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Trends in education, research, innovation and policy



Wuyuan, Jiangxi Province

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Swiss Spotlight

Scientist: China's Move Towards Vocational Training and Applied Science Education

(Markus Prandini, February 28)

The Swiss Vocational Training and Applied Science Education has come into the spotlight of Chinese interests in learning how those two pillars could also be implemented into Chinese educational policy and practice. In this regard, Prof. Dr. Markus Prandini has been invited to give the key note speech for the «Internationalization of Vocational Education of Science and Technology» conference held in November 2018 in Zhenjiang/Jiangsu Province. Previously, Prof. Prandini had lectured a two-week seminar about «International Business and Strategic Marketing» at Shenzhen Technology University which has been defined by the Chinese Government as the first national university to be run based on the Swiss/German system of Universities of Applied Sciences. Currently, Prof. Prandini is a Visiting Professor at Shenzhen Technology University. He received his Master and PhD degree from University of St.Gallen and has worked several years at the Zurich University of Applied Sciences at the School of Management and Law.



<http://swissinnovation.org/newsChina/web/2019/00-190228-9c>

Startup: Innovative Technology for Microbiological Tests

(rqmicro, February 28)

rqmicro, a spin-off of ETH Zurich and Eawag, stands for rapid and quantitative microbiology. It develops rapid microbiological tests to improve water and food safety. The company embraces the vision that consumers worldwide benefit from microbiological contamination-free water and food. A crucial step towards realizing that vision is to detect contamination quickly and accurately. rqmicro develops solutions on the basis of immunomagnetic separation, microfluidics and flow cytometry. rqmicro products allow the replacement of several manual steps in microbiological analysis with one automated instrument. This reduces the risk of human error in routine tasks, creates resources for the much-needed creativity in the R&D world and delivers an unmatched ease of use for lab professionals. In early 2018, rqmicro successfully entered the Chinese market by opening an office in Shanghai. Starting from 2019, rqmicro is working together with China CDC on a 2-year project to validate its innovative solution for rapid Legionella and Salmonella testing in water samples.



<http://swissinnovation.org/newsChina/web/2019/00-190228-a7>

1. Policy

Xi Urges Boost in High-tech Development

(China Daily, February 21)

President Xi Jinping on Wednesday urged China's science and technology professionals to uphold innovation and strive to improve the nation's capability in the sector. The president instructed researchers to focus on strategic, fundamental and cutting-edge fields, catch up with front-runners and set long-term goals. He also encouraged them to strive for breakthroughs in key technology sectors and boost China's research and innovation capabilities so the nation can gain a key place in the global high-tech arena. Xi also said China is willing to work with other nations to foster international communication and cooperation in science.



<http://swissinnovation.org/newsChina/web/2019/01-190221-cc>

Rural Villages going Cashless

(Techcrunch, February 22)

Residents of even the tiniest far-flung villages in China may soon be able to pay on their phones to run daily errands as Beijing announced that it aims to make mobile payments ubiquitous in rural areas by the end of 2020. The hope is that by digitizing the lives of the farming communities, from getting loans to buying fertilizers to leasing lands to city developers, China could bolster the economy in smaller cities and countryside hamlets. Hundreds of millions of rural Chinese have migrated to large urban centers, but 42% of the national population remained rural as of 2017. While scan-to-pay is already a norm in bigger cities, digital payments still have considerable room to grow in rural towns. All told, 76.9% of China's adults used digital payments in 2017. That ratio was 66.5% in rural parts.



<http://swissinnovation.org/newsChina/web/2019/01-190222-32>

Innovation-driven Development Strategy Creates Promising Future

(China Daily, February 25)

China's innovation-driven development strategy has put down strong roots and has a promising future with the guidance and support of the central government, experts said. Gan Yong, former vice-president of the Chinese Academy of Engineering, told CPPCC Daily that he had seen many scientific breakthroughs over the last six years and had high expectations for the future of technological development. Gan said China's strengths in core technology research were too widely dispersed, and he urged the



establishment of a generic research and development platform to pool the advantages and boost China's international competitiveness.

<http://swissinnovation.org/newsChina/web/2019/01-190225-1d>

Build Rule of Law for Reform and Opening-up

(China Daily, February 26)

Xi made the remark while presiding over a meeting of the Commission for Overall Law-Based Governance of the CPC Central Committee. He is also director of the commission. The experiences drawn from reform and opening-up over the past 40 years have shown that work related to reform, development and stability will not succeed without the rule of law, Xi said. The further reform and opening-up goes, the more important the rule of law becomes, he added. He stressed a high-quality lawmaking process in safeguarding and promoting healthy and sustainable economic growth, and said laws related to foreign investment should be made in a unified manner to meet the needs of building the new system of an open economy in the new era.



