Science China Newsletter, November 2018

Trends in education, research, innovation and policy

Hailuogou Valley, China

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Swiss Spotlight

Scientist: Local Perceptions of Change in Rural China

(Seraina Hürlemann, November 30)

Seraina Hürlemann is a PhD candidate and teaching assistant at the Institute of Geography and Sustainability (IGD) at University of Lausanne since spring 2015. While finishing her bachelor's degree in Sinology and Ethnology at the University of Zurich she spent two years in Kunming, studying Chinese language and working for intercultural exchange projects. Her master's degree in Asian studies was a multidisciplinary program at the University of Geneva and the Graduate Institute of International and Development Studies, and also included several months of fieldwork in Yunnan. In her present research Seraina Hürlemann focuses on local perceptions of change in rural China, where tourism is a motor for economic development and at the same time challenges the ecological system, livelihoods as well as social orders and identities. Her case study sites are located in Northwest Yunnan, in the Lashi Hai wetland area, close to the old town of the UNESCO World Heritage site Lijiang.

http://swissinnovation.org/newsChina/web/2018/00-181130-f9

Startup: Ultra-Portable and Low-Cost Origami Haptic Interfaces

(Foldaway, November 30)

Machines and electronic devices are becoming ubiquitous and portable, the quest for low-cost and ultra-portable haptic interfaces is exponentially growing, but the market is currently populated either by bulky and expensive interfaces that render forces with high accuracy, or by simple devices that exploit vibrations to render a limited number of sensations. Foldaway is innovating the field by developing ultra-portable and low-cost origami haptic interfaces. Their device has three degrees of freedom and can interact with human fingers by tracking their motion and providing force, stiffness and texture perception. Through its unique origami manufacturing, it is the first interface of its kind that folds-away when not in use. Foldaway participated this year in the Venture Leaders China 2018 roadshow.

http://swissinnovation.org/newsChina/web/2018/00-181130-10

1. Policy

Science Outreach to BRI Countries

(China Daily, November 06)

The Chinese Academy of Sciences will enhance science cooperation and services to support countries and regions participating in the Belt and Road Initiative in global common issues. Measures will include expanding joint research and consultation services related to major scientific challenges, such as tackling climate change, natural disasters, health and other issues. Other measures include new projects that use science and technology to solve key social issues, such as food and water security. Moreover, tech companies in places involved in the BRI will also see greater collaboration from China, and new scholarships and reward programs will be established to nurture talent. The alliance, counting around 37 research institutes and international organizations, was initiated by the Chinese Academy of Sciences. It is the first comprehensive science organization launched by scientific institutions from countries involved in the BRI with cooperation from other international organizations.
http://swissinnovation.org/newsChina/web/2018/01-181106-f7

Xi Vows to Promote Aerospace Worldwide

(China Daily, November 07)

President Xi Jinping said on Tuesday that China remains committed to promoting development in aviation and aerospace technologies with other countries, allowing people around the world to share the benefits of such progress. Mankind has yearned to explore the vast skies since ancient times, and Chinese have passed on their dreams of flying for generations, Xi said in a congratulatory letter to the opening ceremony of the 12th China International Aviation and Aerospace Exhibition in Zhuhai, Guangdong province. Xi said that China has always worked with other countries to promote the development of aviation and aerospace technologies. After over 20 years of hard work, the exhibition has become one of the most influential aviation and aerospace-related events, he said.
http://swissinnovation.org/newsChina/web/2018/01-181107-b6

Beijing Issues Action Plan to Promote AI Industry

(China Daily, November 15)

Beijing issued an action plan on developing artificial intelligence (AI) and established an AI research institute Wednesday to promote the AI industry. The action plan, under the guidance of the Ministry of Science and Technology and Beijing municipal government, aims to encourage scientists in frontier research, push forward breakthroughs in AI theories, methods, tools and systems and create a deeper application of AI technologies. The action plan is an open and inclusive system that will be used to

build an open AI service platform and joint labs, train talents, promote research-university-research cooperation and academic communication, said Xu Qiang, director of Beijing Municipal Science and Technology Commission.
http://swissinnovation.org/newsChina/web/2018/01-181115-f6

Shanghai and Baidu to Cooperate on AI Development

(Xinhua, November 27)

