Tsinghua
Newsletter

Tsinghua and TAU vow to advance comprehensive cooperation

Tsinghua makes a breakthrough in nuclear energy technology

Han Meilin: UNESCO's Artist for Peace

清华大学
Tsinghua University

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11 Tsinghua professors and alumni elected to CAS/CAE

Four professors and seven alumni of Tsinghua University were named academicians of the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE) in December 2015.

Currently working at Tsinghua University, the four faculty members elected are Lu Jianhua and Li Peng to the CAS, and Wu Jianping and He Kebin to the CAE.

Apart from the current faculty members, the two other Tsinghua alumni elected to the CAS are Wang Yongliang, who undertook postdoctoral research in the Department of Electronics from 1994 to 1996; and Ni Jinren, who graduated in 1989 with master's and doctor's degrees from the Department of Hydraulic Engineering.

Five Tsinghua alumni were elected to the CAE, including Wang Endong, who acquired bachelor's and master's degrees from the Department of Mechanical Engineering in 1989 and 1991 respectively; Yang Zhifeng, with a Ph.D. from the Department of Hydraulic Engineering in 1989; Liao Xiangke, who graduated from the Department of Computer Science and Technology in 1985; and Li Wenyuan and Li Dequn, who graduated from the Department of Electrical Engineering (1969) and the Department of Metallurgy (1968) respectively.

The Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE) are China's top academic institutions. Membership of the CAS and CAE is the highest national academic title in China in science and engineering. The two institutions function as national think-tanks in science and technology, advising the government and acting as academic governing bodies.

The new members admitted from Tsinghua on December 7, are among 131 announced on the same day, 61 new members of CAS and 70 new members of CAE.

Four professors and seven alumni of Tsinghua University receive highest national academic titles in science and engineering.

Lu Jianhua, Professor of the Department of Electronic Engineering and Vice Dean of the School of Aerospace, is an IEEE Fellow, with research interests in coding theory and technology, multimedia signal processing, broadband wireless transmission and satellite communication.

Li Peng is currently a professor in the School of Life Sciences. Her research focuses on the molecular mechanism of metabolic diseases including obesity, diabetes and hepatic steatosis with a special focus on the regulation of lipid storage and lipid droplet fusion in adipocytes, hepatocytes and mammary epithelial cells.

Professor Wu Jianping is now Chair of the Department of Computer Science and Technology. He is also an IEEE Fellow, with research interests in computer networks, the Internet, computer network architecture, protocol and network testing.

Professor He Kebin is currently Dean of the School of Environment. He conducts substantial research primarily in the field of air pollution control including emission inventory and control strategies for regional complex air pollution.

Tsinghua gains greatest number of the annual State Science and Technology Awards

Research into electroanalytical chemistry and the bioanalytical chemistry of graphene, led by Professor Li Jinghong from the Department of Chemistry, and a project on theory and methods for geometric computing in visual media, led by Professor Hu Shimin of the Department of Computer Science and Technology, both won second prizes in the State Natural Science Awards.

Four projects won second prizes in the State Technological Invention Awards, including a project on the development and the application of the selective catalytic reduction of NOx from coal-fired flue gas, led by Professor Li Junhua from the School of Environment. Others receiving the awards were research on a cloud-based storage system for community-based sharing, led by Professor Zheng Weimin from the Department of Computer Science and Technology, and a project into energy-efficient dynamic reconfigurable computing and its system-on-a-chip techniques, led by Professor Wei Shaojun of the Institute of Microelectronics. The fourth recipient was a project on nonlinear flight control led by Professor Zhu Jihong from the Department of Computer Science and Technology.

Projects that won State Science and Technological Progress Awards included pervasive computing software and hardware key technologies and applications, led by Professor Shi Yuanchun of the Department of Computer Science and Technology, the key techniques and application of the high-resolution emission inventory from regional air pollution sources, led by Professor He Kebin of the School of Environment, and the development and industrialization of key technologies of 360 MN ferrous metal vertical extrusion press and the whole-set equipment, led by Professor Yan Yongnian of the Department of Mechanical Engineering.