<http://swissinnovation.org/newsChina/web/2019/01-190226-58>

2. Education

Chinese Academy of Sciences to Strengthen International Cooperation

(Global Times, February 06)

The Chinese Academy of Sciences (CAS) has said it will enhance its internationalization strategy through international collaborative science projects and gathering international high-level talent. The academy launched the Alliance of International Science Organizations in the Belt and Road Region in November last year, creating a platform for countries along the Belt and Road to deepen cooperation in science and tackle common challenges. Through active participation in multilateral collaboration platforms such as The World Academy of Sciences for the advancement of science in developing countries, the academy has enhanced China's role in global governance and deeply integrated into global innovative networks.

<http://swissinnovation.org/newsChina/web/2019/02-190206-16>

Vocational Education Reform Implementation Plan Released

(Xinhua, February 13)

China has vowed to cultivate more quality laborers and skilled workers by reforming its vocational education systems, according to a plan for implementing the reform issued by the State Council.

Vocational education and training systems will be reformed to match with science and technology development trends and market demands and to promote economic modernization and higher quality employment, the official documents note. All sectors of society, especially enterprises, are encouraged to support the country's vocational education, it says, adding that major companies are welcome to run vocational schools and offer high-quality programs. The plan details measures to improve national systems and policies relating to vocational education and lift the quality of both secondary and higher vocational education in the country.

<http://swissinnovation.org/newsChina/web/2019/02-190213-a7>

China Issues Plans to Modernize Education

(Xinhua, February 23, 2019)

Two development plans on China's education were made public Saturday, outlining blueprints for the sector's modernization and development by 2035. One of the plans set the goals and tasks for 2035, while the other one detailed the facilitation of the education modernization drive from 2018 to 2022. Eight goals were proposed in the education modernization plan 2035, which was released by the Central Committee of the Communist Party of China (CPC) and the State Council, highlighting the accessibility of quality education from pre-school to higher education stages, and from vocational training to special schooling for the disabled. It also specified 10 strategic tasks, including ensuring equal access to basic public education services, building world-class universities and opening education further to the world.

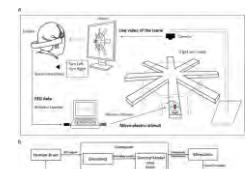
<http://swissinnovation.org/newsChina/web/2019/02-190223-65>

3. Life Sciences / Health Care

Rat Cyborg's Continuous Locomotion with Wireless Brain-to-Brain Interface

(nature.com, February 04)

Brain-machine interfaces (BMIs) provide a promising information channel between the biological brain and external devices and are applied in building brain-to-device control. In a study, researchers at Zhejiang University developed a BBI from the human brain to a rat implanted with microelectrodes (i.e., rat cyborg), which integrated electroencephalogram-based motor imagery and brain stimulation to realize human mind control of the rat's continuous locomotion. Control instructions were transferred from continuous motor imagery decoding results with the proposed control models and were wirelessly sent to the rat cyborg through brain micro-electrical stimulation. The results showed that rat cyborgs could be



smoothly and successfully navigated by the human mind to complete a navigation task in a complex maze.

<http://swissinnovation.org/newsChina/web/2019/03-190204-59>

National, Regional Medical Centers to be Established

(China Daily, February 12)

China will set up a number of national and regional medical centers across the country by 2020, according to a working plan issued by the National Health Commission. Regional medical centers will be established nationwide to provide patients in different regions with quality medical treatment close to their homes, said the plan. The country will also establish national medical centers aimed to carry out diagnosis and treatment of rare and severe cases of diseases of specific categories in the country and play a leading role in spreading advanced medical technologies nationwide, it said. The plan proposes to build a four-level medical service system that covers medical institutions at the national, provincial, prefectural and county levels by 2020, with national medical centers taking the lead.



<http://swissinnovation.org/newsChina/web/2019/03-190212-42>

Government Helps Improve Local Pediatric Healthcare

(China Daily, February 18)

The National Health Commission will step up efforts to improve local pediatric healthcare and enhance the role of information technologies, in a move to deal with straining pediatric services across the country. In a statement posted on its website recently, the commission replied to a political adviser who suggested more medical resources be channeled to address issues in pediatric services, which feature long waits and insufficient time for face-to-face consultations. Methods proposed by the adviser include encouraging child patients to make their first consultations for a new illness at a community-level clinic, and to establish a digital platform that shares information on medical appointments and test results between different levels of medical institutions.