The Shanghai municipal government and Baidu recently signed a strategic cooperation agreement to develop artificial intelligence (AI) industry in the city. A Baidu innovation center will be built to make Shanghai a major AI development center. Baidu will also help Shanghai in building smart city. "Baidu will increase its research and development investment, land more new modes, applications and products in Shanghai so as to make bigger contributions to the AI industry development and mega-city management in Shanghai," said Robin Li, chairman and CEO of Baidu. According to an AI industry development plan issued last year, Shanghai aims to build about 10 AI innovation platforms, and 10 leading AI innovation companies by 2020, when the city's AI industry will be worth more than 100 billion yuan (about 14.4 billion U.S. dollars).
http://swissinnovation.org/newsChina/web/2018/01-181127-71

National Innovation Demonstration Zone Established in Xinjiang

(China Daily, November 29)

The Urumqi, Changji and Shihezi high-tech zones have been combined and elevated into a national innovation demonstration zone, according to a document published by the State Council on Wednesday. The three adjacent cities in northwest China's Xinjiang Uygur Autonomous Region will enjoy a series of favorable policies to further streamline administration, nurture innovation industry cluster, stimulate vitality of innovative entities and create an innovation hub along the Silk Road Economic Belt, the document said. The commercialization of research findings, talent cultivation and introduction, intellectual property right protection and cooperation with central and western Asian countries will also be highlighted. The country's first national innovation demonstration zone was set up in 2009 in Zhongguancun, Beijing's tech hub.
http://swissinnovation.org/newsChina/web/2018/01-181129-18

2. Education

CAS Promotes Scientific Research Collaboration with Australia

(China Daily, November 19)

The Chinese Academy of Sciences' Institutes for Science and Development and Sydney's University of New South Wales have launched a new partnership aimed at strengthening collaboration in scientific research between China and Australia. The first China-Australia Innovation Summit, held in Beijing on Monday, marked the start of the new tie-up, which includes Springer Nature, an academic publishing house. The institute has been one of the university's largest global research collaborators since the two established a partnership in 2009. This new agreement aims to solidify UNSW's links with China and create research opportunities by combining expertise and knowledge from the two academic institutions with the resources and credibility of Springer Nature.
http://swissinnovation.org/newsChina/web/2018/02-181119-af

Guideline on Developing Educational Standards

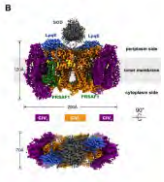
(China Daily, November 29)

China's Ministry of Education has issued a guideline on developing educational standards. According to China's Standardization Law, the educational standards mentioned in the guideline refers to the technical requirements that need to be unified in the educational sector. The guideline emphasizes the need to develop or refine standards to provide resources and facilities in special education, create barrier-free campuses and offer economic assistance for poverty-stricken students. The guideline also stresses the need to enhance supervision and law enforcement to implement mandatory standards and suggests to establish an information feedback and assessment mechanism.
http://swissinnovation.org/newsChina/web/2018/02-181129-a3

3. Life Sciences / Health Care

New Cell-Level Electron Transfer Path for Drug R&D Targeting Tuberculosis

(ShanghaiTech University, November 02)



Respiration is one of the most basic energy metabolisms in life, and helps energy transform substances into adenosine triphosphate (ATP) that could be immediately consumed by the body. It is run mainly by five large transmembrane complexes on the microbial cytoplasmic membrane or the inner mitochondrial membrane, together with two carriers for electron transfer, therefore called the respiratory chain. Electron transfers inside and

between the complexes I-IV through cascading with redox reaction, thus forming an electron transfer chain, coupling which the transmembrane proton gradient is created to drive ATP synthesis by complex V. Researchers at ShanghaiTech University revealed a new electron transfer mechanism coupling quinone oxidation with oxygen reduction. Furthermore, they discovered that superoxide dismutase (SOD) are directly involved in the assembly of the supercomplex and work in concert. These new findings have laid groundwork for new drug R&D targeting tuberculosis.
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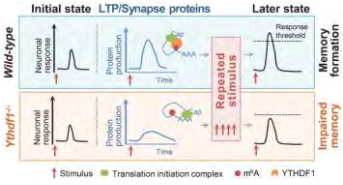
Exploring Learning and Memory Processes

