

Science China Newsletter, May 2018

Trends in education, research, innovation and policy



Shaxi, China

Table of Contents

1. Policy	3
2. Education	5
3. Life Sciences / Health Care	7
4. Engineering / IT / Computer Science	9
5. Energy / Environment	13
6. Physics / Chemistry / Material Science / Nano- & Micro Technology	14
7. Economy, Social Sciences & Humanities	16
8. Corporates / Startups / Technology Transfer	17
9. Bilateral News	20
10. Calls for Grants/Awards	20
Upcoming Science and Technology Related Events	21

Swiss Spotlight

Scientist: Designs Inspired by Architecture, Physics and Mathematics

(Stefanie Tschirky, May 31)

Stefanie Tschirky is a fashion designer currently working as a fashion design and fashion history lecturer at Mod Art International, Shanghai University. Having graduated from the Royal College of Art London with a Masters Degree in Fashion Design Womenswear, Stefanie Tschirky received the British Fashion Council Graduate Sponsorship and an award from the Council of Fashion Designers of America for her outstanding achievements in womenswear design. Drawing inspiration from the fields of architecture, physics and mathematics, Stefanie's collections combine sharp lines with fluid contours. Her work articulates a modern urban aesthetic, which is crafted through innovative textile manipulation. The designs are both elegantly structured and precisely refined. Stefanie Tschirky just recently received a sponsorship to show her new Spring/ Summer 2019 collection as a runway show at Tokyo Fashion week and Shanghai Fashion Week in October 2018.



<http://swissinnovation.org/newsChina/web/2018/00-180531-c8>

Startup: Change in Nanostructures

(SwissLitho, May 31)

SwissLitho is a young high-tech company with the vision to change the way nanostructures are commonly made. Their unique nanolithography tools, called NanoFrazor, trace their origins to IBM Research Zurich. The NanoFrazor is based on Thermal Scanning Probe Lithography and is the first alternative to conventional mask-less lithography technologies. Heatable silicon tips are used for direct patterning of arbitrary 2D and 3D nanostructures and for simultaneous imaging of the tiny nanostructures. The extreme patterning and imaging resolution down to single nanometers and the fact that the NanoFrazor process, unlike conventional nanolithography technologies, does not damage delicate emerging materials open up various new and unprecedented possibilities for all fields of nanotechnology. Since its foundation in 2012, SwissLitho has received many of the most prestigious national and international start-up and technology awards. SwissLitho's NanoFrazor lithography systems are installed at leading research institutions in more than 8 countries. In 2018, SwissLitho joined forces with Heidelberg Instruments, a world leader of maskless microlithography systems. In China SwissLitho works with distributor – Quantum Design and has already two NanoFrazor systems installed in China.



<http://swissinnovation.org/newsChina/web/2018/00-180531-5c>

1. Policy

Gender Gap in Chinese science

(nature.com, May 02)

“Women hold up half the sky” was a popular slogan in Mao Zedong’s China of the mid-twentieth century, intended to emphasize the equal importance of women in public and private life. But inequalities persist. By 2017, just 6% of the members of the Chinese Academy of Science were women. In the 1980s and 1990s, advances in technological capacity generally involved importing knowledge. Now, China focuses explicitly on building its own research and development and innovation. The increased demand for talent has highlighted the need for more female scientists. Currently, women make up only about one-quarter of this workforce. Multiple governmental and scientific organizations have taken measures to promote women in science. Notably, after age limits for female grant applicants were extended, the percentage of women winning grants from a major fund for young scientists rose by 10% in one year.



<http://swissinnovation.org/newsChina/web/2018/01-180502-26>

Massive New Chip Fund for Semiconductors

(techcrunch.com, May 08)

China’s government has made technological independence from the United States one of its highest priorities. According to The Wall Street Journal, China is close to finalizing a \$47 billion investment fund that would finance semiconductor research and chip startup development. The country is highly dependent on foreign tech in its semiconductor industry, importing 90 percent of its chips in order to power its fast-growing economy. While China may try to play catchup in the broad category of semiconductors, it is strategically placing its money on new areas like 5G wireless and artificial intelligence-focused chips where it might become a leading provider of technology. Concerns over 5G in particular have galvanized American attention on Qualcomm and its ability to compete in what is rare virgin territory in the telecom equipment space.



<http://swissinnovation.org/newsChina/web/2018/01-180508-75>

Promotion of Party Development in Internet Industry

(Global Times, May 10)

China’s internet-related social organizations formed a national confederation on Wednesday. Called the China Federation of Internet Societies (CFIS), the group consists of 300 internet organizations and enterprises, including 23 national organizations and 277 local ones, the Xinhua News Agency reported. The CFIS will provide political guidance for member organizations, encourage them to improve

operations, help them express their needs and protect their interests, oversee operations of member organizations, and promote the development of Party organizations in the industry, said Ren Xianliang, CFIS president, at the inauguration ceremony. The CFIS is supervised by the Cyberspace Administration of China.

