



Science China Newsletter, September 2019

Trends in education, research, innovation and policy



Beijing, China

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Swiss Spotlight

Scientist: Technical Spiral That We Inspire

(Laura Couto Rosado, September 30)

Laura Couto Rosado is a product and media designer based in Geneva. She has an extremely rich background in many different aspects of design including production management, design research and development. Her practice evolves beyond the form/function principle and the "solving problem" dogma; it moves towards other paradigms that reflect the complexity and accelerating social changes. Her projects are at the crossroad of multiple disciplines, revolve around a continual exploration of new territories which are off the beaten path. She is involved in a process of strong symbiosis between design, art, science and technology. In 2017, during a 3-month residency at CERN, she invented a design process that generates organic forms from particle physics experiments that aims to shape and make tangible quantum phenomena dating from the Big Bang. She has recently introduced her work in China and is currently involved in a research at the crossroad of Design and Theatre in partnership with La Manufacture, the University of dance and theatre in Lausanne and HEAD-Genève, the University of art and design in Geneva. The investigation focuses on the potential emergence of innovative theatre direction methodologies influenced by the design practice. The research article will be published on Issue, the Journal of art and design in autumn 2019 : <https://issue-journal.ch/accueil/>



<http://swissinnovation.org/newsChina/web/2019/00-190930-00>

Startup: Smart heating lunch boxes for a healthy lunch

(Faitron, September 30)

Faitron has been founded in 2016 with a clear focus on smart heating devices for customers of all age. Started with the HeatsBox, the world's first smart heating lunch box, which allows user to enjoy a hot and delicious lunch right at their office desk within minutes. The user can select various parameters such as the temperature, heating mode and timer function by App, which not only allows to reheat but also to cook meals like rice or pasta freshly. In addition and based on the same technology, Faitron is currently finalizing BabyBoo, the world's first smart heating baby bottle. Backed with the highly successful market launch in Hong Kong earlier this year and the support of Swissnex China, Faitron is now preparing the next move in Asia. The company is now actively looking for distributors to enter the fast-growing Chinese market of heating lunch boxes.

Faitron

<http://swissinnovation.org/newsChina/web/2019/00-190930-36>

1. Policy

Premier Calls for Innovation in Scientific Endeavors

(China Daily, September 04)

Premier Li Keqiang called on Monday for more efforts to stimulate the potential of scientific researchers in innovating and to create a better environment for young talent. He spoke at a symposium on the work of the National Science Fund for Distinguished Young Scholars. Li said China has deepened implementation of its innovation-driven development strategy and promoted the integration of science technology and the economy since the 18th National Congress of the Communist Party of China in 2012. Innovation should be placed at the core of the overall development of the country, Li said, calling for greater efforts to stimulate the enthusiasm and potential for innovation of scientific research personnel, especially young talent.



<http://swissinnovation.org/newsChina/web/2019/01-190904-0e>

China's Gateways to Antarctica

(SCMP, September 19)

Beijing is in talks with Chile over access to the Punta Arenas port in the South American country's southernmost region for the realization of projects at their bases located in the Antarctic continent. China is steadily expanding its presence in Antarctica, with mostly commercial activities and no plans for military deployment in the area. According to the Chilean foreign ministry, China hoped to use Punta Arenas as a base port for the displacement of materials and personnel, both by sea and by air. However, not only Chile is important to China, another strategic partner is Australia. Hobart, the capital of South Australia's Tasmania, has become an important gateway for Chinese ships heading to Antarctica since President Xi Jinping visited the city in 2014.



<http://swissinnovation.org/newsChina/web/2019/01-190919-a7>

Plan to Make World-leading Sci-tech Journals

(Xinhuanet, September 20)

China has launched a five-year action plan to establish world-leading sci-tech journals, according to the China Association for Science and Technology (CAST). Building a country strong in science and technology requires the support of world-leading sci-tech journals. With China's growing strength in innovation, it is necessary to build Chinese journals with international influence, according to a circular jointly issued by the CAST, the Ministry of Finance and five other departments. The plan, with strong financial backing, will build a support system to make up for the shortcomings of Chinese sci-tech

journals in editing, publishing, dissemination and services. It will give priority to journals in basic research, strategic frontier research and emerging interdisciplinary fields, said the CAST.