(ShanghaiTech University, November 12)



m6A was first discovered in 1975 and is the most prevalent internal RNA modification in mammalian mRNA. After binding by its reader proteins, m6A affects nearly every step of RNA lifecycle and many biological processes. Among all the tissues, the brain has the most abundant distribution of m6A and its reader proteins. In order to explore the functional roles of m6A and its readers in learning and memory process, researchers at ShanghaiTech University, University of Chicago and University of Pennsylvania generated reader protein knock-out mice. They found that m6A facilitates hippocampus-dependent learning and memory through its reader protein YTHDF1, and that this process is neuronal activity dependent. This is the first research to show the molecular mechanism of learning and memory at an epitranscriptome level, and has improved the knowledge of the in-vivo functions of m6A.
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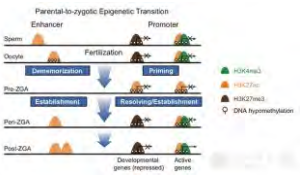
Investigating Reprogramming of Histone Modifications

(Tsinghua University, November 21)



The epigenome plays a crucial role in gene regulation during animal development. Recent progress using highly sensitive technologies revealed the extensive erasure of parental epigenetic information after fertilization, with only some inherited to the progeny which plays a critical role in embryonic development. However, it remains elusive how the zygotic epigenome is established. In addition, as early development is highly divergent during evolution, it is unclear whether the epigenomic reprogramming modes are conserved among different species. Now, by investigating the reprogramming of histone modifications during parental-to-zygotic transition in vertebrates, a research team at Tsinghua University has revealed the conserved "erase-and-rewrite" principle for epigenome transition through distinct paths during parental-to-zygotic transition in zebrafish. Their findings not

only revealed a multi-step establishment of the zygotic epigenome in zebrafish but also shed light on the conservation and divergence of epigenetic reprogramming during early vertebrate development.
http://swissinnovation.org/newsChina/web/2018/03-181121-86

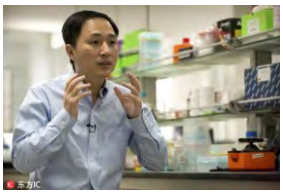
Twin Lambs Born from Embryos Frozen 20 Years ago

(Xinhua, November 25)

A pair of twin lambs born from embryos frozen 20 years ago made their debut at an ongoing agriculture fair in Hangzhou. The baby twins were born in September from two of the 120 local sheep embryos scientists had collected and kept in -196 degree Celsius liquid nitrogen at a national gene bank for livestock since 1988. Local scientists put the embryos into the womb of a female sheep in April, expecting to breed the local variety that has seen a quality drop due to increased hybridization in recent years. Since the end of August, eight lambs were born from the embryos and have been put under close care.
http://swissinnovation.org/newsChina/web/2018/03-181125-5c

Gene Editing Experiment Generates Controversy

(China Daily, November 26)



The attempt of He Jianku, a biological researcher, to produce the world's first gene-edited babies who are immune to HIV has sparked heated controversy among those in academia and the public. He said that Lulu and Nana, were born healthy a few weeks ago through in-vitro fertilization with genetic editing technology that can prevent them from being infected with HIV. His university said the academic council of its Biology Department believes that the research has seriously violated academic ethics and rules, and the university would immediately set up an independent investigation team on the matter. More than 120 scholars from prestigious universities and institutes strongly condemned the research in a signed statement. Some scientists attending the International Summit on Human Genome Editing in Hong Kong think it could introduce serious problems to the human immune system, while others think people should not be overly concerned or frightened as it would not affect the core genome, and families of HIV patients could benefit from it, if the test is true and successful.
http://swissinnovation.org/newsChina/web/2018/03-181126-00

4. Engineering / IT / Computer Science

First Self-Driving Taxis in China

(China Daily, November 01)

Three self-driving taxis, believed to be the first in China, recently hit the road in Guangzhou. Overseen by one or two experienced drivers each, the taxis, which are an electric SUV model, will run in Guangzhou Higher Education Mega Center between 14:00 and 16:00 every day in the initial phase. The time and area for service would be expanded in the future, according to Guangzhou Baiyun Taxi Group Co, which is one of the largest taxi companies in South China and operates the new vehicles. The drivers monitoring the self-driving taxis had received at least 200 hours of training for their new role.
http://swissinnovation.org/newsChina/web/2018/04-181101-ce

BeiDou-3 Boosts China's Global Navigation System

(China Daily, November 02)

the launch of another BeiDou-3 satellite at 11:57 pm Thursday from the Xichang Satellite Launch Center, in the southwestern Sichuan Province. Launched on a Long March-3B carrier rocket, it is the 41st of the BeiDou navigation system, and will work with 16 other Beidou-3 satellites already in orbit. It is also the first BeiDou-3 satellite in high orbit, about 36,000 km above the Earth. In a geostationary orbit, following the Earth's rotation, it will view the same point on Earth continuously.
http://swissinnovation.org/newsChina/web/2018/04-181102-7c