<http://swissinnovation.org/newsChina/web/2019/03-190218-5e>

Diabetes Subgroups Also Relevant in Chinese and Americans

(Peking University, February 18)

A research group at Peking University People's Hospital has confirmed that the five exclusive diabetes subgroups identified previously in northern European studies were also relevant in Chinese and American populations. The study involved 2,316 Chinese participants and 815 Americans who had





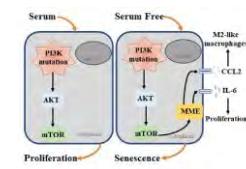
been newly diagnosed with diabetes. The participants were clustered with k-means analysis into four groups. Both Chinese and American participants in the four clusters recapitulated the basic phenotypes of the clusters observed in earlier European studies, suggesting a possible generalizability of this European-oriented diabetes classification in different ethnicities and populations. The finding is thought to be a step forward towards precision medicine in diabetes treatment.

<http://swissinnovation.org/newsChina/web/2019/03-190218-f8>

Tumorigenesis of Breast Cancer

(Chinese Academy of Sciences, February 21)

A research group at the Shanghai Institute of Materia Medica of Chinese Academy of Sciences recently revealed the previously unappreciated role of activating PIK3CAH1047R in breast cancer. The research group has been devoted to studying the role of PI3K in tumorigenesis and the therapeutic potential of PI3K as an anti-cancer target. By establishing human mammary epithelial MCF-10A cells stably expressing PIK3CAH1047R, they found that PIK3CAH1047R induced cellular senescence accompanied with enhanced secretion of pro-tumorigenic factors. Similar results were obtained in breast cancer cells harboring H1047R mutation. Interestingly, membrane metallo-endopeptidase was found to mediate PI3K α -induced senescence and contributed to the pro-tumorigenic senescence-associated secretome. "Mutations in PIK3CA occur in approximately 40% of breast cancer cases and PI3Ka has been validated as a promising target for the therapy for the breast cancer," said Linghua Meng.



<http://swissinnovation.org/newsChina/web/2019/03-190221-4b>

Gene-Edited Babies May Have Enhanced Brains

(South China Morning Post, February 25)

Controversial Chinese scientist He Jiankui, who shocked the world with claims he helped create the first gene-edited babies, may have unintentionally enhanced the brains of the children whose genes he altered. He, who was found to have "seriously violated" Chinese laws in the pursuit of his work, likely changed the cognitive functions of twin girls when he used the gene-editing tool CRISPR to disable the CCR5 gene that allows HIV to infect human cells. Neurobiologist Alcino J. Silva, from the University of California, Los Angeles, who co-authored a 2016 study that found CCR5 was linked to deficits in learning and memory, said the gene editing likely affected the babies' brains, though the exact effect was impossible to predict. "The simplest interpretation is that those mutations will probably have an impact on cognitive function in the twins," according to Silva.



<http://swissinnovation.org/newsChina/web/2019/03-190225-38>



4. Engineering / IT / Computer Science

Satellites Reach Deep into Pacific Ocean for Real-Time Data

(China Daily, February 02)

In a major breakthrough, Beidou satellites have successfully transmitted real-time data to a depth of 6,000 meters in the ocean during a scientific expedition, according to the Chinese Academy of Sciences' Institute of Oceanology. The technology solves the disadvantages of small payload volumes, limited power supplies and huge data sizes associated with deep-sea survey devices. It also reduces dependence on foreign communications satellites. "New technology that combines inductive coupling and underwater acoustic communication has been used to extend transmission to 6,000 meters from the earlier 3,000 meters," said Wang Fan, director of the institute. The satellite communication is one of the successes logged by the scientists aboard the research vessel Kexue ("Science") during its latest mission into the western Pacific Ocean.