<http://swissinnovation.org/newsChina/web/2019/01-190920-75>

2. Education

The Winners of China's Future Science Prize

(China Daily, September 09)

Four scientists won the 2019 Future Science Prize, the first Chinese non-governmental science award jointly initiated by groups of scientists and entrepreneurs. The first prize went to a biologist for his discoveries about immune defense against bacterial pathogens. Two scientists of physical sciences received the award for their discovery of a new type of neutrino oscillations, which could be the key to understanding the matter-antimatter asymmetry in the Universe. Additionally, the first female winner won the prize in mathematics and computer sciences for her contributions to cryptography by innovating methods to reveal weaknesses of widely used hash functions and make a new generation of hash function standards. The prize is given in the three categories with \$1 million for each award. Winners of the prize will be selected regardless of their nationalities, as long as their achievements are original and innovative, have long-term significance or have passed the tests of time.

<http://swissinnovation.org/newsChina/web/2019/02-190909-20>

Chinese Mainland Hosts the Two Best Universities in Asia

(China Daily, September 12)

The Chinese mainland now hosts the two best universities in Asia, according to the latest edition of the Times Higher Education World University Rankings. The report shows Peking University has overtaken the National University of Singapore to take second position among Asian institutions, and Tsinghua University is the first. The Chinese mainland also has the most universities in the top 200 listing from among Asian economies, with seven making the list. The two best Asian universities, Tsinghua University and Peking University, are in 23rd and 24th position, respectively, on the global stage. Some Chinese mainland institutions saw their rankings slip, with Nanjing University falling 10 places to joint 144th, and Zhejiang University falling six places to joint 107th.



<http://swissinnovation.org/newsChina/web/2019/02-190912-d4>



Ministry Asks Ideology Professors to Focus More on Teaching

(China Daily, September 16)

China's Ministry of Education has asked ideology and politics professors in universities to attach more importance to teaching in their work. Ideology and politics professors in higher learning institutions should increase the proportion of teaching in their work and focus on teaching in their scientific research, according to a work plan drawn up by the ministry to make reforms in ideology and politics courses. The action plan requires universities to renovate ideology and politics professors' assessment mechanisms and adjust their incentives. The action plan also stipulates that a demonstration of ideology and politics classes in universities will be held every two years.



<http://swissinnovation.org/newsChina/web/2019/02-190916-bb>

3. Life Sciences / Health Care

Tool to Assess Stroke Risk of Chinese People

(China Daily, September 03)

Risk assessment is essential for the primary prevention of stroke. However, most of the currently available tools for predicting stroke such as the Framingham Stroke Risk Profile are developed from data of western populations. There is a lack of risk prediction models that could be applied to the individualized stroke risk assessment in the general Chinese population. However, Chinese researchers have now developed a tool for predicting personalized 10-year and lifetime stroke risks among Chinese adults, which will facilitate the identification and prevention of the disease. The tool can assess 10-year and lifetime stroke risk based on data collected of 21,000 Chinese adults. The validation was done using data of over 80,000 Chinese people. Among other, risk factors such as urbanization and geographic region are taken into account. It was shown that this tool beats the Framingham Stroke Risk Profile for Chinese people.

<http://swissinnovation.org/newsChina/web/2019/03-190903-da>

Connection Between Gut Microbiota and Depression

(SCMP, September 07)

Chinese researchers have established a link between depression and intestinal microbes. The team was observing mice in which the NLRP3 gene had been knocked out and they realized that - compared to the control group - the animals with the missing gene exhibited depressive-like behaviors. Additionally, these mice showed a marked difference in the composition of the microorganisms which are found in



the gut, the intestinal microbiota. When they transplanted faeces from healthy mice into the depressive mice, a significant lessening in their symptoms was displayed. These findings are relevant, given that according to WHO estimates in 2017, more than 54 million people in China suffer from depression. Peking University reported depression and anxiety were on the rise in the country, after a two-year study which interviewed 32,552 people.