UNESCO Buddhist Grotto Comes Alive with 3D Technology

(China Daily, November 10)

Supported by 3D printing technology, a replica of a cave in the Yungang Grottoes, a 1,500-year-old UNESCO World Heritage site, has been successfully created. The replica, based on the original cave No 18, of which the main Buddha statue is 15.5 meters in height, is 17 meters in height and 22 meters in width, according to the Yungang Grottoes Research Institute and Beijing University of Civil Engineering and Architecture. After more than six months of data collection and processing, 800 modules of the replica were printed by over 20 3D printers within a year. It took another three months to assemble each part and color them with pigments on site. With digital archives, people will have information on the current situation of the grottos and promptly grasp the morphological changes of the cultural relics in years to come.
http://swissinnovation.org/newsChina/web/2018/04-181110-62

Stress-Testing AI-Powered Cloud

(South China Morning Post, November 10)

Within minutes of the clock striking midnight on November 11, consumers did rack up billions in purchases on Alibaba's e-commerce marketplaces. As the orders start to roll in, the company's proprietary cloud computing platform Alibaba Cloud did, at its peak, process hundreds of thousands in transactions and payments per second. Robots in the automated warehouses of Alibaba's logistics arm Cainiao begun sorting and packing the orders that come in, readying them for the battalion of trucks, scooters and millions of deliverymen that sent an estimated 1 billion packages to their rightful owners within days of November 11. For Alibaba, Singles' Day is not just its most important shopping event of the year -it is also the day that the company pushes the boundaries on its technology and services, stress-testing its technology systems during the world's largest shopping festival that grows in scale every year.

http://swissinnovation.org/newsChina/web/2018/04-181110-d2

Begining of 6G Research in 2020

(TechNode, November 13)

China's Ministry of Industry and Information Technology plans to begin research into 6G telecommunications technology in 2020, which it claims could potentially increase download speeds to one terabyte per second. A spokesperson at the ministry believes commercialization will begin in 2030. In addition to terrestrial applications, 6G will also enable communication underwater. The US, EU, and Russia are already looking at 6G development. Therefore, China does not want to delay their research for too long given the country is pushing to be at the forefront of deployment of 5G tech. Pilot programs have been rolled out in cities across the country by the three major telcos - China Mobile, China Telecom, and China Unicom - to meet this end. 6G is expected to generate business in large-market sectors including the industrial internet, drones, and gaming.

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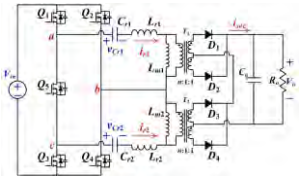
E-Vehicle Advanced Power Electronic Converter

(ShanghaiTech University, November 14)



Recently, a research group at ShanghaiTech University proposed a highly efficient LLC resonant topology for plug-in electric vehicle charging applications. Their work presents a reconfigurable dual LLC converter based on a five-switch bridge to charge the deeply depleted PEV onboard battery packs. Due to the reconfiguration of the primary-side switch network, two resonant tanks could operate in integrated half-bridge, half-bridge, hybrid bridge, and full-bridge modes. Thus, four operation

modes are derived, with their normalized voltage gains scaled to 1:2:3:4, respectively. Those four modes enable a squeezed switching frequency span, which is close to the resonant frequency. Therefore, the efficiency performance over an ultra-wide output voltage range can be optimized. Zero-voltage-switching can be realized in all power MOSFETs over the entire load range. Their prototype demonstrates 97.64% peak efficiency and good efficiency over the full charging range.
http://swissinnovation.org/newsChina/web/2018/04-181114-8b

Applying AI in Health Care Sector Needs Improved Data Quality

(Xinhua, November 16)

According to Wang Fei, assistant professor on health data mining and machine learning with Weill Cornell Medicine of Cornell University, the data quality in the health care sector needs to be improved in order to apply artificial intelligence (AI) or deep learning technologies. For instance, different coding systems like International Classification of Disease (ICD)-9, ICD-10, and even self-defined ones are used in diagnosing diabetes among different hospitals. "Unlike other domains where the data are clean and well-structured, health care data are highly heterogeneous, ambiguous, noisy and incomplete", said Wang. In his point of view, caution shall be paid as AI technologies cannot do well everywhere though they have huge potential in a lot of places. For example, deep learning could be used in portfolio imaging, lung scanning, drug designing and other fields in health care sector.
http://swissinnovation.org/newsChina/web/2018/04-181116-20

