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Switzerland.

Science-Switzerland, August – September 2021

News on Swiss science, technology, education and innovation

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Switzerland Remains World's Most Innovative Country

(WIPO, September 23, 2021)

Switzerland was recently named as the most innovative country in the world by the Global Innovation Index (GII) for the for the 11th consecutive year – an extraordinary feat attesting to the strength of the Alpine nation's innovation ecosystem and the quality of its public higher education and research institutions. Switzerland in particular topped the charts in knowledge and technology outputs (1st) – producing more innovation outputs relative to its level of innovation investments – while also placing among the top five in creative outputs (2nd), infrastructure (2nd) and business sophistication (4th). The Global Innovation Index (GII) is published by Cornell University, INSEAD and WIPO, and aims to provide a benchmark of the innovation ecosystem performance of more than 130 economies. In this year's edition, Switzerland was followed by Sweden in second place, as well as the U.S.A. in third.
/web/2021/00-210923-ba

Thomas Berger and Nicola Aceto Win Top Swiss Science Prizes

(Swiss National Science Foundation, September 13, 2021)

The Swiss National Science Foundation recently announced the laureates of the highly prestigious "Marcel Benoist" and "Latsis" Swiss Science Prizes. University of Bern Professor Thomas Berger will receive this year's Swiss Science Prize Marcel Benoist, which is considered to be the Swiss equivalent of the Nobel Prize, for his innovative contribution to Internet-based psychotherapy. Berger is a pioneer in the design, testing and rollout of digital therapeutic interventions to prevent and treat mental health issues and disorders. ETH Zurich Professor Nicola Aceto will meanwhile receive this year's Swiss Science Prize Latsis, which is awarded to young researchers under the age of 40, for his ground-breaking discoveries in the area of cancer research. These findings have already been applied in clinical trials in patients with metastatic cancer and have contributed to the development of several diagnostic and prognostic tools.
/web/2021/00-210913-e7

TOP 100 Swiss Startups 2021

(Venturelab, September 08, 2021)

Widely recognized as a benchmark in Switzerland's startup ecosystem, the TOP 100 Swiss Startup Award recently unveiled the 100 most innovative and promising Swiss startups, as picked by a jury of 100 leading investors and startup experts. Planted, which is revolutionizing the food industry by creating plant-based protein made of 100% animal-product-free ingredients, topped this year's ranking, followed by CUTISS AG (2nd), which developed a unique personalized skin technology to treat skin defects, and 9T Labs (3rd), which developed a new way of manufacturing carbon composites. In addition, the following startups were announced as the winners of the public voting in their respective verticals: Synendos Therapeutics (Biotech), Perovskia (Cleantech), Synthara (Engineering), SwissBorg (Fintech), Kemiex (Foodtech), Authena (ICT), Spiden (Medtech), ImmoZins (Proptech), Voliro (Robotics), and PRODAFT (Security).
/web/2021/00-210908-5d

1. Policy

Measures to Boost Swiss Startup Ecosystem

(Federal Council, August 25, 2021)

In order to strengthen Switzerland's appeal as a location for startups in the long term, the Federal Council recently tasked the Federal Department of Economic Affairs, Education and Research (EAER) and the Federal Department of Justice and Police (FDJP) with examining various measures to accelerate technology transfers, boost internationalization, improve access to skilled workers and optimize relevant regulations. In this context, the Federal Council in particular aims to explore the advantages and disadvantages of a Swiss innovation fund by investigating the extent to which such a fund could expand the venture capital market in Switzerland and thus improve the growth opportunities of innovative companies in Switzerland.
/web/2021/01-210825-cd

Transitional Measures for Horizon Europe

(Federal Council, September 17, 2021)

The Federal Department of Economic Affairs, Education and Research recently tasked the Swiss National Science Foundation with setting up and conducting transitional measures to replace elements of the Horizon Europe program that are currently inaccessible to researchers in Switzerland, due to its non-associated third country status. These measures, which will be submitted to Parliament in the winter session in the form of an addendum to the 2022 budget, will in particular serve as replacement schemes for those who intended to compete in the ERC Advanced Grants calls, as well as the 2021 MSCA Postdoctoral Fellowships. Moreover, in the event that Swiss researchers are not eligible to submit project proposals for the 2022 ERC Starting Grants and Consolidator Grants, the measures will apply to these calls as well.
/web/2021/01-210917-cb

2. Education

"Productive Failures" Increase Learning Outcomes

(ETH Zurich, September 02, 2021)

A team of researchers led by ETH Zurich Professor Manu Kapur and postdoctoral researcher Tanmay Sinha recently demonstrated that, contrary to the conventional educational formula, it is better to first puzzle over a problem that is specifically relevant to a topic before exploring the underlying principles if you want to achieve ideal learning outcomes. It is however important to note that productive failure requires a certain amount of prior knowledge and that students should be aware of the deficit between what they already do and do not know. To come to this conclusion, the researchers conducted a meta-analysis of educational research from the past 15 years that investigated the effectiveness of having instruction before practice, or vice versa, in STEM disciplines, and tested their theory in one of the largest year-long courses taught at ETH Zurich.
/web/2021/02-210902-75

3. Life Science

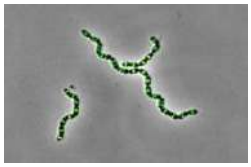
Breath Test to Measure Effectiveness of Epilepsy Treatment

(University of Basel, August 03, 2021)

A team of researchers led by University of Basel Professor Pablo Sinues, together with colleagues from the University Hospital Zurich, recently developed a new breath test to help doctors tailor the dosage of drugs administered to epilepsy patients, as well as to monitor the effectiveness of the treatment. This is an exciting development, because it not only removes the need for a blood sample, which can always be a stress factor for children, but it also provides medical staff with immediate results, as the samples do not have to be sent to the laboratory first. This is particularly important when it comes to young patients, who require constant adjustments of their medication to respond to their rapidly changing metabolism.
/web/2021/03-210803-18

Protein Controls DNA Replication in Pathogenic Bacterium

(University of Lausanne, August 09, 2021)



Researchers led by University of Lausanne Professor Jan-Willem Veening recently found that a newly discovered protein called "CcrZ" appears to be responsible for the coordination of cell division and DNA replication in the Streptococcus pneumoniae – an opportunistic pathogen that can lead to serious infections and which is increasingly becoming resistant to antibiotics. Specifically, the team found that CcrZ directly interacts with another protein called "FtsZ", which places CcrZ in the middle of the newborn cell, thereby enabling CcrZ to activate a new round of DNA replication. In this context, first author Clement Gallay moreover explained that they frequently observed futile division events, mis-segregated chromosomes and anucleate cells in the absence of CcrZ, thereby raising hopes that this protein could potentially be a new target for innovative antibiotics.
/web/2021/03-210809-bd

Using AI to Determine Protein Structure

(ETH Zurich, August 17, 2021)