<http://swissinnovation.org/newsChina/web/2019/03-190907-44>

Novel miRNA Detection Method for Early-Stage Cancer Diagnosis

(China Daily, September 09)

MiRNA is a type of non-coding small RNA that is the key regulator of gene expression. Abnormal expression of certain miRNA always occurs in pathological cells, and reliable detection methods are thus in urgent need.



Recently, Chinese scientists have developed a new method for microRNAs detection, which can contribute to the early detection and diagnosis of various types of cancer. The new method can not only detect miRNAs in blood samples but combined with imageology inspection it is also able to indicate the specific locations of lesions. Compared with other detection methods, the newly proposed one has better analytical performance and is easier to operate.

<http://swissinnovation.org/newsChina/web/2019/03-190909-bb>

Gut Drug from Seaweed to Relief Mild Alzheimer's Condition

(SCMP, September 09)

There are about 50 million people around the world with Alzheimer's, and that is likely to rise to 152 million by 2050, according to the World Alzheimer Report 2018. Up to now, now cure for the disease is available. In China alone, six million people with Alzheimer's and about two-thirds of those were at mid-level or severely affected by the disease when diagnosed, missing the optimum intervention time. When a research team from Shanghai examined a bacteria in the human gut, they found a link to the degenerative condition. In trials, it was shown that a drug derived from the seaweed can regulate the human gut bacteria and bring relieve to patients suffering from mild-to-moderate Alzheimer's disease. The drug, called GV-971, has passed stage III clinical trials and is waiting on approval from China's Food and Drug Administration.



<http://swissinnovation.org/newsChina/web/2019/03-190909-a0>

Iron-Rich Diet Could Mitigate Dengue Transmission

(China Daily, September 20)

The Dengue virus is a mosquito-borne arbovirus, and blood is the primary route through which mosquitoes acquire dengue virus infections. Blood components or their metabolites may influence the spread of dengue virus. Researchers from Tsinghua University and the Chinese Center for Disease Control and Prevention have conducted a series of screenings on blood components and found that serum iron in human blood modulates dengue virus acquisition by mosquitoes. The virus acquisition by mosquitoes was inversely correlated with the iron concentration in serum from human donors. Therefore, having an iron-rich diet may be an effective way to control dengue virus as mosquitoes are more likely to acquire the virus when they feed on iron-deficient blood. Supplementing iron to a diet could reduce thus dengue transmission and provide a perspective for containing the virus.



<http://swissinnovation.org/newsChina/web/2019/03-190920-fd>

4. Engineering / IT / Computer Science

5G Service Before Next Year at XRL

(China Daily, September 04)

The mainland stretch of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) will have access to a fully-functional 5G service before the Spring Festival, according to a joint announcement between Guangdong Mobile, Guangzhou Railway Group and Huawei, Xinhua News Agency reported on Tuesday. The announcement came days after plans outlining deployment of the next-generation mobile system on the whole line, to speed up the development of the Great Bay Area. The 141 km Guangzhou-Shenzhen-Hong Kong Express Rail Link includes a 115 km track on the Chinese mainland and 26 km in Hong Kong. Guangdong Mobile will invest 150 million yuan (\$20.9 million) to lay out more than 300 signal transmission points along the mainland section. The super fast 5G mobile service will provide intelligent and accurate train control, as well as ensure passengers' safety.



<http://swissinnovation.org/newsChina/web/2019/04-190904-6c>



CR929: China's Long-Range Airplane

(China Daily, September 05)

The Commercial Aircraft Corporation of China (COMAC) has announced specifications of its CR929 jet, which is a joint effort between China and Russia in the aviation industry. COMAC has announced that for the CR929 - a long-range wide-body jetliner - they have begun looking for suppliers. The jet is in the preliminary design stage but according to the company it is all proceeding well. Research and development of the CR929 was launched in 2016. The next year, China-Russia Commercial Aircraft International Corp was established in Shanghai to take responsibility for the endeavor. With an initial targeted market in China and Russia, the first version of the aircraft will be able to fly 12,000 kilometers and carry 280 passengers. Launched in 2008, the C919 project is China's first attempt to break the Airbus and Boeing duopoly in more than three decades, after its Y-10 jetliner project was abandoned in the mid-1980s.