AI-Assisted Clinics Without Staff

(South China Morning Post, November 19)

China's biggest online health care services provider plans to build 'hundreds of thousands' of its telephone booth-sized, AI-powered clinics and roll these out across the country in three years. Each clinic, which is about the size of a traditional telephone booth, enables users to consult a virtual "AI doctor" that collects health-related data through text and voice interactions. After the AI consultation, the information gathered is reviewed by a human doctor who then provides the relevant diagnosis and prescription online. Customers can buy their medicine from the smart drug-vending machine inside the clinic. Ping An Good Doctor's AI clinic expansion has come amid Beijing's commitment to drive its "Healthy China" strategy. In April, China's State Council issued a statement to accelerate the country's online health care market by establishing proper service systems, a support network and regulatory framework.
http://swissinnovation.org/newsChina/web/2018/04-181119-ff

Filter-Feeding Mechanism

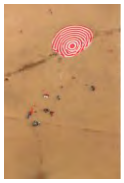
(Chinese Academy of Sciences, November 21)

Whale baleen is the filter-feeding apparatus inside the oral cavity of mysticetes (baleen whales). It consists of a series of parallel plates suspended from the palate down both sides of the mouth and is the most mineralized material of the keratins. Baleen allows for efficient feeding on great quantities of small zooplankton. This filtering mechanism has enabled mysticetes to evolve into the largest living creatures on earth. Researchers from the Shenzhen Institutes of Advanced Technology of the Chinese Academy of Sciences, the University of California and Northwestern University have now revealed how underlying mechanisms of the hierarchical structure of baleen contribute to its exceptional and unique fracture behavior. Quasi-static and dynamic experiments, which support the anisotropic fracture behavior of baleen, showed a ductile-to-brittle transition, with a strain rate increasing in the dry condition but absent in the hydrated condition.

http://swissinnovation.org/newsChina/web/2018/04-181121-4a

Recovering 7-Ton Spacecraft

(China Daily, November 23)



Researchers have successfully tested two major systems in recovering large spacecraft of more than 7 tons, a weight of US Orion spacecraft. In the past, China's Shenzhou spacecrafts were around 3.5 tons and the recovery system included a single main parachute system and a back propulsion engine that could only be used once. Researchers from China Academy of Space Technology used a helicopter to drop the 7-ton model in testing the country's large parachute group system and heavy load landing buffer system (airbag system). The parachute group system includes two deceleration parachutes for reducing speed in the early stage of reentry and three main parachutes. The researchers optimized the design of main parachutes to ensure the synchronization of inflation. The airbag system includes multiple bags and the active exhaust control technologies to keep the spacecraft's stability in landing.

http://swissinnovation.org/newsChina/web/2018/04-181123-16

Space Startup Develops AI Satellites

(Xinhua, November 25)

Having sent two satellites into space within 100 days after its establishment, a Chengdu GuoXing Aerospace Technology Co. Ltd is preparing for a new launch in December. "The AI technology could give the satellite a stronger capability of automatic data analysis," said Zhao Hongjie, vice president of the startup firm. For instance, the remote sensing satellite with AI technology could autonomously identify clouds and fog, and select the useful images to send back to earth, thus greatly improving

its working efficiency. The company, employing more than 40 staff, most of whom are under 30, is only one example of China's emerging commercial space industry.
http://swissinnovation.org/newsChina/web/2018/04-181125-1e

First Deep Sea AI Colony

(South China Morning Post, November 26)

China is planning to build a deep sea base for unmanned submarine science and defence operations in the South China Sea, a center that might become the first artificial intelligence colony on Earth, officials and scientists involved in the plan said. The project was launched at the Chinese Academy of Sciences in Beijing after a visit to a deep sea research institute at Sanya by Chinese President Xi Jinping in April. Xi urged the scientists and engineers to dare to do something that has never been done before. "There is no road in the deep sea, we do not need to chase [after other countries], we are the road," he said. The Hadal zone that would be home to the base is the deepest part of an ocean – typically a V-shape abyss – at a depth of 6,000 to 11,000 meters.
http://swissinnovation.org/newsChina/web/2018/04-181126-72

5. Energy / Environment

Millimeter-Wave Cloud Radar for New Airport

(Xinhua, November 26)