<http://swissinnovation.org/newsChina/web/2019/04-190202-da>

2.6 Million Electric-Vehicles and 800'000 Chargers

(MIT Technology Review, February 05)

China has zoomed ahead of other nations in the electric-vehicle market, selling more last year than all other countries combined. According to a report released by Columbia University, the nation is also racing ahead in building the infrastructure needed to support those vehicles, as the government seizes on the technology as its chance to leapfrog the global auto market. China now boasts 808,000 EV chargers, well ahead of the roughly half a million in the US, according to the new report. The figures reflect a similar gulf between electric vehicles on the road in the two nations, at 2.6 million versus 1.1 million. Where China is really pulling ahead, however, is public charging stations. At the end of 2018, the nation had built 330,000 charging points at some 70,000 stations, compared with 67,500 points at 24,000 stations in the United States.



<http://swissinnovation.org/newsChina/web/2019/04-190205-6c>

5G Self-Driving Bus

(China Daily, February 07)

A self-driving bus assisted by the 5G mobile network is on a test run in Chongqing, a vehicle-manufacturing powerhouse. The bus, equipped with technologies such as Controller Area Network and laser radar, is able to complete all autonomous operations with the assistance of the 5G mobile network. The electric-powered 12



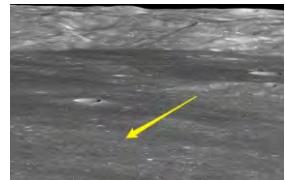
seater has a designed maximum speed of 20 km per hour. The bus was co-developed by China Mobile, Huawei, Southeast University and French company Easy Mile.

<http://swissinnovation.org/newsChina/web/2019/04-190207-c5>

Nasa Zooms in on Chang'e 4 Lander on Far Side of Moon

(South China Morning Post, February 07)

Nasa has released a photo pinpointing the location of the spacecraft Chang'e 4 on the far side of the moon. The black-and-white image showed a white dot on the moon's surface captured by Nasa's Lunar Reconnaissance Orbiter as it passed over the South Pole-Aitken basin on January 30, nearly a month after the Chinese spacecraft landed there. Chang'e 4 is about the size of a car and was about two pixels across, while its rover, the Yutu 2, was not visible in the photo taken from 330km above the lunar surface. The spacecraft landed inside the 186km-wide Von Kármán crater. The crater's west wall is more than 3km high and was formed by an impact about 3.9 billion years ago.



<http://swissinnovation.org/newsChina/web/2019/04-190207-90>

AI Diagnoses as Accurately as Experienced Doctors

(China Daily, February 13)

A team of Chinese and US researchers has developed an artificial intelligence system that can "read" health records and give diagnoses as accurately as experienced doctors. The researchers said they have built an AI-based system that can automatically diagnose common childhood diseases after processing the patient's symptoms, medical history and other clinical data. To train and validate the "smart" system, the scientists used it to study and interpret electronic health records collected from more than 1.36 million pediatric visits to a major referral center in China. The system was highly accurate - comparable to experienced pediatricians - and may aid future doctors in diagnosing complex or rare diseases by providing more diagnostic predictions. In addition, it may be useful for triage patients, an important factor in areas that are short of medical resources.

<http://swissinnovation.org/newsChina/web/2019/04-190213-d3>

5G Smart Highway Project With Charging Tests

(China Daily, February 13)

A first 5G smart highway project will launch in Hubei province, with a plan to select the location of the 5G base station and synchronously carry out smart charging tests already underway. There are also plans to test unmanned self-driving cars. The 5G smart highway project is characterized by its integration with cloud computing, big data, Internet of Things, artificial intelligence and other next-generation internet



technologies. It aims to achieve a thorough and accurate perception of highways in real time, monitor each road and vehicle and predict how objects will move on the road.

<http://swissinnovation.org/newsChina/web/2019/04-190213-0c>

-190°C on Surface During Lunar Night

(China Daily, February 13)

The lander and the rover of the Chang'e 4 probe have been switched to dormant mode for the lunar night after working stably during China's Spring Festival. The payloads on board including the infrared imaging spectrometer and the neural atomic detector have been operating smoothly as scheduled.



A lunar day equals 14 days on Earth, and a lunar night is the same length. The radioisotope heat source, a collaboration between Chinese and Russian scientists, supports the probe through the lunar night when the temperature falls. The Chang'e 4 probe woke from its first lunar night on Jan 31. According to the measurements of Chang'e 4, the temperature of the lunar surface dropped to as low as minus 190°C, colder than expected. It is the first time Chinese scientists have received first-hand data about the temperatures on the surface of the moon during the lunar night.