<http://swissinnovation.org/newsChina/web/2018/01-180510-85>

White Paper Released on Blockchain Technology

(Xinhua, May 21)

A complete industrial chain for the blockchain sector has emerged in China with hundreds of companies adopting the technology, according to an official white paper released recently. By the end of March 2018, there were 456 blockchain technology companies in the country, forming a complete industrial chain, including hardware manufacturing, platform services, security services, industrial technology application services, investment and financing, media and human resources services. The year 2017 marked the peak of industry development with 178 new companies being established following the rapid popularization and maturation of the technology. As a result, investors flocked into the market with nearly 100 equity stock investment deals in 2017, the most in recent years. In the first quarter of 2018, the number of equity investment deals reached 68. The white paper pointed out that the industry is still in a nascent stage.

<http://swissinnovation.org/newsChina/web/2018/01-180521-7f>

Efficient Government Services on WeChat

(South China Morning Post, May 23)

WeChat now enables residents in the Guangdong province to skip the queues at government offices and face-to-face talks with civil servants. That convenience is made possible by a WeChat Mini Program called Yue Sheng Shi, roughly translated in English as "saving the trouble in Guangdong", which can handle 142 different local government functions. The functions made available on the platform included payment of traffic ticket, making appointment for marriage registration, and extending visa on passports and other travel documents, as well as others related to medical care, social security and labor arbitration. Users in Guangdong are required to register for this WeChat-based initiative with their real names and other personal information to access all the functions. This marks the latest public-sector initiative in which Tencent's WeChat is being turned into a vital application for government services.



<http://swissinnovation.org/newsChina/web/2018/01-180523-29>

Attracting More International Scientists

(Xinhua, May 23)

China's Ministry of Science and Technology recently issued guidelines on recruiting more international researchers to take part in multiple scientific projects of major science and technology programs. The international scientists will be involved in strategy-making, research, program management and assessment, and encouraged to collaborate with Chinese counterparts in joint research programs. According to the guidelines, China has been making full use of global innovation resources and deeply integrating into global innovative networks in the era of economic and scientific globalization. By recruiting or attracting more international scientists, China aims to improve its national innovation system and further promoting the strategy of innovation-driven development, said the guidelines.

<http://swissinnovation.org/newsChina/web/2018/01-180523-71>

UN Member States can Utilize China's Space Station

(China Daily, May 29)

China announced on Monday that all member states of the United Nations are welcome to cooperate with China to jointly utilize its future China Space Station (CSS). Interested public and private organizations, including institutes, academies, universities and private enterprises with scientific orientations, can identify their appropriate models of cooperation on board CSS, may it be the growth of a space plant, or will even accommodation of an astronaut. CSS is expected to be launched by 2019, and complete and brought into operation by 2022. Consisting of one core module and two experiment modules, the CSS will have the capacity to accommodate up to three astronauts at the same time.

<http://swissinnovation.org/newsChina/web/2018/01-180529-1d>

2. Education

Generous Benefits Lure Foreign Scientists

(China Daily, May 02)

After several job interviews Canadian researcher Jeremy Murray chose to join a center at the Shanghai Institute of Plant Physiology and Ecology early last year. "This was an opportunity to be part of an exciting new joint venture between China and the UK," said Murray. "Moreover, the support we receive in Shanghai in both research work and living is quite strong." He has an independent lab and receives extra funding at the institute, which might be luxurious elsewhere. He also receives a "generous" monthly housing allowance. He Tianhou, director of human resources at the Shanghai Institute of Ceramics, a branch of the CAS, said high-level professionals may not regard such privileges as the

most important element in selecting a career path, but it is a way for the institute and the local government to show their sincerity toward the researchers.

<http://swissinnovation.org/newsChina/web/2018/02-180502-e2>

AI High School Education Pilot Program

(South China Morning Post, May 03)

China wants to be a world leader in artificial intelligence by 2030. To get there, it needs to equip pupils and high school students with basic AI knowledge. Demand for AI professionals in China may surge to 5 million in a few years' time, according to a December 2017 report by the People's Daily. About 40 high schools across China, mainly in developed mega cities such as Beijing and Shanghai, have teamed up with SenseTime to become the first participants in the AI high school education pilot programme. "The 40 senior high schools are just a start. We are going to introduce the AI course to more schools across China," said SenseTime in an e-mailed reply to SCMP.



<http://swissinnovation.org/newsChina/web/2018/02-180503-3d>

Tsinghua University Drives the Country's Tech Ambitions

(South China Morning Post, May 06)

Li Zhu, head of the 3,000-member Tsinghua Alumni TMT Association, set up the group in 2011 so that Tsinghua alumni in the technology, media and telecommunications industries can get together and network. Such connections have helped establish the university as an influential kingmaker in the country's technology industry. Tsinghua University also holds regular talks by alumni from different fields to share their experiences and also provide mentoring to the current crop of undergraduates. But perhaps its biggest influence in the technology industry is Tsinghua Holdings, which was set up as an in-house asset management company for the university's subsidiaries and has since become a full-fledged venture capital firm backing investments in areas spanning mobile internet, cloud computing to nuclear energy, waste water treatment and medical services.



<http://swissinnovation.org/newsChina/web/2018/02-180506-b5>

Education Ministry Clarifies Recent Budget Allocation

(China Daily, May 30)

The budget recently published by the Ministry of Education (MOE) is for the students at the primary and high schools affiliated to universities directly under the ministry, not for all Chinese students across the country, an official said on Monday. According to the budget, the MOE will allocate 416 million yuan (\$64.8 million) for primary schools and 1.22 billion yuan for high schools this year, and 3.32

billion yuan for foreign students in China. The official said the budget is only for students at schools affiliated to universities directly under the ministry, not for the 138 million students at primary and high schools across the country.