Researchers at an institute affiliated with the China Aerospace Science and Industry Corp, China's leading radar maker, have developed a millimeter-wave cloud radar for Beijing's new international airport, offering weather forecasts with a higher accuracy than previous generations. Hu Qingrong, director of the institute, said the millimeter-wave cloud radar can be used in various fields, such as atmospheric sciences, weather modification, automatic cloud observation, and aviation weather service. It is capable of monitoring cloud, rain, fog and other weather conditions for meteorological departments, airports, and ports. The system will be set up at the new airport in Beijing's southern Daxing District early next year. The airport is under construction and planned to open by September 2019.
http://swissinnovation.org/newsChina/web/2018/05-181126-a4

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

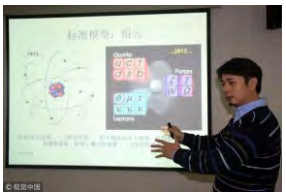
Tokamak Reaches 100M°C for First Time

(China Daily, November 13)

The Experimental Advanced Superconducting Tokamak (EAST) has been dubbed as artificial sun since it replicates the energy-generating process of the sun. Now it has for the first time achieved a plasma central electron temperature of 100 million C, marking a key step in the future fusion reactor experiment, according to the Hefei Institute of Physical Science under Chinese Academy of Sciences. In stable fusion, a temperature of 100 million C is one of the most fundamental elements, because fusion is possible only if the central temperature reaches this temperature. Therefore, this achievement can be said to reach the ignition condition of nuclear fusion. Nuclear fusion is arguably the best way for human beings to get energy. In terms of raw materials, deuterium and tritium required for nuclear fusion are almost inexhaustible in the ocean. Besides, nuclear fusion does not produce any radioactive waste.
http://swissinnovation.org/newsChina/web/2018/06-181113-f3

Design: Huge Circular Electron Positron Collider

(China Daily, November 15)



A research team from the Institute of High Energy Physics of the Chinese Academy of Sciences unveiled its concept design of a huge electron positron collider, which could be used in solving many problems in physics. The Circular Electron Positron Collider (CEPC), with a perimeter of 100 km, could help scientists study the properties of the Higgs particle, the early evolution of the universe, the loss of antimatter and search for dark matter. The research team from IHEP plans to develop the prototypes of a series of key components of the collider by 2022 to validate the technical feasibility of the project.
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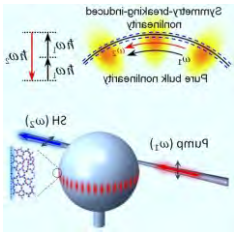
Towards Surface Specific Detection by Microresonators

(Peking University, November 20)



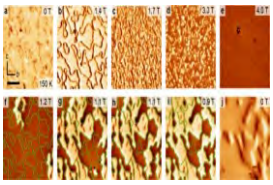
Second-order nonlinear optical processes play a pivotal role in both classical and quantum applications, ranging from extension of the accessible frequencies, to generation of quantum entangled photon pairs and squeezed states. This nonlinearity is ruled out, unfortunately, by inversion symmetry in various materials lying at the heart of integrated photonics, for example, silica, silicon and silicon nitride. Now, a team of researchers at Peking University, in collaboration with Tsinghua University, National University of Singapore and Washington University, has demonstrated second harmonic

generation (SHG) induced by symmetry breaking at the surface of a silica whispering gallery mode (WGM) microcavity. Xiao Yun-Feng from Peking University said: "[...] the work may open up the opportunity to combine the surface specific detection and the resonance enhancement from microresonators."

http://swissinnovation.org/newsChina/web/2018/06-181120-17

New Type of Manganites Thin Films

(Chinese Academy of Sciences, November 20)



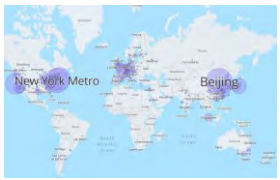
Domain walls (DWs) have been a central research topic in the field of magnetic materials during recent decades. Generally speaking, DWs are the boundaries between adjacent phases or domains with different ordering properties. They are at the transition regions where the order parameters change in a material having broken symmetry. They are important because they often exhibit exotic physical properties that do not exist in their surrounding domains. Two striking examples are the possible nucleation of superconductivity at the charge-ordering DWs and the discovery of enhanced conductivity at DWs in ferroelectric oxides. Now, a research team from High Magnetic Field Laboratory, Chinese Academy of Sciences demonstrated the induced formation of a new type of Domain walls (DWs): the structural DW, and how it shows up in variable processes with surprisingly completely reproduced patterns and confined the phase dynamics in strained manganite thin films.