<http://swissinnovation.org/newsChina/web/2019/04-190905-82>

China Post Tries Unmanned Delivery Vehicles

(China Daily, September 06)

China's state-owned postal service giant, China Post, has recently introduced delivery robots for last-mile deliveries. The program was initiated in one province of China. Automated delivery vehicles drove fully loaded with parcels on the roads at a maximum of 25 kmh. During the 10-day commercial trial, more than 200 packages have been delivered. Radars and sensors on the vehicle work under the control of big data and artificial intelligence (AI) technology for auto-piloting, which allow the courier robot to move in compliance with traffic rules, while avoiding obstacles and pedestrians. A courier with 30 package slots can carry a maximum weight of 200 kg at a time and operate in all weather conditions. Customers receive a call and a text message with a pick-up code 10 minutes ahead of their parcel's arrival. Tech giants such as Alibaba and JD.com have already put smart courier into service.

<http://swissinnovation.org/newsChina/web/2019/04-190906-19>

First Test Base for Unmanned Ships to be Operational

(China Daily, September 16)

China has built the first test base for unmanned ships, which will be operational at the end of this year, according to the Science and Technology Daily Monday. The test base named Xiangshan Marine Scientific & Technological Port is located in Zhuhai, Guangdong province. It will create an innovation platform for the design, research and testing of unmanned marine systems and intelligent equipment. The base will help develop the industrial chain of unmanned ships and foster research on advanced equipment



manufacturing as well as new generation of information technology. The base will occupy an area of 32,000 square meters and will include laboratories, test pools, a docking berth and sea trial area.

<http://swissinnovation.org/newsChina/web/2019/04-190916-c1>

Precise Identification with One Wave of the Hand

(China Daily, September 16)

Micro traits of veins within human hands allow to precisely and definitely identify a person as they are different from person to person. Chinese researchers have now developed a new cutting-edge recognition technology which takes advantage of exactly this fact. According to the researchers, it is much safer and more convenient than the prevailing QR code and facial recognition technology. The so-called AirWave full-hand-vein technology is based on AI and capable of sensing millions of dimensional micro-feature characteristic points. It sense major veins as well as capillaries and just a single wave of the hand allows the identification and authentication of users. AirWave technology can identify one hand out of a billion accurately in less than three-tenths of a second. Various cafeterias and government public service areas in Guangdong province have put the technology to test. It is assumed that it will in the future replace cash, cards and QR codes and be widely used for payments, public transportation and finance.

<http://swissinnovation.org/newsChina/web/2019/04-190916-57>

Key Components of China's Maglev Train Unveiled

(China Daily, September 18)

CRRC Zhuzhou Locomotive Co., Ltd. unveiled the key components of its magnetic-levitation train with a designed speed of 600 kph in Central China's Hunan province Tuesday. Key parts of the train's power system, including a long stator linear motor and two transformers, were unveiled in the city of Zhuzhou. He Yunfeng, an official of the company, said that different from traditional electrical motors, the long stator linear motor features a simple structure, strong climbing ability, low noise, low energy consumption, and quick start and stop. The high-speed maglev train features high speed, safety, reliability, low noise and vibration, large passenger capacity, on-time performance and low maintenance costs. It can be used to connect major cities or city clusters to boost regional integration.