<http://swissinnovation.org/newsChina/web/2018/02-180530-c3>

3. Life Sciences / Health Care

Pediatricians' Fees Increase by 30% in Guangzhou

(China Daily, May 08)

Fees for medical treatments and examinations of children 6 and younger were raised by 30 percent in Guangzhou recently as a way to keep the city's pediatricians from quitting their jobs. An ordinary diagnostic fee for a child was increased from 10 yuan to 13 yuan (\$1.60 to \$2.05). A tonsillectomy rose from 520 yuan to 676 yuan. Gong Sitang, deputy president of the Guangzhou Women and Children's Medical Center, said the policy is people-oriented, as it allows pediatricians to feel respected. Gong said the price hike will not increase the burden of patients or parents who enjoy medical insurance or who are covered by the country's healthcare system. "Most of the children's medical expense are actually paid by the government and insurance companies," he said.



<http://swissinnovation.org/newsChina/web/2018/03-180508-a4>

Public Hospitals Rein in Unreasonable Pricing

(China Daily, May 12)

Public hospitals in China have reined in the unreasonable pricing of medical care, an official of the National Health Commission said on Friday. "All public hospitals across the country joined the comprehensive reform program in 2017 to end 60-odd years of drug price markups," Wang Hesheng, deputy director of the commission, said at a State Council press conference on implementing major policies. Wang said the General Office of the State Council praised 38 localities, including Xicheng District in Beijing and Sanming City of east China's Fujian Province, for their good practices in the comprehensive reform of public hospitals.

<http://swissinnovation.org/newsChina/web/2018/03-180512-75>

Medical Instrument to Culture Stem Cells Automatically

(Xinhua, May 15)

China has created the world's first medical instrument that can induce, culture and screen stem cells automatically, benefiting the development of regenerative medicine. The instrument, developed by the

Guangzhou Institutes of Biomedicine and Health of the Chinese Academy of Sciences makes the large-scale culture of stem cells possible. Stem cells can self-renew or multiply while maintaining the potential to develop into other types of cells. They can become cells of the blood, heart, bones, skin, muscle, brain or other body parts. They are valuable research tools and might in future be used to treat a wide range of ailments. Previously, inducing, culturing and screening stem cells could only be achieved manually, which lacked uniform standards and was inefficient, costly and unsafe, restricting the wide application of stem cells in regenerative medicine.

<http://swissinnovation.org/newsChina/web/2018/03-180515-02>

Engaging in Global Health Governance

(China Daily, May 21)

Health plays an important role in the 2030 Agenda for sustainable development and China is actively involved in global health governance, a senior health official from China said Sunday. China attaches great importance to safeguarding its citizens' health and promoting the wellbeing of people's livelihood, and China is also actively engaged in global health governance. Focusing on relevant sustainable development goals (SDGs), China has elevated its Healthy China initiative to a national strategy and released the Healthy China 2030 Outline for its national health progress. In 2014, China sent over 1,200 health care professionals and public health experts to help African nations in their response to Ebola. Ma said China is prepared to do so for the current Ebola crisis facing the Democratic Republic of Congo.

<http://swissinnovation.org/newsChina/web/2018/03-180521-e4>

Roche Diagnostics Sees Potential in China R&D

(China Daily, May 23)

When Frank Pitzer first visited China, in 2000, he could tell the country was developing rapidly by looking at the infrastructure being built. Two years ago, when he officially relocated to the country as general manager of Swiss healthcare giant Roche Diagnostics' new factory in Suzhou, Jiangsu province, development was still the theme, but with "tremendous changes" due to a new focus on research and development. Roche Diagnostics Suzhou, the company's first production base in the Asia-Pacific region, is scheduled to roll out its first products for sale in Asia this year.



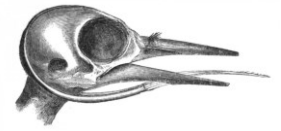
<http://swissinnovation.org/newsChina/web/2018/03-180419-3e>

4. Engineering / IT / Computer Science

Woodpecker-Inspired Vehicles to Reduce Impact

(Xinhua, May 01)

Researchers are developing a new aircraft that simulates the skull of a woodpecker to reduce the effects of impact, according to the China Academy of Launch Vehicle Technology (CALVT) website. When a woodpecker pecks wood, its skull withstands a very high-force impact, but its brain does not get a concussion. A woodpecker's brain is wrapped in a very dense, resilient skull with multiple holes, said Yin Jin, technical head of aircraft development. The aircraft, modeled after a woodpecker's skull, is expected to have a lightweight recyclable buffer structure. In addition to aircraft, the technology could be applied to improve the comfort of vehicles, ships, and airplanes and enhance precision in industrial processing.



<http://swissinnovation.org/newsChina/web/2018/04-180501-5b>

Low-Cost Reusable Rocket

(China Daily, May 02)

"China's aerospace industry is making efforts to develop low-cost vehicles that can enter space rapidly to support future large-scale space exploration and promote a commercial space industry," said Long Lehao, chief designer of carrier rockets at the China Academy of Launch Vehicle Technology. "As the current Long March 2, 3 and 4 series rockets are fueled by toxic propellants, they cannot be recycled. But we are developing technologies to precisely control the fall of the rocket remains to ensure safety," Long said. That effort is important, as residents in possible landing areas must be evacuated for every launch. As China's aerospace activities become more frequent, with 36 launches planned this year, precise control of falling rocket remains could save a lot of trouble.