http://swissinnovation.org/newsChina/web/2018/06-181120-3c

7. Economy, Social Sciences & Humanities

Beijing Ranks First as Global Science City

(China Daily, November 02)



Beijing ranks in first place in a list of cities that produced the most high-quality research in 2017, and nine other Chinese cities made the top 50, according to the Nature Index 2018 Science Cities, a supplement of the British scientific journal Nature, published on Thursday. The list sorted out and ranked 200 cities worldwide by their 2017 fractional count, a metric for the share of contributions to the authorship of articles in 82 high-quality research journals. To calculate the fractional count, all authors are considered to have contributed equally to the article. The maximum combined fractional count for any article is 1.0.

http://swissinnovation.org/newsChina/web/2018/07-181102-9e

Beijing opens First AI Theme Park

(China Daily, November 05)

China's first artificial intelligence (AI) theme park opened to public in early November, after 10 months renovation of a municipal park in northern Beijing. Driverless shuttle buses, smart lamp posts that can record exercise data, and intelligent speakers that can respond to human instructions have been installed in Haidian Park, which covers about 34 hectares near the 4th Ring Road. The district government of Haidian and Internet company Baidu signed an agreement in January to jointly explore "smart city" building. Haidian Park, which received about 1.2 million tourists last year, was chosen to run the pilot program.

http://swissinnovation.org/newsChina/web/2018/07-181105-5b

Clinical Gene Editing Supported in Survey

(China Daily, November 09)

Researchers at Sun Yat-Sen University conducted two surveys on clinical gene editing, one answered by the general public and one answered by HIV-positive people. In the general public, the majority of people support legalizing clinical gene editing for treating or preventing several genetic diseases and oppose such a move for nontherapeutic purposes. About 68% of the respondents support the research and development of genetic editing technology. The parallel survey carried out among people who are HIV-positive showed similar preferences in the legalization of genetic editing for therapeutic and nontherapeutic uses, with a much higher portion backing applications for HIV prevention. In this group a higher proportion indicated support for the research and development of genetic editing technology.

http://swissinnovation.org/newsChina/web/2018/07-181109-20

Science Fiction Industry Is Fast-Growing

(Xinhua, November 23)

According to a report issued by Southern University of Science and Technology, the sci-fi industry in China recorded an output value of over 14 billion yuan (about 2 billion U.S. dollars) in 2017, a figure that is almost certain to be surpassed in 2018. Wu Yan, professor with SUSTech and sci-fi writer, hailed the increasing number of published works and their higher quality. Apart from classic themes like time traveling and brain transplants, imaginations are also being drawn to current tech developments, including virtual reality and the Internet of Things, he said. The professor also said sci-fi is finding its way into China's education by entering textbooks and college entrance exam papers, suggesting a bright future for the development of "sci-fi education" as a new cause or industry.

http://swissinnovation.org/newsChina/web/2018/07-181123-f8

8. Corporates / Startups / Technology Transfer

Google and SJTU Signed Cooperation Agreement

(Shanghai Jiao Tong University, November 01)

Shanghai Jiao Tong University and Google signed a cooperation agreement on new engineering (new curriculum) construction and college student innovation. The cooperation projects to be carried out include: course content development based on the latest open source technology of the industry, support for innovative education of SJTU Student Innovation Center and Innovation Center for China-U.S. Youth Exchange, and support SJTU in holding innovation and entrepreneurship competition and National Undergraduate IOT Design Contest. Shanghai Jiao Tong University and Google have maintained good cooperative relations in the past ten years. In 2009, Google donated Android Lab to SJTU to cultivate talents for mobile application technology. Over the years, the cooperation projects between the two sides involved research funding, curriculum, college student innovation, campus sharing, doctoral scholarships, etc., thus establishing a good foundation for cooperation.

http://swissinnovation.org/newsChina/web/2018/08-181101-18

Hong Kong's Tech Startup Scene Catches Up

(TechNode, November 15)