<http://swissinnovation.org/newsChina/web/2019/04-190213-8e>

Robots Serving Food at AI Eateries

(China Daily, February 16)

A famous hotpot chain has gained even more popularity since it opened its intelligent restaurant in Beijing in October 2018. There are 18 automatic "machine arms" that constantly work in an intelligent dish sorting room. The arms are capable of processing up to 8,000 dishes each day. Windows allow guests across the 93-table dining hall to see the operation from start to finish. Within 10 minutes after customers place their orders on iPads, six dish dispatching robots carry the meat and vegetables to the dining tables by tag location technology. The intelligent hotpot restaurant is not alone. China's e-commerce giant JD opened its smart Xcafe restaurant in Tianjin in November 2018. The 400-square-meter dining hall can hold 100 people. Ordering, assembling, cooking, dispatching, dining and checking out are all facilitated by robots and an artificial intelligence system. In the kitchen, one person operates five robots.



<http://swissinnovation.org/newsChina/web/2019/04-190216-10>

China Sets Up First Trial 5G Campus Network

(Xinhua, February 20)

China's first trial 5G wireless network on a college campus has been established in the Huazhong University of Science and Technology (HUST), China Mobile said Wednesday. The network will enable applications of technologies such as online distant learning featuring augmented reality and virtual

reality and campus patrolling with night-vision drones, said an official with HUST, which is located in central China's Hubei Province. The network was developed by a laboratory jointly set up by HUST, China Mobile's Hubei branch and tech company Ericsson in June last year.

<http://swissinnovation.org/newsChina/web/2019/04-190220-f8>

Subway With Highest Level of Automation

(China Daily, February 20)

Recently, a subway with the highest level of automation has been tested in Chengdu. The metro is the country's first Grade-of-Automation 4 (GoA4) subway with eight carriages. Trains running on the GoA4 system operate automatically at all times, including opening and closing doors, detecting obstacles and handling emergencies. The extended length allows it to carry up to 3,496 people in one trip, more than the current automated subways running in Beijing and Shanghai. The test model is designed to run at 100 km per hour on Chengdu's metro line 9, a 22-km rail connecting the western and southern parts of the city. A total of 25 such trains will operate on the route when the line is put into use in late 2020.



<http://swissinnovation.org/newsChina/web/2019/04-190220-38>

5. Energy / Environment

New Catalyst for Hydrogen Fuel Cells

(ChinaDaily, February 01)

Researchers at the University of Science and Technology of China have developed a new catalyst for fuel cells, which could prolong battery life and greatly extend the range of proper temperature for cells to work. "These findings might greatly accelerate the advent of the era of hydrogen-powered vehicles," said Lu Junling. A major problem with improving the catalyst system of the fuel cell is catalyst poisoning by impure gases such as carbon monoxide (CO). Under the current production methods, 0.5 to 2% of hydrogen is CO, which often poisons the platinum electrode and thus cuts the life of fuel cells. Currently, a preferred solution is on-board hydrogen purification, which involves preferential oxidation of CO in hydrogen (PROX). However, this approach is flawed since the catalyst can only work within a narrow temperature range above room temperature.

<http://swissinnovation.org/newsChina/web/2019/05-190201-d8>

Over 10,000 Metal-Poor Star Candidates

(China Daily, February 03)

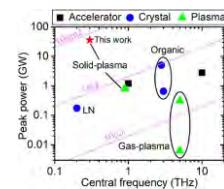
Astronomers believe that the majority of elements heavier than hydrogen and helium in the universe are formed in the cores of stars as they evolve. Over time, stellar winds and supernova deposit the metals into the surrounding environment, enriching the interstellar medium and providing recycling materials for the birth of new stars. Therefore, the lower the metal contents in stars, the older the stars in the universe. Research on metal-poor stars will therefore help us understand the early universe, the origin of elements and the emergence and evolution of the first generation stars and galaxies. However, metal-poor stars are rare and difficult to observe. Based on data from the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST), located in NAOC's Xinglong Observatory in northern China, astronomers have found more than 10,000 metal-poor star candidates with metal contents less than 1% of those in the sun.

<http://swissinnovation.org/newsChina/web/2019/05-190203-de>

High-Power Lasers Drive Terahertz Radiation Pulse to New Record

(Chinese Academy of Sciences, February 18)

Although Terahertz (THz) sources have been generated with electronic and optical techniques for the last decades, the THz pulse energy reported is lower than a millijoule. Research groups from the Institute of Physics under the Chinese Academy of Sciences, from Shanghai Jiaotong University, Central Laser Facility at the STFC Rutherford Appleton Laboratory, the universities of Strathclyde and York have studied THz radiation from intense laser-metal foil interactions. Using the Vulcan laser at the Central Laser Facility, the researchers achieved the record for the highest energy in a single pulse of terahertz radiation in the laboratory. The generation of such a strong THz source is mainly due to the coherent transition radiation when an energetic electron bunch crossing the rear surface of the thin foil. The electron bunch with high charge is accelerated by the high intensity laser pulses in the mm-sized solid metal foil.