<http://swissinnovation.org/newsChina/web/2018/04-180502-96>

Supercomputing Center in Wenchang

(China Daily, May 03)

The city government of Wenchang, home of China's first tropical and coastal space launch center, announced recently that it plans to build an aerospace supercomputing center and a big data industry cluster project in the near future. When completed, the supercomputing center will play an important role in promoting the country's satellite application research and development, the application of high-resolution data and development of a big data industry around spatial information. Construction of the projects will be open to social and private funds, the city said.

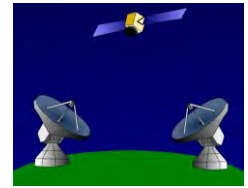


<http://swissinnovation.org/newsChina/web/2018/04-180503-e8>

10th Commercial Communication Satellite Sent into Orbit

(Xinhua, May 04)

Recently a new APSTAR-6C communication satellite was sent into orbit for Hong Kong-based APT Satellite Co., Ltd. It was China's 10th commercial communication satellite for export, and the second entire Chinese satellite sold to a mainstream international satellite operator, according to the China Academy of Space Technology (CAST), which produced the satellite. It will replace the still operating APSTAR-6 satellite to provide broadcasting and communication services to customers in the Asia-Pacific region. The APSTAR-6C features more advanced functions than its predecessor, said Wei Qiang, chief designer of the satellite. According to the APT Satellite website, before the launch of APSTAR-6C, the company was operating four satellites in orbit: APSTAR-5, APSTAR-6 and APSTAR-7, which were developed by U.S. and European producers; and APSTAR-9, developed by China's CAST.



<http://swissinnovation.org/newsChina/web/2018/04-180504-a7>

OneSpace Sets Launch of Private Carrier Rocket

(China Daily, May 09)

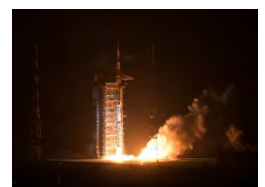
OneSpace Technology, China's first private rocket producer, announced on Tuesday in Chongqing that the maiden launch of the company's OS-X0 solid-fuel rocket is scheduled for May 17 in a test field in northwestern China. The company said it represents the first flight of a carrier rocket entirely designed and built by a private company in China. Established in 2015 as part of a government effort to foster the commercial space sector and encourage participation by private enterprise, OneSpace has become a rising star in the country's space arena.

<http://swissinnovation.org/newsChina/web/2018/04-180509-5b>

New Earth Observation Satellite Launched for Environmental Monitoring

(China Daily, May 09)

China launched Gaofen 5, a hyperspectral imaging satellite, as part of the country's high-resolution Earth observation project. The satellite is developed and produced by China Aerospace Science and Technology Corporation and has a designed life of eight years. According to Tong Xudong, chief designer of the Gaofen series, Gaofen 5 is the first China-developed satellite that can monitor air pollution. It can dynamically reflect the state of air pollution in China through the monitoring of air pollutants, greenhouse gases, and aerosols. It will help reduce China's dependence on foreign hyperspectral satellite data. Since the Gaofen project began in 2010, China's view of the planet has become clearer. China will also launch Gaofen 6 this year to form a constellation with other Gaofen satellites in orbit.



<http://swissinnovation.org/newsChina/web/2018/04-180509-bd>

World's First Trackless Autonomous Rail Rapid Transit System

(Xinhua, May 09)

The world's first trackless Autonomous Rail Rapid Transit (ART) system has started trial operation in Hunan Province. The vehicle, seen as a crossover between a bus, train and tram, runs on rubber tires and follows double-dashed white lines painted on the road, instead of conventional rail tracks. Sensors can detect the dimensions of the road and send travel information back, which provides the basis for developing it into a driverless vehicle in the future. The three-carriage vehicle is 32 meters long and can carry over 300 passengers. The developer said the electric vehicle is cheaper and more eco-friendly than traditional vehicles. The new transit system costs just one-fifth of a tram system as it does not need tracks. Ten minutes of charge can power the vehicle to travel for 25 kilometers.

<http://swissinnovation.org/newsChina/web/2018/04-180509-22>

Self-Driving Bus on Trial Run in University

(Xinhua, May 10)

Shanghai Jiao Tong University has launched a trial run of a driverless minibus on its campus in Xuhui district. The service, for on-campus commuting, uses an eight-seat vehicle developed jointly by the university's Research Institute of Intelligence Vehicles and a company specializing in automatic driving systems research and production. Guided by a map stored in the cloud, the bus can pick up passengers and take them to the stop they select by scanning a QR code. There are currently four stops on the university's Xuhui campus. While on board, passengers can use a touch screen or speak to an interactive voice system to change their destination. Since May 2, the three buses have carried more than 1,000 passengers safely at a maximum speed of 15 km per hour, according to Yang Ming.