Thanks to the considerable progress and effort in data science and experimental protein research, biomedical research is currently witnessing a quantum leap, particularly when it comes to determining the three-dimensional structure of proteins. Specifically, as explained by ETH Zurich Professor Beat Christen, AI algorithms have recently made it possible to use nothing but the linear sequence of the building blocks of proteins – amino acids – to deliver extremely accurate predictions of the 3D structure into which this chain of amino acids will assemble. Based on these sequences of amino acids, Christen and his team subsequently aim to calculate how protein information can be encoded into sequences of genetic building blocks – in other words into DNA – which could potentially provide a simple means of synthesizing these genes for practical applications in the future.
/web/2021/03-210817-79

Catalog of Defective "RNA Blueprints"

(University of Bern, August 19, 2021)

A team of researchers led by University of Bern Professor Oliver Mühlemann, in collaboration with the Biozentrum (University of Basel), recently created a nearly complete catalog of the products of a quality control mechanism, known as “nonsense-mediated mRNA decay” (NMD), which detects and removes defective genetic products (mRNAs) from cells, thereby ensuring the error-free expression of our genes. This is important, because the accumulation of certain mRNAs that are broken down in healthy cells by NMD quality control can contribute to the development of tumors, such as in the case in gastric

cancer. However, by obtaining a better understanding of how quality control can distinguish defective from correct mRNAs, the researchers are now better equipped to develop new therapeutic approaches for diseases in which quality control is impaired.
/web/2021/03-210819-6b

Producing 3D Organoids in Microgravity

(University of Zurich, August 26, 2021)

Following their successful initial preparatory tests on the International Space Station (ISS) in March 2020, University of Zurich Professor Oliver Ullrich and Dr. Cora Thiel, together with Airbus Defense and Space, are preparing to send their next experiment into space in order to help advance the industrial production of organoids – three-dimensional organ-like tissues – in microgravity. This is an important development, as 3D organoids could for example enable toxicological studies to be carried out directly on human tissues without detouring via animal models, or be used as building blocks for tissue replacement to treat damaged organs. The experiments are in turn conducted in space because these miniature human tissues are impossible to produce without support and matrix structures on Earth, due to its gravity, as explained by Thiel.
/web/2021/03-210826-2d

Highly Potent SARS-CoV-2 Antibody Enters Clinical Trials

(Università della Svizzera italiana, September 07, 2021)

A team of researchers at the Institute for Research in Biomedicine (IRB), which is affiliated to the Università della Svizzera italiana, recently developed a new, second-generation antibody against the novel coronavirus (SARS-CoV-2) and its variants, which, so far, has brilliantly passed all the efficacy tests and is now moving into the clinical trial phase. This is an exciting development, because as explained by IRB group leader Luca Varani, this novel bispecific antibody – i.e., which combines two antibodies into a single molecule – has not only proven to be extremely potent against SARS-CoV-2, but it has also been active against all known variants of the virus in the laboratory. Moreover, it does not allow the virus to generate new variants in response to drug treatment and it has a strong ability to resist future viral mutations, due to the way it was designed.
/web/2021/03-210907-f3

Tumor-Specific Activation of Immunotherapy Proteins

(EPFL, September 13, 2021)

A team of researchers led by EPFL Professor Li Tang and postdoctoral researcher Yu Zhao recently developed a new method to selectively activate cancer-fighting immunotherapy proteins in the tissues where tumors or metastases are located, thereby making the drugs less toxic to the rest of the human body. To achieve this, the team developed a kind of polymer shield for the protein drugs that would let them travel harmlessly through the body until they reach the tumor. Once there, chemical reactions in the unique tumor microenvironment – which is more acidic than the rest of the body and has a high reducing potential – break the bonds at the protein surface, thereby removing the polymer shield and enabling the protein drugs to selectively activate the patient's cancer-fighting lymphocytes in the tumor tissue.
/web/2021/03-210913-5f

Andrea Ablasser Wins Swiss "Nobel Prize in Cancer Research"

(University of Bern, September 17, 2021)

EPFL Professor Andrea Ablasser was recently announced as the recipient of this year's Dr. Josef Steiner Cancer Research Award – also considered as the Swiss "Nobel Prize for Cancer Research" – in recognition of her groundbreaking research relating to the intricate connections between the innate immune system and cancer evolution. In this context, Ablasser and her team in particular contributed to the

characterization of the so-called cGAS-STING innate DNA sensing machinery, as well as discovered that it participates in the elimination of pre-cancerous cells. Ablasser moreover developed a pharmacological strategy that enables specific intervention into pathological immune responses driven by the body's own DNA, thereby opening the door to an exacting new immune-therapeutic approach, which more efficiently fights cancer.
/web/2021/03-210917-18

Illusions Caused by Tactile Vibrations

(University of Fribourg, September 21, 2021)

A team of researchers led by Professors Daniel Huber and Mario Prsa from the Universities of Geneva and Fribourg, respectively, recently discovered that the brain is unable to reliably perceive the frequency of a vibration when its amplitude varies, thereby creating an interesting psychophysical illusion, whereby certain physically different frequencies are perceptually indistinguishable. Specifically, the researchers found that as the amplitude increases, the so-called vibrotactile pitch perception shifts toward the most sensitive frequency – 250 Hz in the case of humans – thereby causing high frequency vibrations (e.g., 500 Hz) to appear to be lower than they really are, and low frequencies (e.g., 150 Hz) to appear to be higher. Following this discovery, the team is now working to better understand how and why this illusion is created in our brains.
/web/2021/03-210921-16

AI Tool to Predict Psychotic Illnesses

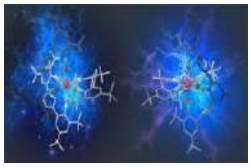
(University of Geneva, September 29, 2021)

A team of researchers from the University of Geneva and EPFL recently developed an artificial intelligence tool, which can not only help to identify the role of specific psychiatric symptoms in children in contributing to the development of psychotic illnesses, such as schizophrenia, but also to help predict the clinical evolution of individual patients. This is an important development, because as explained by Professor Stephan Eliez, this could enable them to better tailor treatment protocols to individual patients, thereby reducing their risk of developing a psychotic illness later on. To achieve this, the new tool used a so-called "network approach" to combine information regarding symptom connectivity and severity over a period of 20 years, thereby enabling it to determine which symptoms are predictive of a psychotic illness in the child's future developmental trajectory.
/web/2021/03-210929-06

4. Nano / Micro Technology / Material Science

Improving Luminous Efficiency of Manganese Complexes

(University of Basel, August 02, 2021)



