnovation.org/Science-Switzerland\\_DecJan\\_2009-2010.pdf](http://www.swissinnovation.org/Science-Switzerland_DecJan_2009-2010.pdf)

[http://www.swissinnovation.org/Science-Switzerland\\_OctNov\\_2009.pdf](http://www.swissinnovation.org/Science-Switzerland_OctNov_2009.pdf)

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