<http://swissinnovation.org/newsChina/web/2018/04-180510-da>

Record Laser-Ranging Test

(Xinhua, May 21)

The relay satellite Queqiao ("Magpie Bridge"), which was launched recently, will fly to a halo orbit around the second Lagrangian point (L2) of the Earth-Moon system. It will be a communication link between controllers on Earth and the Chang'e-4 lunar probe, which is expected to soft-land on the far side of the Moon at the end of this year. Scientists will also conduct a laser-ranging test with the satellite at a maximum distance of 460,000 km, a record distance for an experiment of its kind. China has reportedly accomplished its first successful lunar laser-ranging, with a 1.2-meter telescope at Yunnan Observatories on January 22 this year, when scientists measured the distance between the Moon and the Earth, based on the signals of laser pulses reflected by the lunar retro-reflector planted by the U.S. Apollo mission more than 40 years ago.

<http://swissinnovation.org/newsChina/web/2018/04-180521-ad>

BeiDou Navigation Satellite System (BDS) Ready by 2020

(Xinhua, May 23)

China will launch another 11 BeiDou-3 satellites by the end of 2018, adding to its domestic BeiDou Navigation Satellite System (BDS). The country has already launched eight BeiDou-3 satellites. The satellites will provide initial services for countries and regions along the Belt and Road by the end of the year, said Wang Li, chairman of China Satellite Navigation System Committee. Wang said the BeiDou system is moving to become a global service provider after offering stable and reliable time and space information for clients in the Asia-Pacific region. By around 2020, when the BeiDou system goes global, it will have more than 30 satellites. The BeiDou system will coordinate with other technology, such as remote sensing, Internet, big data and cloud computing, in the future, said Wang.

<http://swissinnovation.org/newsChina/web/2018/04-180523-ce>

Microwave Remote Sensing to Monitor Large Area Infrastructure

(Xinhua, May 24)

China's transport information will be helped by microwave remote sensing. InSAR, or microwave remote sensing, provides all-day millimeter-level monitoring of infrastructure over a large area. A remote sensing laboratory was unveiled recently by China Transport Telecommunications and Information Center (CTTIC) and Airbus Defense and Space. The two sides will cooperate to provide more accurate transport information. Microwave remote sensing is not influenced by weather and visibility. According to Li Yuanting, senior engineer at the CTTIC, InSAR can monitor the area of 1,500 square kilometers and record tiny changes in the shape of Earth's surface within the area.

<http://swissinnovation.org/newsChina/web/2018/04-180524-a9>

eSIM Card With Blockchain-Based Authentication

(TechNode, May 24)

Tencent and China Unicom have launched the TUSI SIM card which implements new identity authentication standards for the Internet of Things (IoT) industry. The Tencent TUSI (Tencent User Security Infrastructure) IoT joint laboratory has also issued an identity-based blockchain product which provides cross authentication service. The TUSI SIM card's main task is to provide safety standards. IoT connects machines by transferring a multitude of information which is in danger of being intercepted and exploited by hackers. Data breaches have become a massive problem across China. The card will also be used in smart city applications. The new standard is becoming popular among consumer electronics manufacturers who want to connect more devices through IoT. China Unicom and Tencent will focus on implementing the new cards in consumer electronics, vehicles, shared items and other fields.



<http://swissinnovation.org/newsChina/web/2018/04-180524-6f>

5. Energy / Environment

Monitoring Network for Quake Prediction

(Xinhua, May 07)

The construction of a monitoring network in seismically active regions in an effort to explore earthquake prediction has started. According to the plan, 2,000 monitoring stations will be built in two years in Sichuan and Yunnan, two quake-prone provinces, said scientists with the Institute of Care-life, a disaster-reduction lab based in Chengdu. Sensors installed at monitoring stations will collect data on underground stress and energy 8 to 20 kilometers below the surface of the earth, providing researchers with potential insights into earthquake forecasting. Following the construction of the network, researchers will continue to monitor the region for three years and expect to collect data on about 10 earthquakes in this period, based on the past frequency of earthquakes in the region. The objective of the project is to successfully predict earthquakes whose epicenters are less than 20 kilometers deep.

<http://swissinnovation.org/newsChina/web/2018/05-180507-20>

Scientists Develops Battery to Store Renewable Energy

(China Daily, May 08)

Chinese scientists have developed a lead-carbon battery for storing power generated from solar panels and windmills, through which the electricity supply is stable for use. An energy storage system with the batteries has been piloted in Dalian Institute of Chemical Physics in Northeast China's Liaoning province. The system was developed by a research team led by Professor Li Xianfeng and Professor Zhang Huamin with the institute. The scientists said power generated by renewable energy sources was not continuous and stable, making it difficult to regulate. The battery can ensure a stable output of electricity. Once applied, it can help push the use of clean energy from an auxiliary to a dominant power generating source.

<http://swissinnovation.org/newsChina/web/2018/05-180508-f1>

Intelligent Water Device to Help Desert Prevention

(Xinhua, May 21)

Scientists are building a water balance simulator to assist in prevention and control of desertification. The automatic device was developed by the Chinese Academy of Sciences Shapotou Desert research and experiment station. The device has the ability to simulate precipitation and control groundwater. It can simulate the rainfall of climatic zones in north China's sandy areas, track changes of water content in the soil and track the growth of the plants. North China has about 1.7 million square kilometers of sandy areas, the country's most environmentally fragile regions, head of the Shapotou

station Li Xinrong said. Water content plays an important role in vegetation restoration and growth in sand areas. Quantitative assessment of water balance will help vegetation growth. The device will provide theoretical and technical support for the restoration of the ecosystem.