A team of researchers led by University of Basel Professor Oliver Wenger and his doctoral student Patrick Herr were recently able to produce luminescent manganese complexes that exhibit promising luminescent properties and photocatalytic behavior, which, until now, had primarily been associated with noble metal compounds, such as ruthenium or iridium. This constitutes an important milestone in the quest to produce more sustainable luminescent materials and catalysts for converting sunlight into other forms of energy, as manganese is not only much more abundant in the Earth's crust than the noble metal compounds, but it is also significantly less toxic and many times cheaper.
/web/2021/04-210802-2d

Lightweight Composite Changes Color to Indicate Deformations

(ETH Zurich, August 20, 2021)

A team of ETH Zurich researchers led by Tommaso Magrini, together with colleagues from the University of Fribourg, recently created a lightweight material that changes color when it experiences internal deformation. This is an exciting development, as it enables researchers to identify overstressed areas before fractures form, and ultimately prevent catastrophic failures. To achieve this, the new material is composed of alternating layers of a plastic polymer and artificial nacre, or mother-of-pearl. The latter consists of countless glass platelets arranged in parallel, which are compacted, sintered, and solidified using a polymeric resin, thereby making it extremely hard and break-resistant. The polymer on the other hand contains an indicator molecule, which is activated as soon as the polymer experiences stretching forces, thereby causing it to change its fluorescence.
/web/2021/04-210820-7e

Comfortable Flame Retardant Cotton Textiles

(Empa, September 15, 2021)

A team of Empa scientists led by Sabyasachi Gaan and his colleagues Rashid Nazir, Dambarudhar Parida and Joel Borgstädt, recently developed a new phosphorus-based chemical process, which can turn cotton into a fire-resistant fabric, while still retaining its skin-friendly properties. Encouragingly, this flame retardant treatment does not include carcinogenic formaldehyde, which would endanger textile workers during the manufacturing process, and even after 50 launderings, 95% of the flame retardant network is still present in the fabric. This novel phosphorus chemistry could moreover be used to develop hydrogels that can release drugs upon changes in pH, which would be particularly useful when treating slow-healing wounds.
/web/2021/04-210915-f9

New World Record: 1,000 Tomograms per Second

(Paul Scherrer Institute, September 24, 2021)

A team of researchers recently developed an innovative new 3D imaging method at the Paul Scherrer Institute, which is capable of recording a record-breaking 1,000 tomograms per second without any major compromises in the other parameters. This is an exciting development, because it will enable scientists to non-destructively capture very fast processes and structural changes in materials on the micrometer scale, such as the burning of a sparkler, or the foaming of a metal alloy for the production of stable lightweight materials. To achieve this, the researchers not only required the particularly intense X-ray light from the Swiss Light Source, as well as a new high-speed camera and special optics, but they also had to develop a special, high-speed rotary table that can turn a sample around its axis 500 times per second without becoming unstable.
/web/2021/04-210924-1a

Free-Standing Rigid Protein Link

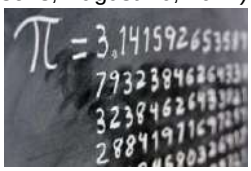
(Paul Scherrer Institute, September 28, 2021)

A team of scientists led by PSI researcher Roger Benoit was recently able to join two proteins together by means of a free-standing, rigid link for the first time. This is an exciting development, as it opens the door to numerous practical applications, such as the development of better and more effective vaccines against viruses. Specifically, these helix-shaped, rigid connectors could be used to attach proteins characteristic of a virus to the surfaces of virus-like particles at a predetermined angle and distance, thereby enabling the immune system to more easily detect them and subsequently generate antibodies. Benoit moreover hopes that the helix, in combination with other proteins, could serve as a building block to create new biomaterials, such as 3D protein scaffolds, which could be used to replace a piece of bone, or even to produce new, silk-like, biodegradable textiles.
/web/2021/04-210928-46

5. Information & Communications Technology

New World Record: Most Accurate Value of Pi

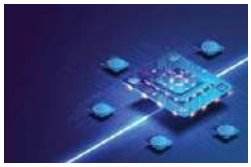
(University of Applied Sciences of the Grisons, August 16, 2021)



A team of researchers from the University of Applied Sciences of the Grisons led by Thomas Keller recently announced that they successfully calculated 62.8 trillion digits of Pi in only 108 days and 9 hours. This is nearly twice as fast as the record that Google set in its cloud in 2019, as well as around 3.5 times as fast as the previous world record, which was set by Timothy Mullican in 2020. This is an exciting achievement, because calculating the most accurate value of Pi not only constitutes an unofficial benchmark in high-performance computing, but, as explained by Professor Heiko Rölke, it also enabled the team to acquire a significant amount of new know-how, as well as to optimize their processes, thereby improving their ability to carry out computationally intensive projects in data analysis and simulation.
/web/2021/05-210816-5f

New Center for Quantum Science and Engineering at EPFL

(EPFL, August 31, 2021)



EPFL recently launched a new Center for Quantum Science and Engineering (QSE), which aims to coordinate efforts across the board to develop and implement quantum technology in applications that span all disciplines of science and engineering. Research at the QSE Center will in particular focus on quantum computing, where researchers will work to develop and implement quantum algorithms, as well as the computer programs needed to use them, in order to achieve a "quantum advantage" in all applications requiring a high level of computing power, as well as on studying integrated, hybrid and scalable systems in order to pave the way to technological advancements in quantum hardware, quantum sensing and quantum communications at EPFL.
/web/2021/05-210831-20

Challenges and Opportunities in a Digital Society

(Swiss Science Council, September 01, 2021)

The Swiss Science Council blog recently featured an insightful interview with University of Zurich Professor Sara Irina Fabrikant, in which she discussed the opportunities and challenges in a digital society. As the head of the Geographic Information Visualization and Analysis group, Fabrikant works to re-think how digital devices can smartly assist humans in navigation and way-finding, and thus support effective and efficient mobility without people becoming hopelessly dependent on technology. In this context, Fabrikant contends that the ongoing COVID-19 pandemic presents an excellent opportunity to further develop a healthy balance between the digital and the analogue worlds, but nevertheless stresses the importance of taking the "human factor" into consideration at all times.
/web/2021/05-210901-9b

International Conference on Digitalization and Sustainability

(University of Applied Sciences and Arts Northwestern Switzerland, September 07, 2021)

The FHNW School of Engineering recently launched a new international conference, called “SustainablilITy 2030”, which aimed to combine the opportunities offered by digitization with the goals of the of the United Nations Agenda 2030 Sustainable Development Goals (SDGs). The conference’s first edition, which was held from August 26-27, 2021, brought together approximately 80 stakeholders from business, academia, and the public administration for a stimulating exchange of information, as well as an objective and differentiated discussion on sustainable digitization in the areas of waste, mobility and energy,

construction, food, and agriculture. The two-day conference was subsequently concluded with a pitch competition that won by AgriCircle, which was followed by Eturnity in second place and CLEMAP in third.
/web/2021/05-210907-3a

Digital Health Report 2021

(Zurich University of Applied Sciences, September 14, 2021)