<http://swissinnovation.org/newsChina/web/2019/05-190218-e8>

6. Physics / Chemistry / Material Science / Nano- & Micro Technology

World's Brightest Synchrotron Radiation Light Source

(China Daily, February 01)

It has been announced recently, that China has mastered the core technologies to build the world's brightest synchrotron radiation light source, and the production of the most powerful X-rays is expected to be possible by 2025. This will allow scientists to study subatomic particles in greater detail and promote more understanding in fields ranging from material science to medicine. The light source facility - the High Energy Photon Source (HEPS) - will be built by the Institute of High Energy Physics under the Chinese Academy of Sciences in Beijing. HEPS will be one of the world's few fourth-generation synchrotron light sources with the ability to probe the inner structures of materials. "HEPS is essentially a super microscope that can have wide applications in fields that require observing extremely tiny structures, like condensed matter physics, nanotechnology and medicine," said Luo Xiaoan, deputy director of the institute.



<http://swissinnovation.org/newsChina/web/2019/06-190201-dd>

Study on Quantum Communication Wins Newcomb Cleveland Prize

(China Daily, February 01)

The American Association for the Advancement of Science (AAAS) announced that a study on quantum communication conducted by scientists from University of Science and Technology of China will receive the 2018 Newcomb Cleveland Prize as it laid the groundwork for ultra-secure communication networks of the future. This is the first time that a Chinese team wins the prize with its home-grown research. The scientists used a satellite called Quantum Experiments at Space Scale (QUESS) or Micius to send entangled photon pairs through the near-vacuum of space, measuring the quantum keys at receiving stations over 1,200 kilometers apart. They found that when two entangled particles are separated, one particle can somehow affect the action of the far-off twin instantly, which is what Albert Einstein described as a "spooky action at a distance."



<http://swissinnovation.org/newsChina/web/2019/06-190201-d7>

Paper With Tactile Perception

(Chinese Academy of Sciences, February 03)

Researchers at the Shenzhen Institutes of Advanced Technology under the Chinese Academy of Sciences and from the University of California developed an "All-in-One Iontronic Sensing Paper (ISP)" for tactile perception. The ISP



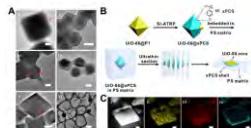
device was prepared by folding single paper with ionic region and electrodes region to achieve the iontronic interface. It possesses a much higher sensitivity than its counterpart, such as a resolution of single Pascal, a single-millisecond response time, and a linear pressure response, resulting from the unique iontronic mechanism and the specialties of paper. With characteristics of printability, cutability and foldability, the ISP can be structured into a 2D sensing planar or a 3D tactile-sensitive origami, which reflects the innovative concept that "all things can obtain tactile". This work provides a simple method for paper-based sensor platforms, with great potential for application in human-machine interface applications.

<http://swissinnovation.org/newsChina/web/2019/06-190203-6f>

MOF@polymer Functional Composite Construction Method

(ShanghaiTech University, February 09)

Metal organic frameworks (MOFs) are formed by the coordination of metal ions or clusters and organic linkers with extremely rich structure and chemical composition diversity. More than 20,000 different MOFs have been reported within the past 20 years. Nanoparticles and MOFs, like other nanomaterials, often benefit from "soft" polymeric coatings with the resultant MOF@polymer composites exhibiting unique performance in different fields. However, there is a lack of a generalizable method can be applied to different types of MOFs and most reported methods are usually limited to specific MOFs systems. To overcome current challenges, researchers at ShanghaiTech University developed a surface-initiated atom transfer radical polymerization (SI-ATRP) method for the growth of polymers on various MOFs materials' surface, which is based on the self-assembly of a designed random copolymer (RCP) on the surface via weak interaction.