<http://swissinnovation.org/newsChina/web/2019/04-190918-4c>

Permanent Magnet Motor for High-Speed Trains

(China Daily, September 18)

In China, a permanent magnet traction motor for trains with speeds up to 400 km/h has been developed recently. The so-called TQ-800 motor will probably be used in multinational interconnected

high-speed train projects. Adopting a fully-enclosed and directional cooling structure, the TQ-800 motor boasts high power density, excellent low-temperature adaptability and low maintenance cost. The development of the motor breaks the monopoly of foreign technologies in this area and provides a solid foundation for the upgrade of rail transit technologies within China. When in 2017 the Fuxing bullet trains started operation between Beijing and Shanghai, the maximum speed of China's bullet trains rose to 350 km/h. This was a significant upgrade compared to its predecessor, which were less spacious, energy-efficient and had lower service life than the Fuxin train. Additionally, it was entirely manufactured and designed in China.

<http://swissinnovation.org/newsChina/web/2019/04-190918-3c>

World's Largest AI Training Cluster

(Xinhuanet, September 18)

At its annual Huawei Connect Conference in Shanghai, the tech giant Huawei launched Atlas 900, a super-fast AI training cluster. Atlas 900 is supposedly the world's fastest AI training cluster. It combines the power of thousands of Ascend processors and can handle models in seconds that used to take several months to train. The powerhouse of AI computing will bring new possibilities to different fields of scientific research and business innovation from astronomy to oil exploration. Huawei has deployed Atlas 900 on Huawei Cloud as a cloud service to let its clients have a quick taste of it. The company, headquartered in Shenzhen, pledged to further invest US\$1.5 billion in its developer program in the next five years, expanding the program to five million developers and better enable its partners around the world to develop the next generation of intelligent applications and solutions.



<http://swissinnovation.org/newsChina/web/2019/04-190918-77>

Lunar Dust Examination Important for Future Exploration Missions

(China Daily, September 20)

Lunar dust is regarded as the most crucial environmental problem on the Moon. China's Chang'e-3 probe which landed on the dark side of the moon earlier this year, has recently conducted an in situ measurement of lunar dust at the landing site. Using a temperature-controlled sticky quartz crystal microbalance onboard the lander, researchers determined that the total deposition mass at a height of 190 cm above the lunar surface was about 0.0065 mg/cm². This research can provide a valuable reference for the protection of payloads from exposure to lunar dust particles for future lunar exploration missions.

<http://swissinnovation.org/newsChina/web/2019/04-190920-09>

5. Energy / Environment

Sampling Ancient Trees' DNA

(Xinhuanet, September 04)

Just like humans, trees have their own DNA and molecular analysis will help reveal mysteries related to the longevity traits of ancient trees, Chinese researchers are collecting DNA details about ancient trees in a norther Chinese region to unveil their mysteries and facilitate protection. The sample included 25 ancient ginkgoes located in Beijing, Tianjin and Hebei Province. The genetic sequencing of these ancient trees has been completed and a large amount of data is being analyzed. This research can be applied to the field of molecular breeding and help cultivate tree species with strong resistance and long life. The Chinese capital has recently taken a series of measures to strengthen the protection and management of over 40,000 ancient trees scattered in the city, including carrying out investigations, registration, classifications and filing.

<http://swissinnovation.org/newsChina/web/2019/05-190904-5c>

Medicinal Herb to Decrease Threat of Cotton Virus

(SCMP, September 06)

Chinese scientists have found chemicals in medicinal herbs that could tame a destructive plant virus threatening the cotton industry in its western Xinjiang region. The research shows that some small-molecule chemicals in herbs can effectively suppress cotton leaf curl Multan virus. This virus poses a significant threat to the world's cotton plantations, causing leaf curling, stunted growth and lower yields of cotton fiber. It costs the cotton industry in the Indian subcontinent an estimated US\$1 billion a year. Luckily, a large-scale outbreak has not occurred yet in China but a researcher warned that if it did happen, it could reduce cotton production in an infected field to almost zero. Their findings are two-fold: Some chemicals they discovered could improve cotton plants' immunity against the infection by stimulating them to generate an antibody that killed the virus. The other chemicals they found could target the virus, directly reducing its intensity.