The Winterthur Institute of Health Economics at the ZHAW School of Management and Law recently published its latest edition of the Digital Health Report, which contends that although the Swiss health care system continues to lag behind in terms of digital transformation, the coronavirus pandemic has greatly contributed to the acceleration of digitalization efforts, and Swiss residents appear to welcome more digital services. As explained by ZHAW health economist Alfred Angerer, this delayed implementation of digital health care services in Switzerland can predominately be explained by the shortage of specialists, regulatory hurdles, and, above all, the rather low priority that digitization has had in the day-to-day work of many health care institutions to date.
/web/2021/05-210914-75

6. Energy / Environment

High-Resolution Weather and Climate Models

(Empa, August 06, 2021)

An interdisciplinary team of researchers from ETH Zurich, the Swiss National Supercomputing Center, the Swiss Data Science Center, Empa, MeteoSwiss, as well as several international partners, recently launched a new research initiative, called "EXCLAIM", which aims to dramatically increase the spatial resolution of weather and climate models, thereby enhancing their accuracy in simulating key processes in the atmosphere and oceans. This is vital, as it will not only help researchers to better understand the interaction of climate change and weather events than ever before, but also to reduce risks to society and its infrastructure, as explained by Professor Nicolas Gruber.
/web/2021/06-210806-b0

Extreme Events Linked to Human-Induced Climate Change

(ETH Zurich, August 09, 2021)

After more than three years of work by over 230 climate researchers, the Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) on the physical science basis of climate change was recently released, which, according to ETH Zurich Professor and coordinating lead author of the chapter on weather and climate extremes, Sonia Seneviratne, clearly demonstrates that climate change is no longer a vague threat in the future, but rather, that it is happening here and now, and that our consumption of fossil fuels is chiefly responsible for this phenomenon. Seneviratne and the other researchers therefore contend that the only option to limit some of the weather and climate extremes is to progressively reduce our CO2 emissions and reach net-zero CO2 as early as possible.
/web/2021/06-210809-51

Quantifying and Communicating Water Management Uncertainties

(Eawag, August 12, 2021)

As part of a new project supported by the Swiss National Science Foundation, Eawag physicist Peter Reichert, together with postdoc Ambuj Sriwastava, is developing a range of advanced methods to more comprehensively quantify and communicate uncertainties associated with water management decisions.

This is important, because it will not only help decision makers better understand the impact of various water management measures, but also to select the proposals that best fulfill the goals of society, thereby leading to more transparent decision-making. To achieve this, the researchers aim to improve the methods for recording preferences and describing their uncertainty using probability distributions, as well as to consider the uncertainties in the probabilities that describe ambiguous values in society and scientific forecasts.
/web/2021/06-210812-d1

Measuring and Optimizing Environmental Impacts of Agriculture

(Agroscope, August 16, 2021)

Agroscope recently launched a new research program called "Indicate", which aims to develop high-priority indicators to enable farmers to easily measure the environmental impacts of their activities, as well as to be aware of the trade-offs of their possible courses of action. These environmental indicators, which for example include the promotion of biodiversity and soil quality, or the reduction of nitrogen emissions, are being developed for mixed arable and livestock farms in the plain region – a very common focus in Switzerland – and will also be supplemented with additional economic and social metrics in order to highlight and prevent trade-offs between these aspects of sustainability. Indicate will encompass nine projects and will run until the end of 2024.
/web/2021/06-210816-0d

Switzerland's Energy Supply in 2050

(SCCER-SoE, September 01, 2021)

Following the publication of Innosuisse's final report on the 2013-2020 Energy Funding Program in July 2021, the Swiss Competence Center for Energy Research - Electricity Supply (SCCER-SoE) – one of the eight SCCERs that was established under the Energy Funding Program – recently published its findings in four Synthesis Reports. The reports in particular contend that hydropower will most likely continue to be the most important domestic energy source in Switzerland – although significant expansions are unrealistic – while geothermal energy appears to have the potential to cover a large proportion of the heat demand in the future. The SCCER-SoE also found that the potential for CO2 storage in Switzerland is likely lower than previously hoped, thereby suggesting that it would be advisable to also explore alternative storage facilities abroad.
/web/2021/06-210901-84

Flexible CIGS Solar Cells With Record-Breaking Efficiency

(Empa, September 07, 2021)

A team of Empa scientists led by Ayodhya Nath Tiwari, Romain Carron and Shiro Nishiwaki recently developed a new CIGS flexible solar cell that can convert light into electricity with a record-breaking efficiency of 21.4%. This is an important development, as solar cells of this type have a wide range of potential applications on roofs and facades of buildings, greenhouses, transport vehicles, airships, and portable electronics, to name a few. To achieve this, the researchers employed a low temperature co-evaporation method – which is used to grow the thin film Cu(In,Ga)Se2 semiconductor that absorbs the light – to process the high-efficiency flexible solar cells on a polymer film, as well as optimized the composition of the layer and alkali dopants in order to further improve their performance.
/web/2021/06-210907-4e

Shape of Rocks Strongly Influence Rockfall Hazard

(WSL, September 20, 2021)

After having conducted a multitude of rockfall experiments over the course of four years, a team of researchers from the WSL Institute for Snow and Avalanche Research and ETH Zurich recently found that the direction in which a rock rolls depends much more on its shape than on its mass. Specifically, while

cube-shaped boulders generally plunge straight down the line of greatest slope, wheel-shaped rocks often pull away to one side, thereby threatening a much wider area at the base of the slope. As explained by lead author Caviezel Andrin, these findings not only have important implications for the assessment of danger zones and the dimensions of protective structures, but they will also help calibrate and refine simulation programs, thereby leading to enhanced protection against rockfall.
/web/2021/06-210920-26

Circular-Economy Plastic Recycling Approach

(EPFL, September 23, 2021)

A team of engineers led by EPFL Professors Francesco Stellacci and Sebastian Maerkl recently developed a revolutionary new method for tackling plastic pollution, which is based on the inner workings of proteins. Specifically, as explained by PhD student Simone Giaveri, proteins are like a string of "colored pearls", which can be continuously broken down and re-assembled to create a wide variety of new strings with different color sequences – i.e., new proteins with entirely different structures and applications. Since plastics are also polymers – i.e., "strings of pearls" – the researchers contend that this naturally occurring mechanism could also be applied to plastic recycling. This would be a significant development, because according to Stellacci, this approach appears to be the only one that truly adheres to the postulate of a circular economy.
/web/2021/06-210923-0f

7. Engineering / Robotics / Space

Solution to Long-Standing Solar Physics Paradox

(Università della Svizzera italiana, August 19, 2021)