<http://swissinnovation.org/newsChina/web/2019/06-190209-74>

Silk Fiber Research Collaboration

(ShanghaiTech University, February 09)

A research group at ShanghaiTech University and their collaborators developed an environmentally friendly and scalable "partial dissolution and physical dispersion" strategy to exfoliate silk fibers into different mesostructures. On the basis of the advantages of these mesosilks in tunable sizes, sharp size distributions, high modulus, excellent redispersibility, as well as versatile processability, the applications of these mesosilks in electronic and environmental fields are being further explored, including water treatment, recycling organic solvent, paper sensors, and nanofertilizers. These explorations open a new



avenue for silk fiber applications while also providing a pathway to help address critical issues in electronic and environmental fields.

<http://swissinnovation.org/newsChina/web/2019/06-190209-91>

Nanogenerator for Cancer Drug Delivery System

(China Daily, February 21)

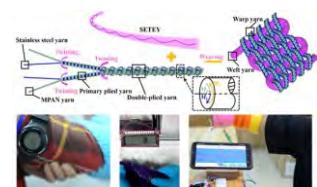
Anti-tumor drugs can be loaded into biological drug carriers such as red blood cells. The red blood cells carrying the drugs will accumulate at the tumor sites and slowly release the drugs. Electricity has been demonstrated to increase the response of the red blood cells which can be employed to control the drug release. However, it is challenging to deliver electricity to tumors deep inside the body, because traditional electricity power suppliers have huge volumes. Scientists from the Beijing Institute of Nanoenergy and Nanosystems and the Institute of Process Engineering under the Chinese Academy of Sciences have therefore developed a triboelectric nanogenerator acting as an electricity supplier for the drug delivery system. Tests on mice with tumors showed the system helps release drugs at the tumor sites and reduces the amount of drugs reaching the normal cells.

<http://swissinnovation.org/newsChina/web/2019/06-190221-73>

Power-Generating Fabrics

(China Daily, February 26)

A research team at Donghua University in Shanghai has uncovered a way to achieve the continuous and scalable manufacture of amphibious energy yarns and textiles, which could pave the way for smart clothing. The amphibious energy yarns and textiles are composed of highly elastic polymer materials (rubber) and spiral metal fibers. The two materials produce an electro-transfer reaction during any deformation before generating power. With the help of core-sheath structure and gain-coupled power generation mechanism, the researchers found that the amphibious energy yarns and textiles can be self-generating without interaction with other objects, and can be used in various situations, even in liquids. The special yearns and textiles can be made into elastic power-generating fabrics and can also be woven with other fibers (e.g. nylon fiber and polyacrylonitrile fibers), so that the breathability, comfort level and power generation of textiles can be effectively controlled.



<http://swissinnovation.org/newsChina/web/2019/06-190226-1a>



7. Economy, Social Sciences & Humanities

Greater Bay Area Propels China's Opening-up

(Xinhua, February 19)

With a master plan unveiled Monday, China has stepped up efforts to develop its southern bay area around the Pearl River Delta into a world-class city cluster that will lead the country's opening-up and innovation in decades to come. The Guangdong-Hong Kong-Macao Greater Bay Area consists of the Hong Kong Special Administrative Region, the Macao Special Administrative Region and nine cities in Guangdong Province, including Guangzhou and Shenzhen. As a highly open and vibrant region in China, the bay area accounts for less than 5 percent of the country's total population but contributes around 12 percent of the national GDP.



<http://swissinnovation.org/newsChina/web/2019/07-190219-99>

Environmental Assessment Exemption in Shanghai

(China Daily, February 26)

Shanghai Municipal Bureau of Ecology and Environment recently granted environmental impact assessment (EIA) exemptions for specified construction projects in an effort to improve the city's business environment. The bureau made public the categories of projects that no longer need environmental impact assessment, covering projects concerning industries, social services, infrastructure and environmental governance. Industrial constructions with simple manufacturing processes and minor pollution risks can be exempted from an EIA, such as food, textiles and garment manufacturing, and grain processing. Social service projects providing special services and with less pollution, such as storage, logistics, restaurants and cafes producing no cooking fumes and schools, are on the exemption list.



<http://swissinnovation.org/newsChina/web/2019/07-190226-b2>

8. Corporates / Startups / Technology Transfer

iFlytek Becomes Major Player in Speech-Recognition

(China Daily, February 19)

Liu Qingfeng, chairman of iFlytek Co, can say he has done what he promised President Xi Jinping five years ago. During a panel discussion at the annual plenary session of the National People's Congress in 2014, Liu vowed to make his company a dominant power in the industry. Since then, iFlytek, China's



leading speech-recognition company, has won a raft of awards - 12 in worldwide speech and AI competitions in 2018 alone, including the Blizzard Challenge, said to be the most authoritative international competition in speech synthesis. "For iFlytek, to be steady means we must continue to lead in technology and down-to-earth applications," said Liu. Liu founded iFlytek in 1999 as a second-year PhD student at the University of Science and Technology of China in Hefei.