Tsinghua won more honors than any other Chinese university at the State Science and Technology Awards ceremony held on January 8, 2016. China's President Xi Jinping attended the ceremony with Premier Li Keqiang and other top government officials.

The event took place at the Great Hall of the People in Beijing when China's most prestigious awards for scientific and technological achievements in 2015 were presented to 295 research projects.

Tsinghua wins 19 awards at the 2016 State Science and Technology Awards ceremony. The University has now won 506 national awards for science and technology.

The latest awards for 2015 mean that Tsinghua University has now won a total of 506 national awards for science and technology, including one Preeminent Science and Technology Award, 64 State Natural Science Awards, 143 State Technological Invention Awards, and 298 State Science and Technology Progress Awards.

Tsinghua's collection of 19 awards included 2 State Natural Science Awards, 4 State Technological Invention Awards and 13 State Science and Technology Progress Awards.

As a key part of Tsinghua's comprehensive reforms, the SPS is expected to push forward the frontiers of pharmaceutical development worldwide.

School of Pharmaceutical Sciences established at Tsinghua

The newly established SPS aims to push forward the frontiers of pharmaceutical development worldwide.

Tsinghua has established a new School of Pharmaceutical Sciences (SPS) as the twentieth school on the University's campus. Tsinghua President Qiu Yong inaugurated the new School on December 25. Ding Sheng, a renowned scientist in stem cell chemical biology, was appointed as the first Dean of the SPS.

"I believe the establishment of the SPS on Christmas day will bring the school a splendid future," said President Qiu. As Qiu noted, the new School of Pharmaceutical Sciences is founded based on Tsinghua's multi-disciplinary research strengths in life sciences, basic medical science, chemistry, biomedical engineering, and other engineering and technology disciplines such as materials science and engineering, and chemical engineering.

"The school is aiming to push forward the frontiers of pharmaceutical development worldwide, taking into consideration China's pharmaceutical industry and health care realities as well," said Qiu. "Tsinghua's advantages in comprehensive disciplines should benefit its path in becoming a leading international research institute in the pharmaceutical sciences and technologies."

The SPS is a key part of Tsinghua's comprehensive reforms to advance the development of its disciplines, raising standards in the running of its schools and proactively serving society, Qiu remarked.

The SPS replaces and succeeds the Department of Pharmacology and Pharmaceutical Sciences (DPPS), which was formed on November 10, 2012 as a specialized department in the School of Medicine with a focus on pharmaceutical sciences-related fundamental and applied research.

Tsinghua has triumphed at the three leading international college student supercomputing contests in a year.

Overall champions after non-stop 48-hour challenge

Tsinghua's victory in the 2015 Student Cluster Competition in Texas means the University has won 3 leading international supercomputing contests in a year.

Tsinghua University's student team "Diablo" won the championship in the 2015 Student Cluster Competition (SC15), held at Austin, Texas, USA. Their success marked the University being overall champions of three leading student supercomputing contests worldwide.

With Tsinghua turning up the heat in the tournament, it was the first time a college or university from mainland China has won the championship in the Student Cluster Competition.

"After they announced the result, we were really excited," said team spokesman Zhuo Youwei, a senior undergraduate student. Led by instructor Zhai Jidong, and coach Li Kaiwei, the supercomputing team consisted of 6 undergraduates from the Department of Computer Science and Technology at Tsinghua University. The team is named after Diablo, an iconic powerful character and the final boss in Blizzard's famous action role-playing game of the same name.

"Our secret is teamwork, and each member is capable of understanding the hardware and software," admitted Zhuo. "When we get stuck on a problem and cannot progress, we always figure it out with more people working on it. We also find potential performance increases this way."

"You will never be a great talent if you are not capable of supercomputing."

As a coach in the team, Li Kaiwei sees more value in personal improvement through the international stage. "You cannot live in your own imagination as supercomputing advances so fast."

In just one year, Tsinghua has peaked at the three leading international college student supercomputing contests, including ASC in China in May, and ISC in Germany in July.