A team of researchers at the Istituto Ricerche Solari and the Instituto de Astrofísica de Canarias recently found the solution to a long-standing paradox in solar physics, thereby opening up a new window to explore the magnetism of the solar atmosphere. The paradox originated in 1998, when researchers detected a mysterious linear polarization signal at the wavelength of a neutral sodium line – the so-called D1 line – where, according to quantum mechanics, no such scattering polarization should be present. This in turn implied that the solar chromosphere is practically unmagnetized, which stood in stark contradiction with other evidence. However, by demonstrating that these enigmatic polarization signals can be explained in the presence of magnetic fields in the gauss range, the researchers were finally able to provide a solution to this puzzle.
/web/2021/07-210819-ae

Morphology of Elephant Trunks for Bio-Inspired Robots

(University of Geneva, August 23, 2021)

A multidisciplinary team of scientists led by University of Geneva Professor Michel Milinkovitch recently discovered how elephants deal with the extraordinary kinematic versatility of their trunk and control its movement. Specifically, the researchers were not only able to demonstrate that the trunk's complex behaviors are produced from the combination of approximately 20 basic movements, but, thanks to sophisticated medical imaging techniques, they were also able to characterize the anatomy of the African and Asian elephant trunks in unprecedented detail. These results are vital, as they will serve as the developmental basis of a new concept of soft robotic manipulation, which would enable bio-inspired robots to detect, reach, grasp, manipulate and release a whole range of payloads and objects of various shapes and sizes.
/web/2021/07-210823-43

Light Gases Make Large Planets

(University of Zurich, August 24, 2021)

A team of University of Zurich researchers, together with the NCCR PlanetS, recently confirmed that planets surrounding more massive stars tend to be higher in mass and larger in radius, as well as discovered that this trend is likely the result of different compositions. Specifically, more massive stars tend to host planets with atmospheres consisting of light gases, such as hydrogen and helium. These findings are important, because as explained by Professor Ravit Helled, they "not only help us estimate which kinds of planets likely orbit a certain star, but could also help us fill gaps in our understanding of planet formation." For example, the researchers were able to conclude that planets around larger stars tend to collect gases more quickly during their formation, thereby only giving them limited time to grow and acquire what they need for their later existence.
/web/2021/07-210824-9f

New Solution to Calculate Phase Curves

(University of Bern, August 30, 2021)

Theoretical astrophysicist Kevin Heng from the University of Bern recently discovered an entire family of new solutions to an old mathematical problem needed to calculate light reflections from planets and moons. This is a ground-breaking achievement, as these novel solutions are not only valid for any law of reflection, but they can also be derived without having to resort to a computer, which means that they can be used to analyze data in seconds, thereby opening up new ways of interpreting data that were previously infeasible. In this context, Heng is currently collaborating with other scientists to analyze phase curve data from NASA's Transiting Exoplanet Survey Satellite (TESS), which could lead to novel ways of analyzing phase curve data from the upcoming, 10-billion-dollar James Webb Space Telescope.
/web/2021/07-210830-37

Liquid Cybernetic System to Explore Extreme Environments

(Empa, September 06, 2021)

As part of the EU-funded COgITOR Project, a team of researchers, including a group led by Empa scientist Artur Braun, is developing a prototype for an autonomous liquid cybernetic system, which could one day be used as an intelligent, active probe in extreme environments, such as the ocean floor, places with strong magnetic fields, or even other planets. Inspired by biological cells, this tennis-ball-sized soft robot will be covered by a pressure- and temperature sensitive outer membrane, which will enable it to "feel" its external environment, as well as to autonomously repair itself if damaged. Inside, the sphere will be filled with liquid and tiny "organelles" that perform specific functions, as well as a silicon chip "nucleus" in the center. The system will also be able to harvest a small amount of electrical energy from thermal gradients.
/web/2021/07-210906-d4

3rd Place in European Rover Challenge

(EPFL, September 10, 2021)

After just one year of preparation, a team of students from the EPFL Xplore association recently placed third in their first ever European Rover Challenge – an international competition, where academic teams from around the world build their own Martian robots from scratch and then compete to complete a series of tasks that emulate real ESA and NASA missions – as well as received an honorable mention in the "Science" and "Probing" tasks. Following this fantastic result, the team is now working to one day enter their robot in the University Rover Challenge, which is held every year in a desert in southern Utah, as well as to develop a polar robot for scientific expeditions – a first step before shooting for the moon.
/web/2021/07-210910-a9

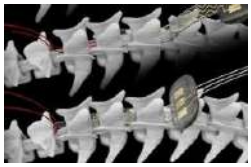
2nd Place in Elon Musk's Not-A-Boring Competition

(ETH Zurich, September 13, 2021)

Swissloop Tunneling – a student team from ETH Zurich – recently won second place at Elon Musk's Not-A-Boring-Competition, which challenged participants from around the world to drill a 30m long and 50cm wide tunnel as quickly and accurately as possible. In addition to coming in second second place, Swissloop Tunneling also received the Innovation & Design award for their tunnel boring machine "Groundhog Alpha", which used an innovative 3D printing mechanism to fabricate the supportive tunnel lining in situ. Following this excellent result, the team now aims to further develop the technology in such a way that the machine can dig tunnels with a four-meter diameter – the width of the tunnels in the Hyperloop concept, which promises to be more sustainable than aviation and significantly faster than high-speed trains.
/web/2021/07-210913-71

Novel Photoelectric Implant to Control Activity of Spinal Neurons

(EPFL, September 30, 2021)



A team of researchers led by EPFL Professors Grégoire Courtine and Stephanie Lacour recently developed a revolutionary new photoelectric implant, which enables neuroscientists to activate or inhibit specific spinal-cord neurons by applying light at a particular wavelength. This is an exciting development, because it will not only provide researchers with additional insights into how the nervous system works, but it will likely also boost the development of new therapeutic applications for optogenetics. To achieve this, the researchers first developed a method to encapsulate miniaturized LEDs in a flexible implant, before subsequently working with their colleagues at ETH Zurich to create a wireless electronic circuit that can be used to switch on one or more LEDs and control the duration and intensity of the emitted light with extreme precision.
/web/2021/07-210930-96

8. Physics / Chemistry / Math

First Light at SwissFEL Experiment Station "Furka"

(Paul Scherrer Institute, August 04, 2021)

The achievement of "first light" at the experiment station "Furka" recently marked another important milestone on the path to full operation of the X-ray free-electron laser SwissFEL, thereby paving the way for experimental possibilities that are unique worldwide. As explained by team leader Elia Razzoli, the Furka group will primarily focus on the study of solids at very low temperatures, which they hope will not only enable them to make exciting new discoveries that could potentially include exotic new quantum states, such as light-induced topological phases, but also to enable practical advances in electronics, or in quantum computing technology. Regarding the latter, Razzoli for example indicated that they are interested in materials whose magnetic states can be switched lightning-fast, which could be relevant for the next generations of computer hard drives.
/web/2021/08-210804-04

Producing Polymers That Mimic Biological Functions

(University of Fribourg, August 05, 2021)