<http://swissinnovation.org/newsChina/web/2019/08-190219-b3>

JD.com Takes Drone Delivery System to Japan

(techcrunch, February 21)

Rakuten, the Japanese e-commerce giant, announced a partnership with JD that will see its drones and unmanned vehicles become a part of Rakuten's own unmanned delivery service efforts. JD has been operating drones in its native China for a number of years, and it has wider expansion plans, having recently gained a regional-level operating license. Its other human-less tech includes self-operating trucks, automated warehouses and unmanned stores, and it recently picked Indonesia for its first overseas drone pilot. Rakuten has been offering drone delivery in Japan since 2016 and unmanned vehicle trials since 2018. It said that working with JD — which claims to have racked up 400,000 minutes of delivery flight time — will "accelerate the development and commercialization" of its human-free last-mile delivery efforts.

<http://swissinnovation.org/newsChina/web/2019/08-190221-2c>

9. Bilateral News

88 Costumed Drones on Word's Largest TV Program

(Verity Studios, February 06)

Verity Studios AG, the global leader in indoor drone systems from Switzerland, and Keey Media, a leading smart entertainment company in China, recently announced that 88 Verity Studios drones were chosen to be featured in the CCTV New Year's Gala. It is the world's most-watched TV program; the event was broadcast live to an estimated 1 billion viewers across the globe. With 88 Lucie® micro drones flying over performers in red Chinese lantern costumes, this is the largest number of costumed drones ever seen in a performance. Sponsored by TikTok, a leading social media platform in Asia, the show opened to "The Distance of Time", sung by popular singer Sun Nan and up-and-coming pop star Jason Zhang. As the song builds, 88 Lucie micro drones flew from the back of the stage like butterflies to dance above the 50 performers dressed as blossoming cherry trees.



<http://swissinnovation.org/newsChina/web/2019/09-190206-a0>

CAS Asian Business Law by University of Zurich

(University of Zurich, February 20)

Asian trading partners have become more and more important in the globalized economy. However, many western companies are still unfamiliar with the specificities of the Asian and especially Chinese markets. Therefore, starting from the autumn semester 2019, the University of Zurich is offering a new CAS in Asian Business Law. The course is taking place in the framework of the LL.M. program International Business Law. This newly offered specialization course, which will be taught in English, is designed to give participants the understanding of the regulatory and legal characteristics of Asia's key markets and thus better assess opportunities and risks. The application deadline for the fall semester is April 30.



<http://swissinnovation.org/newsChina/web/2019/09-190220-ce>

Swiss Startup BioLingus Partners Up With Chinese STA Pharmaceuticals

(startupticker.ch, February 20)

BioLingus, with headquarters in Hergiswil and offices in Hong Kong and Australia, is specialized in the development of oral (sublingual) delivery of peptides and proteins for chronic diseases and immunotherapy. The startup developed a technology that enables transforming injectable medicines into pills that go under the tongue. Biolingus' technology is internationally patent protected and has received numerous awards. The startup has now entered a partnership with STA Pharmaceutical Co., (WuXi STA), a subsidiary of WuXi AppTec, a global pharmaceutical and medical device open-access capability and technology platform company with global operations and over 16'000 employees worldwide. The WuXi platform enables more than 3,000 innovative collaborators from over 30 countries to deliver innovative healthcare products to patients.

<http://swissinnovation.org/newsChina/web/2019/09-190220-74>

Upcoming Science and Technology Related Events

Café des Sciences, Looking Beyond the Horizon

March 21, 2019

<https://is.gd/Cp18as>

Startups, Science Talk

Shanghai

2019 Beijing Fintech Industry Forum

March 15, 2019

<http://bit.do/eKeDL>

Network, AI, Blockchain

Beijing

Fireside Chat, Light and Shadow with Daniel Heusser

April 8, 2019

<https://is.gd/nAqL3r>

Architecture, Business Building
Shanghai

Swiss Alumni China

May 24, 2019

<https://is.gd/N1YgQa>

Networking, China, Switzerland
Shanghai

Empa @ Design Shanghai

March 6-9, 2019

<https://is.gd/w4uoVb>

Material Science, Design
Shanghai

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