<http://swissinnovation.org/newsChina/web/2019/05-190906-a8>

Yangtze Bridge to Improve Logistics Network in Central China

(China Daily, September 09)

The Yangtze River, the world's third longest waterway, is expecting a new landmark as construction counts down toward completion of the widest bridge on the river. With a length of 7,548 meters and a width of 48 meters, the Qingshan Yangtze River Road Bridge in Wuhan, began paving asphalt in the



second half of 2019. Upon completion, it will become the world's longest cable-stayed bridge with a floating system. The bridge is expected to open next year and significantly improve the road network and logistics in the area which is an important transportation hub in Central China.

<http://swissinnovation.org/newsChina/web/2019/05-190909-67>

Fisrt Fast Tornado-detecting Radar Installed

(Global Times, September 18)

Coastal Jiangsu Province has installed China's first C-band phased array meteorological radar system, designed to quickly detect and monitor extreme weather including tornados, developers said on Wednesday. The new type of full digital radar device is able to collect data on the location, intensity and speed of meteorological objects including clouds and rain, and provide real-time monitoring and early warning of potentially dangerous weather, the Beijing Institute of Radio Measurement affiliated with the state arms giant China Aerospace Science and Industry Corp, said in a statement sent to the Global Times. The meteorological radar project team was tasked with building a nationwide monitoring and early warning system for disasters such as storms and tornados.



<http://swissinnovation.org/newsChina/web/2019/05-190918-a1>

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

Quantum Wave-particle Superposition of Light Created

(China Daily, September 04)

A team of Chinese researchers at Nanjing University have created a controllable quantum superposition of the two complementary states of light both as a particle and a wave. The research, conducted by a team led by Professor Ma Xiaosong, demonstrated conclusively that light can not only be in wave or particle states but also in a quantum superposition of the two. The finding, published in the latest issue of the journal Nature Photonics, helps extend the experimental capabilities of quantum optics and possibly of future quantum technologies, according to the researchers. The experiment is the first quantum delayed-choice under strict Einstein locality conditions, which required connecting equipment located in two separate labs 141 meters apart.

<http://swissinnovation.org/newsChina/web/2019/06-190904-db>

Controllable Quantum Superposition of two States of Light

(China Daily, September 04)

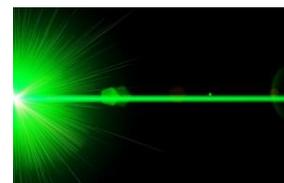
A team of Chinese researchers at Nanjing University have created a controllable quantum superposition of the two complementary states of light both as a particle and a wave. The findings help extending the experimental capabilities of quantum optics and possibly of future quantum technologies, according to the researchers. The experiment is the first quantum delayed-choice under strict Einstein locality conditions, which required connecting equipment located in two separate labs 141 meters apart. By carefully arranging location and timing of the experimental setup, the researchers achieved the required relativistic separations between relevant events. It was showed that the properties of this quantum wave-particle superposition can be tuned, opening up new experimental capability in quantum technologies.

<http://swissinnovation.org/newsChina/web/2019/06-190904-7d>

Crystals that Double the Frequency of a Laser Beam

(SCMP, September 04)

Crystals of caesium bismuth germanate (CBGO) can turn low-energy beams into high-energy emissions with unparalleled efficiency. A team of Chinese scientists has looked at several candidate crystals in experiments and realized that compared with potassium dihydrogen phosphate crystals, the CBGO crystal is 13 times more efficient at turning infrared lasers into more energized green beams. This indicates that CBGO crystals could be a way around a problem that has limited the performance of lasers, namely the huge amount of electricity needed to power them. As high-energy lasers can be created by merging two low-energy photons, or particles of light, a process known as frequency doubling, CBGO crystals are an ideal medium, and the higher frequency of the laser, the more energy it carries. Many military and civilian applications required high-energy beams.



<http://swissinnovation.org/newsChina/web/2019/06-190904-e3>

FAST Telescope Detects 'Mysterious Radio Burst'

(China Daily, September 05)

China's Five-hundred-meter Aperture Spherical Radio Telescope (FAST) has detected a repeating fast radio burst (FRB) — mysterious radio signals from outer space — for the first time, Science and Technology Daily reported. Scientists on the FAST project with the National Astronomical Observatories of China, part of the Chinese Academy of Sciences, revealed the news on Wednesday. The FRB originated some three billion light years away from Earth. Interference factors including aircraft and satellites have been eliminated and cross validation is being carried out, the scientists said. FRB is one of the hottest topics



in astronomy. It was not until 2007 when the first FRB was discovered by humans. Fewer than 100 FRBs have been detected internationally to date.