The Student Cluster Competition is a real-time, non-stop, 48-hour challenge in which teams of six undergraduates assemble a small cluster at SC15 and race to complete a real-world workload across a series of scientific applications, and impress High Performance Computing (HPC) industry judges. The students partner with vendors to design and build a cutting-edge cluster from commercially available components.

The award for the Student Cluster Competition Overall Winner is based on the combined score for a correctly completed workload, benchmark performance, demonstrable understanding of architecture and performance through profiling and analysis, and interviews.

Tsinghua defends its championship to score a record sixth win at the 14th Challenge Cup, which attracts over two million undergraduates from more than 2,000 colleges and universities nationwide.

Tsinghua students win China's "Science Olympics" for the sixth time

Tsinghua team in the grand final of the 14th Challenge Cup championship

Tsinghua's team in the grand final of the 14th Challenge Cup championship — regarded as the Science and Technology Olympics for Chinese students — has successfully defended its title to score a record sixth win. The championship, a national contest for undergraduates in extracurricular academic science and technology work, was held at Guangdong University of Technology in November 2015.

Six projects were selected by Tsinghua University for this year's competition. Among them "Study on the Design and Manufacture of New Rack and Pinion Engine" and "Solutions to Wage Arrears for Migrant Workers in Labor-intensive Region: A Survey of the Wage Surveillance Office in Yuhuan County, Zhejiang Province" won the Outstanding Awards.

A new rack and pinion engine project was submitted by Pan Jian, a student from the Department of Automotive Engineering. The project targets small-scale four-stroke internal combustion engines. Pan is designing a rack and pinion dynamic transfer system on a traditional crankshaft connecting rod engine. The new engine will solve the problem of lateral pressure on cylinder walls, enhancing the efficiency of the engine.

The wage arrears project was a joint effort by You Yue from the Department of History, Sun Jinyan from the Department of Philosophy, and Xu Hongzhi from the Department of Sociology. It was the only entry in humanities and social sciences from the Tsinghua team. The Wage Surveillance Office in Yuhuan County is renowened for its efficiency in dealing with wage arrears. In their research project, You, Sun and Xu collected data, observed working mechanisms, interviewed officials, and analyzed the reasons behind its success.

After a fierce preliminary competition involving 528 universities and 1,569 projects, 783 projects from 318 universities were selected for the finals. The Tsinghua team stood out from all other competitors, scoring a total of 450 points. Tsinghua shared the championship with Shanghai Jiao Tong University and Nanjing University of Science and Technology. The championship success means Tsinghua University has more wins overall than any other participating college or university, having also won the championships in 1989, 1997, 2003, 2009 and 2013, and now 2015.

The Challenge Cup is a biennial national competition hosted by the Central Committee of the Youth League, the China Association for Science and Technology, the Ministry of Education and the All-China Students' Federation. As the most influential extracurricular activity in science and technology for Chinese undergraduates, the contest is regarded as the Olympics of science, technology and academic research for Chinese college students.

The 14th Challenge Cup attracted over two million undergraduates from more than two thousand colleges and universities nationwide. The projects that entered the final competition covered 11 disciplines, including science, engineering, law, education, social sciences, and management. All entries were reviewed by a panel of around 100 specialists led by academicians from the Chinese Academy of Sciences and the Chinese Academy of Engineering.

Team members of the wage arrears project

A contestant from Tsinghua presenting his project in an exhibition

Prof. Bai Chong-en (right) received the "Influencing China" Figure of the Year award on behalf of the Tsinghua x-lab.

Tsinghua spirit celebrated as awards for "Influencing China" are announced

A ceremony to reward "Influencing China" Figures of the Year has seen a professor, a student, an alumnus and a university educational platform winning awards in what has been a celebration of the Tsinghua spirit.

Shi Yigong, Vice President of Tsinghua University and Dean of the School of Life Sciences, received

The Tsinghua spirit is celebrated at the "Influencing China" Figures of the Year awards ceremony. Award recipients include a Tsinghua professor, a Ph.D. student, an alumnus and an educational platform.

the Influential Figure of the Year award in the science and technology field.