The ascension of tech startups from mainland China onto the global stage has been well-documented, but what about Hong Kong? According to Duncan Chiu, chairman of the local Cyberport Investors Network Steering Group, the international finance hub took longer to catch on. Young talent in Hong Kong was "more reserved" than their mainland counterparts, he speculates. Instead of entrepreneurship, they tended to go into banking or other professional paths. But "seven or eight years ago," that began to change. Local government played a role, with current and former chief executives making efforts to "reposition" the city as an innovation hub. And in 2005, Hong Kong's government launched the Cyberport initiative in order to incubate local tech startups. Two years ago, the organization also set up a fund targeted at pre-Series A companies.

http://swissinnovation.org/newsChina/web/2018/08-181115-be

Young Academics Become more Entrepreneurial

(TechNode, November 20)

All tech giants start from relatively straightforward services that people easily can understand. The consumer-focused approach to tech innovation in the early days meant that entrepreneurs with interesting ideas could start their own business if they had a general understanding of their market. Coding skills or a tech background were not essential. However, as the startup scene evolves, companies and investors are shifting quickly to deep tech, a set of cutting-edge technologies based on scientific discoveries, medicine, mathematics, and engineering. This change brings more new professional possibilities for academics in transforming their academic results to real products. In tandem, the younger generation of academics is adopting a more open mindset and willing to embrace these opportunities. Compared with 10 or 20 years ago, researchers involved in fundamental studies are taking a more open attitude toward commercialization of their research results.

http://swissinnovation.org/newsChina/web/2018/08-181120-3c

BMW Mobility Secures Ride-Hailing License

(South China Morning Post, November 22)

China has become the world's largest mobility market after fourfold growth over the past three years, according to a survey by consultancy Bain & Company. It found 62% of respondents in mainland China hail rides online, compared to 29% in Germany and 23% in the US. Now, BMW is making inroads into the ride-hailing business after securing a permit in Chengdu, making it the first global carmaker to obtain this kind of access in the world's largest mobility market. Transport authorities in Chengdu awarded the licence to the company's subsidiary, BMW Mobility. The permit will enable the German carmaker to provide online booked taxi services in the city. BMW did not reveal details of the expected fleet size or when it will launch services.

http://swissinnovation.org/newsChina/web/2018/08-181122-9e

Chinese Drone Company to Establish 1st European Research Center

(Xinhua, November 26)

Ehang, a Chinese company of drone-taxis and commercial drones, recently signed a memorandum of understanding to establish its first European research center in Lyon. Ehang's founder, Hu Huazhi, said after the signing ceremony that Lyon is an ideal choice with its practical mobility, a friendly atmosphere for Chinese companies, as well as high-quality research human resources. Ehang aims to help Lyon turn into "a city of tomorrow" by its drone-taxi products, Hu said, adding that the research center will also be an important showcase for his company in Europe. Based in Guangzhou, Ehang was created

in 2014, and has been described as "a leader" in the drone-taxi industry with its autonomous aerial vehicle Ehang 184 series.
http://swissinnovation.org/newsChina/web/2018/08-181126-07

9. Bilateral News

University of Bern sets up Medical AI Lab in Shenzhen

(China Daily, November 16)

Shenzhen-based artificial intelligence company Malong Technologies and the University of Bern formed a partnership Friday on creating a joint laboratory to apply the advanced technology in neurological diseases. The medical AI joint laboratory will operate both in Shenzhen and in Bern. A joint team of scientists and researchers from the two sides will be established. They will work together on integrating AI with biomedical engineering and basic research to improve brain disease prediction, diagnosis and prognosis, and to develop new cures. Malong Technologies and the University of Bern will begin setting up the laboratory in the two locations, with a focus on personnel, infrastructure and data curation.
http://swissinnovation.org/newsChina/web/2018/09-181116-bb

Upcoming Science and Technology Related Events

A Fresh Look at Science
December 1-31, 2018
https://is.gd/i2bK76
Digital Science Photo Exhibition, SNSF
Shanghai

Machinery Committee Roundtable
December 6, 2018
https://is.gd/2OICQH
Machinery Industries, Positioning in Market
Shanghai

How Does China Drive Innovation and How Switzerland Can Leverage from It
December 7, 2018
https://is.gd/mdlbNu
Innovation, "China Speed"
Geneva

Blockchainer Forum 2018
December 7-8, 2018
http://blockchainer-forum.com/en/
Underlying Technology, Application
Shanghai

AI in Healthcare Summit

March 7-8, 2019

https://is.gd/ytSBVl

Deep Learning, Personalized Medicine

Beijing

ICSREE

May 11-13, 2019

http://www.icsree.com/

Sustainable, Renewable Energy Engineering

Beijing

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