<http://swissinnovation.org/newsChina/web/2019/06-190905-87>

Folding Atom-Thick Sheets of Graphene

(China Daily, September 11)

For years, scientists have tried to reliably fold graphene in ways that display desirable new traits. For instance, twisting two layers of graphene at a "magic angle" of 1.1 degrees can make it superconductive, allowing electricity to pass through without resistance. manipulating the promising material, which is tougher than steel, more elastic than rubber and lighter than aluminum, could lead to new discoveries and revolutionize current technologies. However, handling the material at an atomic level has proved to be tricky since it requires the highest precision in clean and cold conditions. Scientists of the Chinese Academy of Sciences recently managed to fold a 20-nanometer-wide sheet of graphene like a sheet of paper using a sharp needle with a single electrically charged atom at its tip, a technique known as the scanning tunneling microscope (STM). The folded graphene has shown some new traits that are typically lacking in a single sheet of graphene. The technique could be used to build tiny structures like nanorobots and flexible circuits or help create more powerful processors.



<http://swissinnovation.org/newsChina/web/2019/06-190911-19>

First Polar Observation Satellite Launched

(China Daily, September 13)

China put its first polar observation satellite in space on Thursday to strengthen the nation's polar research capability. BNU-1, also known as the Ice Pathfinder, was launched atop a Long March 4B carrier rocket at the Taiyuan Satellite Launch Center in Shanxi province at 11:26 am, together with an optical remote-sensing satellite and a micro experimental satellite, according to China Great Wall Industry Corp, the satellites' launch service contractor. The mission marked the 310th launch of China's Long March carrier rocket series. In the past, polar regions' data available to Chinese scientists was mainly acquired by Chinese ships and polar stations, but information from those sources has long been limited by tough natural conditions and the inaccessibility of many areas, experts said.



<http://swissinnovation.org/newsChina/web/2019/06-190913-19>

Over Three Thirds of Milky Way Portrait Completed

(China Daily, September 13)

The Milky Way Imaging Scroll Painting project aims to probe the distribution, structure and physical properties of molecular clouds to get a relatively complete picture of the structure of the Milky Way. It is a project lead by Chinese astronomers. It was announced that they have completed about 71.4 percent of this grand project, however, to complete it would take another 4-5 years. The observation of the galaxy was carried out with a 13.7-meter millimeter-wave telescope located in the Gobi Desert at an altitude of 3,200 meters. The telescope is China's only large radio telescope working at the millimeter wave band, providing data for a series of key astronomical studies, and it is open to astronomers worldwide. One researcher mentioned that the completion of the project will change the world's understanding of our galaxy.

<http://swissinnovation.org/newsChina/web/2019/06-190913-62>

7. Economy, Social Sciences & Humanities

Pilot Zone Helps Diversify Economy

(China Daily, September 10)

Macao is building stronger ties with the neighboring city of Zhuhai, Guangdong province, through an innovative pilot zone to transform and diversify its economy, which was built upon the gaming industry. The pilot zone, with innovative policies to facilitate work, life and education for Macao residents, is expected to further assist the integration of the special administrative region, 20 years after its return to the motherland. According to the city government of Zhuhai, construction of the first pilot residential zone in the mainland for Macao residents will start before the end of the year. Once completed, it will adopt some of Macao's social system and policies.

<http://swissinnovation.org/newsChina/web/2019/07-190910-97>



World's Largest Airport Opens

(China Daily, September 14)

On the southern border of Beijing, spilling into Hebei province, is a gigantic field occupied by a massive starfishlike structure with six arms. This starfish is the world's largest airport terminal, and the surrounding field is for flight operations. Altogether, it's nothing short of an engineering and logistical marvel. Beijing's new Daxing International Airport is a role model of logistical planning, architecture and economic integration. The late architect Zaha Hadid designed the new airport. By 2021, the new



airport is expected to be handling 45 million passengers a year, and 72 million by 2025. In the long term, it will be able to handle more than 100 million passengers a year, becoming one of the busiest transport hubs in the world.