Professor Shi said: "Science is the power to change the world. With such a large team of researchers and solid footprints left by predecessors for us to follow, China's scientific research will definitely embrace a glorious future." Shi is a scientist who has made a remarkable contribution to fundamental research in life sciences.

Another important award for the Innovative and Entrepreneurial Figure of the Year was presented to Tsinghua x-lab, an innovation-driven educational platform officially launched in April 2013. It is designed to foster students' creativity, innovation and entrepreneurship.

At the awards ceremony, representing the x-lab, the Deputy Dean of the School of Economics and Management Bai Chong-en said, "There's no commercial purpose in setting up the Tsinghua x-lab. It aims to create an educational platform for students, alumni and faculty, where they can learn knowledge and skills and enhance their ability, as well as enrich their experience of innovation and entrepreneurship."

He added, "x-lab will provide services, a resource network, and guidance for cultivating teams in innovation and entrepreneurship."

For the past three years, x-lab has assisted hundreds of young people to realize their dreams. Such a significant impact on both individuals and society helped x-lab receive this latest accolade.

Others from Tsinghua selected as influential figures of the year included Shen Lei, a Ph.D. student from the Department of Precision Instrument and CEO of a startup company, and Zhang Shishi, a School of Economics and Management alumnus, who started a P2P financial service platform.

The "Influencing China" Figure of the Year Award was established in 2009 by China News Week (*Zhong Guo Xin Wen Zhou Kan*), a national news agency. It honors individuals and organizations that have made significant contributions to China in various fields.

Graduates win national praise for taking education to remote corners of China

A team of volunteer teachers from Tsinghua were among 10 winners of China Online's Most Inspiring People of 2015. The team, consisting of postgraduates from Tsinghua, headed to remote areas of China to help educate people in poorer areas.

Tsinghua team of postgraduates who volunteered to work as teachers in economically-disadvantaged areas are named among the most inspiring figures of 2015.

The annual award ceremony was this year held at Tsinghua University on January 18.

Asked about the value of a one-year voluntary teaching posting in remote rural areas, Liu Yanling, a member of the 15th Tsinghua voluntary teaching team, quoted the lyrics from her team's song: "we shall use one year of youth in exchange for a life of memory and hope." Spending a year teaching and giving hope to people has been a valuable experience for all of the team, said Liu Yanling.

Each year a group of outstanding graduates is sent as voluntary teachers to remote and disadvantaged counties in Tibet, Qinghai, Gansu and other poor areas where they provide education. So far, 17 groups of volunteer teachers have ventured into remote areas since 1998.

In addition to their own personal efforts, the volunteers have initiated two projects, the "Dream Plan" and "Light in Tibet". The aim was to mobilize social resources such as teachers and funds for education in rural areas. The voluntary teaching experience has had such a profound impact on some graduates that they returned to the places where they spent a year after graduation and continue to work there.

The "China Online" annual award for the most inspiring figures was initiated by the Xinhua News Agency to highlight ordinary people with inspiring stories. The awards ceremony has been held for six years, winning much public support and recognition.

A volunteer teacher with her class

A Tsinghua graduate returned to the university so that China could play a part in groundbreaking research into gravitational waves.

It meant that the LIGO @ Tsinghua research group, headed by Professor Cao Junwei, from the University's Research Institute of Information Technology, was involved in the recent detection of gravitational waves, hailed as a global scientific breakthrough.

Cao embarked on his academic career as a student in the Department of Automation at Tsinghua University in 1991, moving to Tsinghua's CIMS Engineering and Research Center as a postgraduate student in 1996.

As the only member from mainland China of the Laser Interferometer Gravitational-Wave Observatory (LIGO) Scientific Collaboration, LIGO @ Tsinghua contributes to gravitational wave detection by applying advanced computing technologies to data analysis.