<http://swissinnovation.org/newsChina/web/2018/05-180521-df>

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

New Material for Water Purification

(Xinhua, May 06)

Scientists have come up with a new membrane material which can efficiently separate salt from water and has other water purification functions. A research program led by professor Zhang Lin with the Zhejiang University developed the membrane formed by nanoscale bubbles and tubes. The material allows water to permeate three to four times faster than traditional membrane for water purification. Zhang likened the function of the membranes to the interior of the mammalian intestine as it absorbs water and nutrition. Zhang expects the membranes to have a variety of applications in home water purification, industrial waste water treatment and desalination.

<http://swissinnovation.org/newsChina/web/2018/06-180506-01>

Meat "Freshness Sniffer"

(Xinhua, May 07)

Researchers at China Aerospace Science and Industry Corp have turned their expertise to designing and producing a handheld gadget called "freshness sniffer". It is an electronic device that determines the freshness of meat you are about to buy or cook. It is based on sensor and measurement technologies long employed in missiles and space equipment. Niu Ye, an engineer at the institute said: "You open the device and an application on your mobile phone and then place the device very close to the meat for about 10 seconds." The device is connected with the mobile phone via Bluetooth. It detects and measures the presence of ammonia and volatile organic compounds to determine bacteriological activity in uncooked meat. Then it analyzes the results to judge the meat's freshness and displays its verdict on the phone.

<http://swissinnovation.org/newsChina/web/2018/06-180507-b0>

Core Material for Homegrown Chips

(China.org, May 09)

Researchers have mastered the technology to create a phenolic resin for photoresist formulations, a material crucial to chip production, and have made it available in the previously monopolized market. Li Zhifang, director of the Shengquan Research Institute of Phenolic Resins and a participant in development of the high-end material, said, "We never expected the market of resins for electronic materials, which are mostly used in printed circuit boards (PCBs), could be so substantial." "However, as the ZTE issue caused widespread concern over China's heavy reliance on chip imports, people called for promotion of home-made chips and we felt it imperative to produce our own high-end synthesized resins for the electronics field," said Li.



<http://swissinnovation.org/newsChina/web/2018/06-180509-aa>

Fire-Resistant and Fire-Detecting Wallpaper

(Xinhua, May 10)

Most of the wallpaper on the market today is made of highly flammable materials which can spread the fire rather than preventing it. A new wallpaper developed at the Shanghai Institute of Ceramics of the Chinese Academy of Sciences can withstand a high temperature of 1,000 degrees Celsius. It is made of an inorganic fire-resistant hydroxyapatite nanowire paper and a graphene oxide temperature sensor. The sensor is attached to the back of the wallpaper through a simple drop-casting process using an ink containing graphene oxide. It is then connected to the metal wire as an electrode. Graphene oxide is not electrically conductive at room temperature, but can become conductive at high temperatures, triggering the fire alarm device. The wallpaper is highly flexible and can be made into various shapes, dyed different colors, and printed with commercial printers.

<http://swissinnovation.org/newsChina/web/2018/06-180510-9a>

Record Super-Thin Glass

(Xinhua, May 17)

Scientists developed a super-thin glass which is just 0.12 millimeters thick. It is the world's thinnest glass in mass production by float process. The researcher Cao Xin tested the glass by dropping a steel ball of 55 grams onto it from a meter above. That impact was equivalent to the force of a car running at 150 kilometers per hour. The glass remained intact. Super-thin glass is a core material in the electronic display industry, and can be used in display screens for mobile phones, computers and televisions. The thinner the glass, the better its transparency and flexibility, and the lighter its weight. But the glass would become fragile if it were too thin. This breakthrough prompted the price of super-thin glass to plunge by more than 66 percent on the international market.

<http://swissinnovation.org/newsChina/web/2018/06-180517-eb>

7. Economy, Social Sciences & Humanities

Shenzhen Using Facial Recognition to Identify Violators

(China Daily, May 04)

Shenzhen is using facial recognition technology to identify traffic violators and levy fines as it builds toward its goal of being a smart city. Forty sets of surveillance devices, installed mainly at intersections with high traffic volume, officially lit up on Tuesday. The electronics police will pay special attention to people in certain industries - couriers, for example - as well as people who have had their driver's licenses revoked, according to the city's traffic police. The move is Shenzhen's latest push to make use of high technology in municipal governance. Earlier, the city had launched programs using facial recognition technology to regulate vehicles. The city plans to expand the surveillance network by adding at least 200 sets of facial recognition devices by the end of this year, he said.

<http://swissinnovation.org/newsChina/web/2018/07-180504-53>

Phone Maker Huawei Adds Bitcoin Wallet to AppGallery

(China Daily, May 12)

Huawei Technologies Co Ltd takes a major step toward commercializing blockchain technology with the release of a bitcoin wallet on its AppGallery. Developed by BTC.com the app will be pre-installed on all new Huawei smartphones. Alejandro de la Torre, vice-president of BTC.com, said: "It's a good opportunity to tap into the Chinese market. The use of cashless payments with apps is very big and the traditional banking system is lacking, so there's a good use case for crypto payments to grow there." Chinese investors currently have limited access to cryptocurrency wallets, similar popular apps are not available on Chinese mobile app stores, and China also banned initial coin offerings last year. But enthusiasm for virtual currencies remains high. "Huawei is a giant enterprise with a global vision and its decision is made upon the global market demand," said Sam Lee, founder and CEO of Blockchain Global Ltd.