<http://swissinnovation.org/newsChina/web/2019/07-190914-7f>

Full 5G Network Coverage for Tianjin Binhai by 2020

(China Daily, September 17)

The Binhai New Area in north China's Tianjin Municipality is expected to basically achieve full 5G network coverage by 2020, with 2,400 5G base stations in operation, local authorities said Tuesday. The area is expected to have quality 5G network coverage with 4,500 base stations by 2022. The Sino-Singapore Tianjin Eco-City, located in the area, has been rapidly developing in the application and promotion of 5G technology and is expected to be fully covered by the 5G network by the end of this year. The eco-city signed a cooperation agreement with Chinese telecom giant China Mobile in July to jointly build a 5G-based data platform, Internet of things and infrastructure.



<http://swissinnovation.org/newsChina/web/2019/07-190917-3f>

Beijing's New Airport Makes High-tech Move

(China Daily, September 19)

Travelers will be able to pass through customs inspections faster and more seamlessly than ever at soon-to-be-opened Beijing Daxing International Airport. "The new airport is equipped with the best inspection technologies in China. Our goal is to significantly cut inspection times and make travelers more comfortable," said Gao Ruifeng, deputy director of Beijing Customs. At the new airport, all luggage from international flights as well as from Hong Kong, Macao and Taiwan, will be scanned by high speed CT scan inspection machines before being loaded onto baggage carousels. The new machines developed by Tsinghua Tongfang Co can scan at twice the speed of traditional CT scan inspection machines, said Zhao Zhao, a passenger inspection officer at Daxing airport.



<http://swissinnovation.org/newsChina/web/2019/07-190919-ef>

8. Corporates / Startups / Technology Transfer

Chinese Commercial Drones Expand Market

(China Daily, September 05)

DJI, the world's leading consumer drone maker, has established a reputation for its technology and products among individual and industry users in the West and is now gaining popularity in Russia. Several major infrastructure operators in Russia have become users of DJI drones over the past two years and have benefitted extensively from the deployment of the Chinese flying gadgets, according to Luo Zhenhua, president of DJI. The Chinese drone maker brought a number of its drones to the Russian air show that concluded on Sunday, saying they are capable of servicing a wide range of industries such as electric power, infrastructure operation, construction, oil prospecting and agriculture.



<http://swissinnovation.org/newsChina/web/2019/08-190905-d7>

9. Bilateral News

Chinese Commercial Drones Expand Market

(China Daily, September 12)

Swiss conglomerate ABB Group on Thursday kicked off construction of its "largest and most advanced" robotics factory in Shanghai, the latest demonstration of the company's "big commitment and confidence" in China. With a \$150 million investment pact signed last year, the 67,000 square-meter manufacturing and research facility in Shanghai's Pudong New Area is where robots make robots, thanks to the aid of technologies like machine learning as well as digital and collaborative solutions. The facility is slated to open in 2021, and its goal of producing 100,000 industrial robots per year remains unchanged, according to Peter Voser, chairman and CEO of ABB.



<http://swissinnovation.org/newsChina/web/2019/09-190912-9f>

Upcoming Science and Technology Related Events

Open Codes. Connected Bots

July 20- October 07, 2019

<https://is.gd/eEXRtG>

Art, Computer Codes

Shanghai

The Kind Stranger

July 23 – October 20, 2019

<https://is.gd/lftMBH>

Contemporary Society, Tech Revolution

Shanghai

EdTech Startup Pitch Competition

October 21, October 26

<https://is.gd/oFUGBY>

Beijing, Shanghai

Education, Technology, Startup

Venture Leaders Fintech

November 04 – 08, 2019

<https://is.gd/z3ckBq>

Swiss Fintech, Startups

Hong Kong, Shenzhen

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