LIGO @ Tsinghua is one of the research groups of Laser Interferometer Gravitational-Wave Observatory (LIGO) Scientific Collaboration (LSC), which reported that for the first time, gravitational waves have been directly detected. The discovery on February 11, 2016 confirmed Albert Einstein's theory of relativity 100 years ago, and will start a new era in astronomy. The LIGO research is being carried out by the LSC, which constitutes more than 1,000 scientists from more than 90 universities and institutes worldwide.

Among the international research groups, the LSC research group at Tsinghua (LIGO @ Tsinghua) is the only one in mainland China, and has been contributing for some years to gravitational wave detection by clarifying and purifying data.

In 2004, Professor Cao was a research scientist at the LIGO laboratory at Massachusetts Institute of Technology and was devoted to the management of the mass data observed by the laboratory, a key step in the eventual detection.

During this period, Cao gained a deep understanding of the significance of gravitational wave detection. Realizing that it was still an uncharted territory in China, he reasoned that he could make a greater contribution to this area of work if he returned to China.

In 2006 the first thing Cao did on his return to China and to Tsinghua was to form a gravitational wave

LIGO @ Tsinghua contributes to data analysis for gravitational wave detection

Hanford, Washington (H1) Livingston, Louisiana (L1)
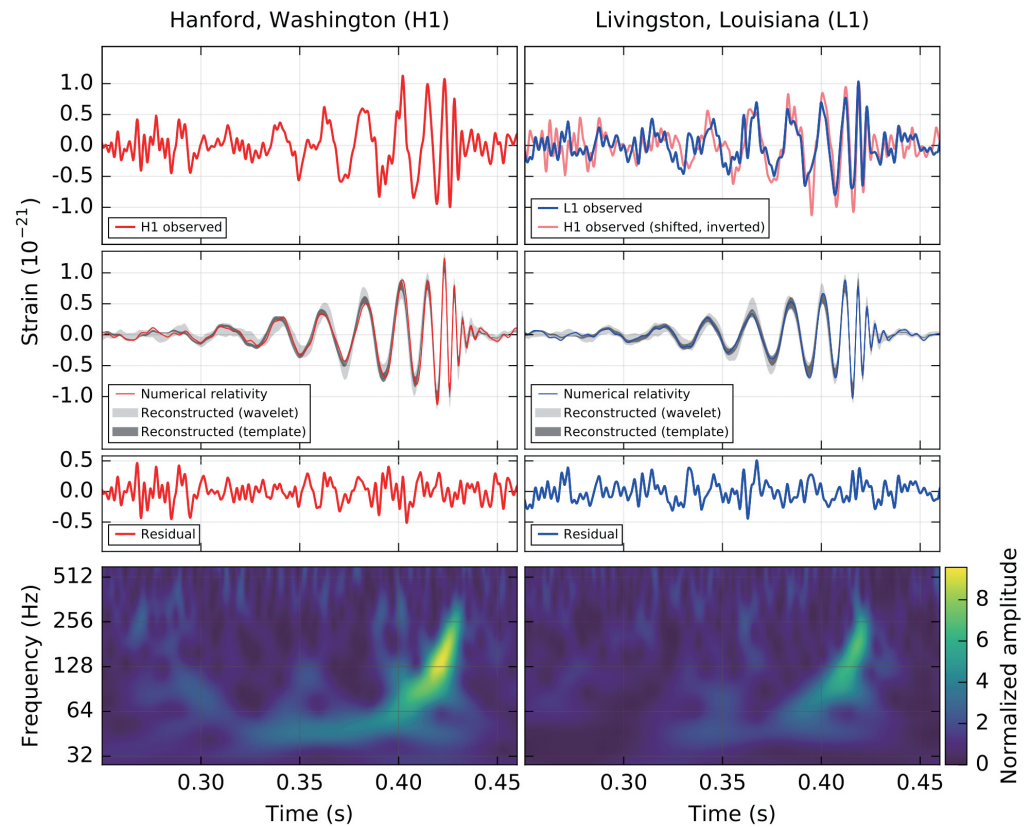
The gravitational-wave event GW150914 observed by the LIGO Hanford (H1, left column panels) and Livingston (L1, right column panels) detectors

research group with professors and students from the Research Institute of Information Technology, the Department of Automation, the Department of Computer Science and Technology, and the Department of Engineering Physics. They applied advanced computing technologies to the analysis of gravitational wave data. Professor Du Zhihui from the Department of Computer Science and Technology said, "The calculating of gravitational waves requires analysis of mass data, which high-performance computing is adept at. I was very excited to join the research group. It really meant a lot, and we all expected a breakthrough."