<http://swissinnovation.org/newsChina/web/2018/07-180512-47>

8. Corporates / Startups / Technology Transfer

Volkswagen in Talks to Manage Didi Fleet

(South China Morning Post, May 01)

Volkswagen AG is in talks to form a joint venture with China's Didi Chuxing to manage part of the ride-hailing company's fleet of cars and help develop "purpose-built" vehicles for Didi's services. As part of the deal between Volkswagen and China's biggest ride-hailing service the German automaker will initially manage a fleet of about 100,000 new vehicles for Didi, of which two-thirds will be Volkswagen Group cars, said a senior executive at the carmaker. The growing popularity of ride-hailing services for commuting and running errands in congested cities such as Beijing and Shanghai is showing early signs of reducing private car ownership. This could have serious consequences for existing carmakers and is forcing companies like Volkswagen to reinvent their businesses and seek out future revenue streams.



<http://swissinnovation.org/newsChina/web/2018/08-180501-08>

Internet Businesses Targeting People in Lower Tier Cities

(South China Morning Post, May 01)

With 772 million online users at the end of 2017, China's internet population is bigger than that of India and the US combined. While many of the online users in China are young, well-educated urbanites accustomed to swiping their smartphones to pay for dinner or shopping online, almost half the Chinese population remains unconnected to the internet, meaning they are a new target group potentially worth billions of dollars for any successful internet business. China's internet majors, including its top two e-commerce players Alibaba Group Holding and JD.com, have launched a string of initiatives to try to get into smaller cities, from on the ground market education to drone-enabled delivery services in mountainous areas. Start-ups such as Pinduoduo and Qutoutiao have built a marketing strategy from the very start to specifically target lower tier cities.



<http://swissinnovation.org/newsChina/web/2018/08-180501-5a>

Automated Railways Being Tested

(China Daily, May 02)

China Railway Signal and Communication Co, the country's railway control systems provider, has built the world's largest simulation laboratory for automated railway control systems in Beijing, shrugging off a reliance on foreign products and technologies that come at higher costs. The laboratory can carry out



comprehensive simulation tests for 2,000 kilometers of high-speed railways, 1,000 kilometers of intercity railways, 100 kilometers of subways and five large-scale freight marshaling yards at the same time. It has implemented next-generation train control systems and intelligent integrated transportation systems based on China's Beidou Navigation Satellite System. Supported by domestically developed technologies China's intercity railways, subways, low-and medium-speed magnetic levitation lines and freight trains will all be able to be equipped with automated driving systems in the future, said Zhou Zhiliang, chairman of China Railway Signal and Communication Co.

<http://swissinnovation.org/newsChina/web/2018/08-180502-a7>

Rise of China's Semiconductor Industry

(New York Times, May 09)

One of China's most internationally successful technology suppliers, with about \$17 billion in annual revenue, ZTE is facing a death sentence. The Commerce Department has blocked its access to American-made components until 2025, saying the company failed to punish employees who violated trade controls against Iran and North Korea. The sanctions against ZTE appear to be supercharging Beijing's determination to upgrade China's microchip makers, which have struggled to keep up with global industry leaders despite state support. Chris Lane, a telecom analyst with Sanford C. Bernstein, believes China now has the resolve to whip its semiconductor industry into world-leading shape, even if it takes a decade to do so. "They're going to pour billions of dollars into preventing this from ever happening again," he said. "In the long run, strategically, this might be worse for the U.S. than the current situation."



<http://swissinnovation.org/newsChina/web/2018/08-180509-b9>

Tech Giants Are Active Investors

(South China Morning Post, May 21)

China's technology triumvirate comprising Baidu, Alibaba Group Holding and Tencent Holdings have become some of the country's most active investors, spending billions of dollars in a variety of industries, whether to support their own core operations or to diversify into exciting new areas. Tencent is the most active, having taken part in at least 94 investment and merger and acquisition deals since the beginning of 2017, according to data compiled using Bloomberg's M&A function. That is almost 25 per cent more than Alibaba's 74, and far exceeds Baidu's 25 deals. The investments shine a light on how the business strategies are evolving. Alibaba and Tencent have gone head-to-head as they gear up for a war targeted at the intersection between online and offline retail.



<http://swissinnovation.org/newsChina/web/2018/08-180521-87>

Most Chinese Unicorns in Fintech

(Technode.com, May 22)

According to a China Internet Watch (CIW) whitepaper, over 15% of all Chinese unicorns fall within the category "Internet Finance." Seven of China's top 20 unicorns provide financial services, including Ant Financial, OneConnect, JD Finance, and WeBank. The second most populated category is entertainment (11.7%), followed by automotive (10.4%), intelligent hardware (6.5%), online medical care (3.9%), and artificial intelligence (3.4%). The AI and facial recognition company SenseTime recently became the world's most valuable AI startup. The company was valued at \$3 billion after it raised \$600 million from Alibaba and other investors. In March 2018, China's Ministry of Technology said that the total value of Chinese unicorns exceeded \$628 billion. It also said online finance giant Ant Financial was the most valuable unicorn in the country. The company was followed by Didi Chuxing and Xiaomi.