A team of researchers led by University of Fribourg Professor Andreas Kilbinger, together with colleagues from the Adolphe Merkle Institute, recently developed a new polymerization method, which not only provides more control over the process, but also opens the door to polymers that mimic biological functions. To achieve this, the new method in particular slows down the so-called "condensation polymerization"

reaction process, thereby enabling the researchers to obtain long, twisted fibers that are hollow and can be loaded with other molecules. This in turn opens the door to numerous potential applications, including antimicrobial treatments – if inserted into a bacterium, the hollow fibers could, for example, create an entry point for drugs – as well as membranes for the purification of water, or hydrogen storage for battery applications.
/web/2021/08-210805-02

Breakthrough in Light-Matter Interactions for Quantum Technologies

(EPFL, August 26, 2021)

A team of physicist led by EPFL Professor Jean-Philippe Brantut recently found a way to get photons to interact with pairs of atoms at ultra-low temperatures for the first time. This is an exciting breakthrough, because mastering the ability to make light interact with matter – or, to be more specific, photons with atoms – constitutes an important step to making technologies based on quantum physics a reality. To achieve this, the researchers used what is known as a Fermi gas, which, in the absence of photons, can be prepared in a state where atoms interact very strongly with each other, thereby forming loosely bound pairs. Then, as light is sent onto the gas, some of these pairs can be turned into chemically bound molecules – known as “pair-polaritons” – by absorbing the photons, as explained by Brantut.
/web/2021/08-210826-b2

New Technique to Measure Turbulent Flows

(ETH Zurich, September 17, 2021)

A team of researchers led by ETH Zurich Professor Markus Holzner and PhD student Stefano Brizzolara, together with colleagues from WSL and Eawag, recently developed a new experimental "fiber method" to measure the energy of vortices in fluids more accurately than ever before. This is an exciting development, because it will not only help researchers to expand our understanding of turbulence, but also to develop much better predictive models for a wide variety of important vortex phenomena. To achieve this, the researchers used a 3D particle tracking velocimetry system to demonstrate that it is possible to characterize a vortex’s motion and energy by only measuring the rotations of the ends of a few individual rigid fibers floating in the liquid, rather than having to track the movements of thousands of spherical market particles, as they had to do before.
/web/2021/08-210917-44

Novel High-Purity Medical Radionuclides

(Paul Scherrer Institute, September 23, 2021)

As two of the main partners of the recently established PRISMAP Consortium, the Paul Scherrer Institute and CERN are working to provide a sustainable source of novel high-purity radionuclides for a wide variety of medical research fields, such as radiopharmaceuticals, targeted drugs for cancer theranostics and personalized medicine. In doing so, PRISMAP not only aims create a single-entry point for researchers active in this field, but also to ensure that these novel radionuclides are swiftly adapted in medical environments. In this context, interested parties can apply for access to radionuclides and, if necessary, to the complementary biomedical facilities, via the PRISMAP online access platform. The first call for proposals will be launched before the end of 2021 and an expert panel will subsequently select the best projects from the applicants.
/web/2021/08-210923-c7

9. Architecture / Design

Stabilizing Old Concrete Structures With Carbon-Fiber Reinforced Polymers

(Empa, August 03, 2021)

A team of Empa researchers led by Christoph Czaderski, in collaboration with S&P Clever Reinforcement, recently developed a new method to "actively" reinforce concrete beams with prestressed CFRP (carbon fiber-reinforced polymers) laminates, thereby enabling them to increase the load-bearing capacity of a concrete slab by 77%, compared to the classic reinforcement method. To achieve this, the researchers first bonded the laminates with epoxy resin under tensile stress, before subsequently relaxing the ends once the bond had hardened, thereby causing the strips, which "want" to contract, to counteract the deflection even more. In addition, the Empa team also had to specifically design U-shaped CFRP stirrups to prevent the strips from tearing off, due to the enormous tensile forces.
/web/2021/09-210803-1c

Flexible Office Spaces From Largely Reused Materials

(Empa, August 31, 2021)

In only ten months, a team of researchers, architects and carpenters were recently able to build flexible and COVID-19-compliant office spaces at NEST – the research and innovation platform of Empa and Eawag – using mostly reused materials and components. This is an exciting achievement, as it demonstrates that building with reused materials and components constitutes a valid alternative to building with virgin materials and meets market demands for flexible and fast construction. As emphasized by NEST innovation and project manager Enrico Marchesi, this is especially important in a world where resources are constantly becoming scarcer, and therefore reaffirms the key role that circular construction will play in achieving our CO2 targets.
/web/2021/09-210831-e5

Importance of Natural Light for Human Health

(EPFL, September 16, 2021)

With people living in cities spending close to 90% of their time indoors, a team of researchers from EPFL and the University of Art and Design Geneva (HEAD-Genève) recently initiated a new installation called Circa Diem ("about a day") to raise awareness about the importance of natural light in human physiology and architectural design. This unique architectural exhibition is not only the product of vital scientific research on neurophysiology, which is being led by Professor Marilyne Andersen, but also of cutting-edge optical technology from the lab of Professor Mark Pauly, as well as the expertise in architecture and installation design from the department of Professor Javier Fernández Contreras. Starting in November 2022, the Circa Diem project will be displayed at EPFL Pavillions for a period of 6 months as part of the "LIGHT IN – the biology of time" exhibition.
/web/2021/09-210916-41

10. Economy, Social Sciences & Humanities

Swiss Banking During the 1970s and 80s

(University of Lucerne, August 05, 2021)

Lukas Tobler, under the supervision of University of Lucerne Professor Daniel Speich Chassé, recently provided an intriguing glimpse into the politization of Swiss banks during the turbulent 1970s and 80s, which constituted a key turning point in the relationship between the Swiss financial center, the state, as

well as the public's perception of the banks. During this time, the Swiss banks' significant financial success and expansion, due in large part to the liberalization of the global banking sector, was juxtaposed with growing social and political criticisms on a domestic level, which eventually led to a public debate about the role and function of banks. In this context, Tobler's dissertation, which is based on several previously unpublished sources, therefore provides a valuable contribution from the perspective of the financial center and its players.
/web/2021/10-210805-01

Exploring Cradle of European Agriculture

(University of Bern, August 31, 2021)

A team of researchers from the University of Bern was recently able to precisely date pile dwellings on the banks of Lake Ohrid in the south-western Balkans for the first time, which proved that the settlement in the Bay of Ploča Mičov Grad was constructed in different phases and over thousands of years – from the Neolithic Period until the Bronze Age. As explained by Professor Albert Hafner, "the precise dates of the different settlement phases of Ploča Mičov Grad represent important temporal reference points for a chronology of prehistory in the south-western Balkans", which in turn opens up unimagined possibilities of interpretation for the traces found of the early occupation of Lake Ohrid. This is interesting, because Europe's first farmers lived in this area, and therefore played a key role in the proliferation of agriculture.
/web/2021/10-210831-e4