Tsinghua officially became a member of LSC in 2009 and is so far the only member from mainland China. According to Cao, a crucial step in the process of analysis was to distinguish gravitational

wave signals from other glitches. LIGO @ Tsinghua uses machine learning, the core technology of artificial intelligence, for the analysis of the signals and glitches in order to purify the mass of received candidates.

Guo Xiangyu is a graduate student from the Department of Computer Science and Technology and currently works for LIGO @ Tsinghua. His main task is to "make the analysis of gravitational wave data more efficient."

"We talk with the LIGO research group at the University of Western Australia every week. After a year, the speed of the detectors' GPU to process data has risen from 58 times to 120 times faster than the original speed."

Although big breakthroughs have been made, Professor Cao and Professor Du say that the research on gravitational waves around the world will not stop.

"We will continue to do further research, including accelerating the computing speed of the data processing system. Scientific exploration has no end," said Professor Du.

Tsinghua makes a breakthrough in nuclear energy technology

Designed by Tsinghua University's Institute of Nuclear and New Energy Technology, the world's first Reactor Pressure Vessel (RPV) of High-temperature Gas-cooled Reactor-Pebblebed Modules (HTR-PM) was installed at the Huaneng Shidao Bay Nuclear Power Plant in Shandong Province on March 20. The successful installation marked a milestone in the development of Generation IV reactors.

The RPV is a key component of the nuclear plant, and its installation took eight hours. As the container and supporter of the reactor core, the RPV is designed to ensure the safe operation of the reactor. About 6.4 meters in diameter, 25 meters in height and about 700 tons in weight, the cylindrical RPV is the biggest, heaviest, and most complicated of its kind in the world. The design of this RPV alone went through numerous revisions, accumulating more than a thousand drafts. To ensure the safety of Shidao Bay Nuclear Power Plant, the Institute of Nuclear and New Energy Technology has built 1:1 models of all the key parts of the power plant to verify their functions.

Installation of a key component of nuclear power plant marks a milestone in the development of Generation IV reactors. Designed by Tsinghua University, the Reactor Pressure Vessel is the biggest of its type in the world.

Professor Chen Xu, Chairperson of the Tsinghua University Council, acknowledged the solid progress of the HTR-PM at the Shidao Bay Nuclear Power Plant and pointed out that "the installation of the RPV reveals the beginning of a new stage." She witnessed the whole process of the installation with a number of senior administrators from Tsinghua University, the Institute of Nuclear and New Energy Technology, China Huaneng Group, and China Nuclear Engineering Construction Group.

In 1986, Tsinghua University's High Temperature Gas-cold Reactor (HTGR) project was included in the National High-Tech Research and Development Program, often referred to as the 863 Program. For over three decades, about one thousand scientists and engineers have been dedicated to this project.

The Shidao Bay Nuclear Power Plant will be the first Generation IV nuclear power plant in China. With its helium-circulating cooling technology, a feature of the reactor is its "inherent safety", which means it can shut down safely in the event of an emergency without causing a reactor core meltdown or massive leakage of radioactive materials.

With a designed capacity of 200 MWe, the reactor will be connected to the power grid and start generating power by the end of 2017.

After continuous research efforts in the last three decades, Tsinghua has developed new technology for safer nuclear power generation.

Power to the people, thanks to Tsinghua team

The Tsinghua research team on automatic voltage control

In 2008 a control system developed by a Tsinghua team to avert power failures and to reduce power loss became the first of its kind to be exported to PJM Interconnection, an electricity grid in the USA and one of the world's biggest power giants.