<http://swissinnovation.org/newsChina/web/2018/08-180522-c4>

Record: Biggest Smartphone Launch Ever

(South China Morning Post, May 23)

Smartisan has set itself apart in the smartphone industry by transforming its annual product launches into variety shows, where people buy tickets to hear founder Luo Yonghao's repartee and revue. Ticket sales generated by the company's latest gala event, held at the 80,000-seat National Stadium in Beijing, reached 4.8 million yuan (US\$751,000). The audience of 37,000 that showed up on May 15 paid for tickets that cost between 100 yuan and 1,000 yuan. The turnout at the Smartisan event, which was also live-streamed online, showed the continued popularity of Luo, the company's chief executive and an internet celebrity in China with nearly 15 million followers on microblog site Sina Weibo. Luo said at the show that he invited representatives from the Guinness World Records to certify if the event was the biggest smartphone launch ever.



<http://swissinnovation.org/newsChina/web/2018/08-180523-c2>

Didi Is Rumored to IPO in Hong Kong

(Technode.com, May 23)

Didi Chuxing (Didi) is rumored to IPO in Hong Kong in the second half of the year at the soonest. In what could be one of the most highly anticipated IPOs this year, the company is said to be considering other listing structures—not excluding the possibility of pursuing the weighed voting rights structure recently introduced in Hong Kong Stock Exchange to incentivize Chinese tech companies but is still not allowed by Chinese regulators. According to Hong Kong Economic Times,



Didi has started seeking consultation from various investment banks last month regarding the IPO preparation. The company is also reportedly looking for potential investors. Didi was last valued at over \$50 billion in December 2017. A Wall Street Journal report estimated that Didi's IPO this year could bump its market value to USD 70 to 80 billion.

<http://swissinnovation.org/newsChina/web/2018/08-180523-5f>

9. Bilateral News

Trade Between Switzerland and China Grows Fast

(Neue Zürcher Zeitung, May 11)

From a Swiss point of view, trade with China has risen sharply above average since 2013. Goods exports to China (excluding precious metals and valuable gems) grew by almost 40% by 2017, while Switzerland's global exports grew by just under 10%. Imports of goods from China increased by 14%, about three times as high as global imports to Switzerland. From a Chinese point of view, the trade in goods with Switzerland has also grown significantly faster than that with the rest of the world since 2013. The trade agreement was hardly the only driver, but it probably played a role. Despite the initial problems, many sectors have already benefited from the agreement, according to Economiesuisse.



<http://swissinnovation.org/newsChina/web/2018/09-180511-8f>

10. Calls for Grants/Awards

Call: Advanced Customer Cultivation Project

(Wuhan National Biosafety Laboratory, Chinese Academy of Sciences, May 18)

Initiated by Wuhan National Biosafety Laboratory of Chinese Academy of Sciences (CAS), this project aims at cultivating national high-level biosafety talents and promoting scientific and technological support



capabilities for biosafety and public health. It is open to applicants across the world. Project category includes general project and key project, with the budget of RMB 250,000 per project per year and RMB 500,000 per project per year respectively while dynamic adjustment shall be made according to the total budget appropriated by CAS. The submission date is June 18, 2018.

<http://swissinnovation.org/newsChina/web/2018/10-180518-2c>

Upcoming Science and Technology Related Events

CES Asia

June 13-15, 2018

<http://www.cesasia.cn/>

Consumer Technology, Innovation

Shanghai

Living with Robots

June 26, 2018

<https://is.gd/IPB3kN>

Robotics, AI

Shanghai

3rd Sino MOS-AK Workshop

June 14-16, 2018

http://www.mos-ak.org/beijing_2018/

R&D Exchange

Beijing

Sino-Swiss Evidence Science Innovation Night

June 28, 2018

<https://is.gd/8dyd0K>

Law, Forensic Science

Shanghai

China-South Asia Expo

June 14-20, 2018

<https://www.csa-expo.com>

Education, International Exchange

Kunming

Swiss-Chinese Life Sciences Forum 2018

September 13, 2018

<http://www.swiss-chinese-life-sciences-forum.ch/>

Health Sector, Life Sciences, Collaboration

Basel

Swiss China Update 2018

June 21, 2018

<https://is.gd/wwqkPM>

Knowledge Exchange, Business Strategies,

Networking

Olten

Swiss Pavilion, China International Import Expo CIIE

November 5-10, 2018

<http://www.shanghaiexpo.org.cn/zbh/en/>

International Import Exhibition

Shanghai

The **Science China Newsletter** is a monthly electronic publication keeping you updated on all the latest news on Chinese science, technology, education, innovation and health. It is an official publication in English from a single source, with executive summaries of top-highlights on education, of new discoveries in science, and of the latest top-of-the-line technologies and innovational strengths of China. The Science China Newsletter is produced by [Embassy of Switzerland in China](#) and [swissnex China](#) in collaboration with the [swissnex Network](#). To subscribe/unsubscribe or send us your comments, please write an email with the corresponding subject to yijun.wu@eda.admin.ch.

Disclaimer

The information in this newsletter is an opinion excerpt of news material from Switzerland and gathered to the best knowledge of the writer. The newsletter tries to provide information without any news preferences, and takes no claims, promises or guarantees about the accuracy, completeness, or adequacy of the information. No legal liability or responsibility can be taken. The information is provided for informational purposes only. No part of the newsletter may be used for any commercial or public use. Open disclosure of this newsletter is not permitted.