Impact of Neurotechnology on Linguistics

(University of Zurich, September 01, 2021)

With neurotechnological devices becoming increasingly sophisticated – to the point where reading people's thoughts before they say them is no longer absurd science fiction – a team of linguists from the NCCR Evolving Language have been conducting research into the area of mind-reading in order to figure out what could be possible, as well as to raise awareness among the public about these topics. In this context, Professor Balthasar Bickel's team at the University of Zurich was for example able to detect plans for short sentence structures about two seconds before the person starts speaking, while their colleagues at the University of Geneva can already rather precisely identify what sounds the brain is planning. The team is however still quite far from being able to detect the planning of meaning.
/web/2021/10-210901-1f

Gender Intelligence Report 2021

(University of St. Gallen, September 15, 2021)

Advance and the Competence Center for Diversity & Inclusion at the University of St. Gallen recently published the 5th edition of the Gender Intelligence Report, which revealed that despite yearlong efforts to increase gender diversity in business, progress is only happening in "baby" steps. This for example can be seen in the fact that although Switzerland is brimming with highly qualified female talent, the share of women in management has only increased by 1% since 2018. In this context, the report illustrated that the root causes of these inequalities are systemic and largely lie in gender-biased structures and non-inclusive mind-sets, thereby leading the authors to contend that in order to create real results, we need to change the rules of the game and make them equal for everybody.
/web/2021/10-210915-92

Swiss Asset Management Study 2021

(Lucerne University of Applied Sciences and Arts, September 21, 2021)

A team of researchers led by Lucerne University of Applied Sciences and Arts economist Jürg Fausch, together with the Asset Management Association Switzerland, recently published the Swiss Asset Management Study 2021, which demonstrated that despite the shocks caused by the COVID-19 pandemic,

the asset management industry in Switzerland remains in a favorable condition. Specifically, the team found that domestically managed assets (AuM) grew by an impressive 10.6% in 2020 to reach a record CHF 2.79 trillion. This was primarily due to high net inflows (+ CHF 100 billion) across all classes and segments, as well as recovering financial markets. The study moreover confirmed that Switzerland remains an attractive asset management hub for clients abroad, as well as concluded that sustainable investment constitutes the most important opportunity in the industry.
/web/2021/10-210921-ad

11. Start-ups / Technology Transfer / IPR / Patents

Connecting Designers With Tech-Oriented Entrepreneurs

(EPFL, August 06, 2021)

In order to get innovations to market as quickly as possible, EPFL and the University of Art and Design Lausanne (ECAL) have been running a joint program called "Enabled by Design", which in particular addresses one of the key stumbling blocks to rapid market entry: how to present a given technology to investors, product testers and potential customers. To achieve this, the program not only connects designers with tech-oriented entrepreneurs, but also provides training and coaching to foster a greater understanding between the fields of engineering and design, as well as to ensure that promising new inventions meet customers' needs and speak to people outside the world of R&D, as explained by Daphna Glaubert, head of the Enabled by Design program.
/web/2021/11-210806-e5

Active National Thematic Network Innovation Boosters

(Innosuisse, August 11, 2021)

Innosuisse recently published a helpful guide of its active National Thematic Network (NTN) Innovation Boosters, thereby enabling Swiss actors to easily find the appropriate one and obtain more information. NTN Innovation Boosters bring together key actors from research, business, and society in Switzerland around an innovation topic and stimulate the development and testing of radically new ideas in interdisciplinary teams. In doing so, they help to promote the transfer of knowledge between research, business, and society, as well as to foster cooperation with partners along the entire value chain of a theme, thereby creating sustainable competitive advantages for Swiss SMEs, promoting viable solutions for social challenges, and contributing to value creation in Switzerland.
/web/2021/11-210811-88

SupplyChainTech Map With 130+ Startups

(startupticker.ch, August 24, 2021)

The Swiss SupplyChainTech initiative recently published an interactive SupplyChainTech map, which highlights more than 130 startups that are providing solutions for the distribution of physical products with a wide variety of innovations across 15 different categories. In addition to the map, the initiative also set up the so-called SupplyChainTech Lab, which enables startups and SMEs to integrate their solutions in a research environment and evolve tomorrow's supply chain towards full connectivity, interoperability, and visibility. The initiative moreover organizes so-called "Pitches and Gipfeli" sessions to provide startups with the opportunity to present their solutions and get feedback, as well as offers mentoring and advisory services to connect startups with the right personalities from academia and/or senior management.
/web/2021/11-210824-47

Innovation Awards for Applied Research

(Eastern Switzerland University of Applied Sciences, August 24, 2021)

Two research teams from the Eastern Switzerland University of Applied Sciences (OST) were recently recognized by the "FUTUR" foundation with an innovation award and cash prizes for their outstanding projects. The main award went to Professor Andre Heel and his team for their catalyst, which converts CO2 and H2 to methane at a remarkable conversion rate of 100%, thereby preventing any wasted material. Professor Guido Schuster and his team meanwhile received the recognition award for their compact and affordable AI solution, which allows machines to "see" in real time, thereby enabling them to react to deviations during production and thus significantly reduce rejection rates.
/web/2021/11-210824-4b

Swiss Economic Forum Presents Awards to Startups and Founders

(startupticker.ch, September 02, 2021)

The following three startups recently received the coveted Swiss Economic Award at this year's Swiss Economic Forum for their outstanding entrepreneurial achievements in their respective categories: Planted (production/trade & industry), which produces "meat" entirely from plants, T3 Pharmaceuticals (high-tech/biotech), which develops next-generation bacterial cancer treatments, and GuestReady (service), which provides 5-star level services for homes on Airbnb. Moreover, for the first time, the Swiss Economic Forum also recognized the following women with the SEF.WomenAward for their exceptional entrepreneurial performances: Léa Miggiano (Carvolution AG) was recognized as the young entrepreneur of the year, Andrea Pfeifer (AC Immune) was named the Entrepreneur/CEO of the year and Rosmarie Michel received the honorary award.
/web/2021/11-210902-d0

FemBizSwiss Award 2021

(startupticker.ch, September 07, 2021)

The following three female startup founders recently received a FemBizSwiss Award for their innovative projects in the digital economy: Olga Miler, CEO & Co-Founder of SmartPurse, an independent digital financial education toolkit that enables women to build their financial know-how in a simple, understandable and motivating way; Myriam Lingg, CEO & Co-Founder of macu4, which develops innovative orthopedic solutions by providing easy, fast, and gentle access to lightweight & breathable 3D printed devices; and Xiao Jean Chen, CEO & Founder of VenturePole, which develops smart tools to make venture capital faster, better and equitable with the aim of helping female founders, as well as founders of color, raise funds. Three additional FemBizSwiss Award were moreover given to Jolanda Spiess-Hegglin, Susanne Haecki, and Federica Suardi.
/web/2021/11-210907-c9