Over 20 years a research project on voltage control won 14 national grants, led to more than 80 patent applications being filed, and generated more than 200 journal articles. The technology is not only widely used in power grids in China, it has now gone global, thanks to the export of the technology to the US.

For more than two decades, Prof. Sun Hongbin has focused his research on how to better manage increasingly complex grids through automatic control technology.

The technology is vital for modern life in which people cannot be separated from electricity. For consumers, the quality of the voltage is one of the keys to the quality of the power. Major power blackouts in the recent years have shown that voltage security is a worldwide problem for complex power grids.

To realize the development of complex automatic voltage control systems — a crucial solution to the problem of blackouts — Professor Sun Hongbin and his team dedicated themselves to designing a self-adaptive control system with a control mode that automatically changes according to the status of the power grid.

In 2002, the Jiangsu Power Grid urgently needed an automatic voltage control system and contacted Sun, who developed an effective system in response to the challenge. With the great success of their system, more and more power grids at various levels started to use it. By the end of 2015, the voltage control technology had been widely applied to six major regional grids and 22 provincial girds in China. About 56% of traditional generators and 37% of renewable generators in China are being controlled by the developed technology.

While the successful application of his research results for China power grids had been Sun's goal, the export of the system to the United States was entirely unexpected. PJM, one of the world's largest Power Grid Corporations, invited Sun's team to develop an automatic voltage control system after several unsuccessful efforts with American scientists. With a complex system of over 13,000 nodes and 19,000 grid branches, PJM power grid was seeking a voltage control system with high performance. Sun's team came up with the idea of using the "game" method, assuming that the power grid security and economy are the two sides of the game, and then used the method of security scanning to reach a new balance and to achieve an efficient solution in an online environment.

In six months of vigorous continuous online tests, Sun and his team successfully solved all the problems. Their efforts not only made this system the first automatic voltage control system in the US, but it also became China's first export of an advanced grid control system to America. Similar technology was later applied to the Malaysian National Grid and the Canadian BC Hydro power grid.

Sun used the word "tetralogy" to describe his 20-year study on voltage control, from cutting-edge theoretical research, to the application of the theory to practice in a single control center, then to application in multi-coordinated control centers, and finally to the export of the technology. The evolution of the research is a result of combined effort of his team.

Reliability, quality, economy and environmental friendliness are what Sun's team regard as their four targets in a grid operation. Their studies have always focused on how to better manage increasingly complex grids using automatic control technology.

"As engineering researchers, we must be dedicated to solving pressing problems that affect us all. I inherited this spirit from my Ph.D. supervisor, and I will pass it on to my team, " said Sun.

World's first artificial synapse with modulatable plasticity

Professor Ren and his team at Tsinghua move one step closer to human-like artificial intelligence by creating a new type of synthetic synapse with tunable plasticity.
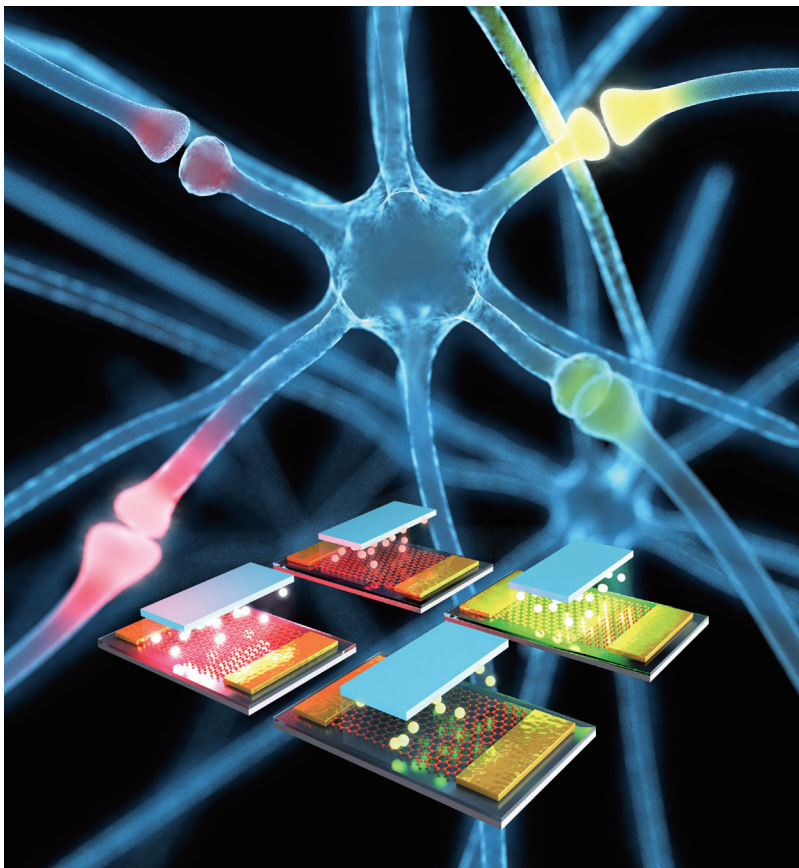
Professor Tian-Ling Ren from the Institute of Microelectronics and his team at Tsinghua recently created the world's first artificial synapse with modulatable plasticity based on 2D materials. The novel dynamic system may offer a broad new vista for 2D material electronics and advance the development of biology-inspired electronics capable of learning and self-healing.