Swiss Medtech Award 2021

(Swiss Medtech, September 08, 2021)

Scewo recently won the coveted Swiss Medtech Award at this year's Swiss Medtech Day – one the most important events for the Swiss medical technology industry – for its innovative, stair-climbing power wheelchair "BRO". The jury and audience moreover recognized the top achievements of the other two finalists: GalvoSurge, which developed a highly efficient system for cleaning inserted dental implants, and icotec, which develops non-metallic and radiolucent implants for the treatment of spinal tumors. This year's Swiss Medtech Day was held under the theme of "Digital Health Technology" and brought together more than 600 stakeholders from industry, business, and healthcare to Bern.
/web/2021/11-210908-36

12. General Interest

New Issue of "Horizons" Research Magazine

(Swiss National Science Foundation, September 02, 2021)

The Swiss National Science Foundation and the Swiss Academies of Arts and Sciences recently published the September issue of the "Horizons" research magazine, which reports on the latest developments in science from Switzerland and discusses research policy issues of global importance. The issue in particular addresses how university laboratories are investigating the success of sports stars and how sports science has established itself as a discipline. In the second key topic, Horizons illustrates the impact of Switzerland's cooperation with the EU on research, as well as discusses what a long-term exclusion from Horizon Europe would mean.
/web/2021/12-210902-bd

SNSF and SDC Renew Partnership to Implement 2030 Agenda

(Swiss National Science Foundation, September 07, 2021)

The Swiss National Science Foundation (SNSF) and the Swiss Agency for Development and Cooperation (SDC) recently renewed their partnership for a further ten years, which, as explained by SDC Director General Patricia Danzi, aims to help overcome real-world challenges in low- and middle-income countries through the application of high-level scientific knowledge. This renewed partnership in turn builds on a collaboration which has already been active for over 30 years, during which time the two institutions for example invested CHF 97.6 million in more than 80 projects as part of the r4d program (2012-2022), thereby supporting around 300 research groups in 50 countries.
/web/2021/12-210907-ca

Prix Media for Science Journalism

(Swiss Academies of Arts and Sciences, September 14, 2021)

The Swiss Academies of Arts and Sciences recently recognized Martin Amrein und Arian Bastani with the "Prix Media for Science Journalism", as well as Simone Pengue with the "Prix Média Newcomer", for their exceptional articles and documentary, respectively, which critically examined scientific topics of high social relevance and presented them in an understandable manner. Specifically, Martin Amrein illustrated how vaccines can provide a way out of the Covid-19 pandemic despite the increasing prevalence of various mutations, while Arian Bastani addressed the question of whether grid stability can be sustained with solar and wind power. Finally, Simone Pengue explored the topic of what happens to biomedical research data after the completion of a study in his new documentary "Forgotten data: the leftovers of science".
/web/2021/12-210914-61

13. Calls for Grants/Awards

Sinergia Grant Call

(Swiss National Science Foundation, September 02, 2021)

The Swiss National Science Foundation recently launched a new call for its Sinergia grants, which promote interdisciplinary collaborations between 2 to 4 applicants whose project involves breakthrough research. This type of research is vital, as it not only addresses important challenges and presents novel approaches, but it also calls into question or goes beyond existing models, theories, doctrines, research

approaches or methods, to name a few, thereby opening exciting new lines of potentially high impact research. In order to achieve the research objectives, Sinergia grants require projects to integrate elements (theories, methods, concepts, etc.) from at least two or more disciplines. Submission deadline: 1 December 2021.
/web/2021/13-210902-39

Call for International Collaborative Research Projects

(Swiss National Science Foundation, September 07, 2021)

The Swiss National Science Foundation recently launched a new call for its "SPIRIT" grants, which aim to lower barriers to international cooperation and assist cross-border collaboration between researchers in Switzerland and in a range of low- and middle-income countries. Research consortia consisting of 2-4 applicants from all disciplines can apply for a SPIRIT grant and request between CHF 50k and CHF 500k in project funds for two to four years – at least 30% of which must be allocated to Switzerland, as well as at least 30% to the relevant partner country/countries. Special focus will moreover be given to equal opportunities and the promotion of women scientists, as well as to raising awareness of gender-specific questions. Submission deadline: 2 November 2021.
/web/2021/13-210907-28

SWEET Funding Call: Critical Energy Infrastructure

(Federal Office of Energy, September 09, 2021)

The Swiss Federal Office of Energy, together with the National Center for Climate Services, recently launched the third call for proposals under the “SWEET” funding program. The guiding theme of the call, which has a total budget of CHF 10 million, is “Critical Infrastructures, Climate Change, and Resilience of the Swiss Energy System” and in particular aims to address the following research challenges: how does the restructuring of the energy system affect critical infrastructures, how vulnerable is the energy system to technical, natural or societal hazards, and what can be done to mitigate the risks for the energy system and society and make the energy system more resilient? Research consortia from universities, non-profit research institutions, the private sector and the public sector can submit a pre-proposal by 3 December 2021.
/web/2021/13-210909-21

Call for SNSF Advanced Grants

(Swiss National Science Foundation, September 30, 2021)

Following Switzerland's non-association to Horizon Europe, the Swiss National Science Foundation (SNSF), on behalf of the federal government, recently launched the "SNSF Advanced Grants" to support researchers who intended to apply for an ERC Advanced Grant in 2021. The call is open for applicants of any nationality who want to pursue innovative, high-risk research in Switzerland, have a track record of outstanding research over the past ten years, and who are recognized leaders in their fields. Interested applicants must pre-register by 1 November 2021 and the call will subsequently close on 1 December 2021.
/web/2021/13-210930-4b

Upcoming Science and Technology Related Events

Digital Health Day 2021
October 27, 2021
https://is.gd/43OmH8
Healthcare, Agetech, Telemedicine
Bern

Crypto Valley Conference 2021
October 28-29, 2021
https://is.gd/M2MfLd
Blockchain, Cryptoeconomics, Regulations
Rotkreuz & Online

Swiss Robotics Day
November 2, 2021
https://is.gd/eT3Pfy
Robotics, Research, Healthcare
Zurich

Energy Startup Day 2021
November 4, 2021
https://is.gd/Hfa8Pq
Energy, Cleantech, Mobility, Smart Buildings
Zurich

Swiss Digital Days 2021
November 10, 2021
https://is.gd/O5itb3
Collaboration, Innovation, Knowledge Transfer
Online and various locations

Digital Twin Days
November 15-16, 2021
https://is.gd/RmmLvA
AI, Research, Startups
Lausanne

Swiss Innovation Forum
November 18, 2021
https://is.gd/QNMmp3
Innovation, Startups, Networking
Basel

Swiss Fintech Investor Day
November 24, 2021
https://is.gd/LT86ma
Finance, Banking, Investment & Insurance
Online & Zurich

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