The activities of synapses, which connect millions of neurons in humans, is the basis of memory and learning behavior. The concept of the biological synapse has notably inspired scientists in the area of microelectronics and motivated the development of neuromorphic engineering.

In recent years, the hardware implementation of the biological synapse has been achieved based on CMOS circuits, resistive switching memory, and field effect transistors with ionic dielectrics.

However, compared with the modulatable plasticity of the biological synapse, which is fundamental to complex biological behaviors such as learning, the artificial synapses previously designed could only function with static plasticity, which largely restricted the development of artificial intelligence from imitating the human brain. A version with regulatable plasticity has never been realized at a device level, which is why Ren and his team set out to address that challenge.

Based on twisted bilayer graphene, Ren and his team created a new type of artificial synapse with tunable plasticity. Both the behavior of the excitatory synapse and the inhibitory synapse could now be realized in a single device due to the ambipolar conductance of graphene. The synaptic plasticity could also be modulated by tuning the carrier density of graphene. Because the artificial synapse here can be regulated and inverted by changing the bottom gate voltage, the whole process of synapse development can be imitated.

With this synthetic synapse, the first-of-its-kind to simulate the plasticity of the real thing, Ren and his team are believed to have moved "one step closer to human-like artificial intelligence."

The ambipolar conductance of graphene enables the behavior of both the excitatory synapse and the inhibitory synapse.
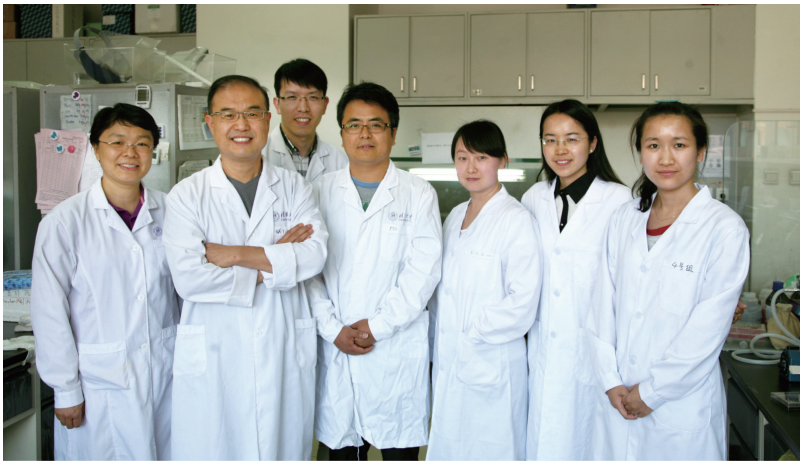
Research team led by Prof. Zhang Linqi (second from left) and Prof. Wang Xinquan (middle)

A scientific breakthrough by Tsinghua researchers is expected to advance the design and optimization of therapeutics and vaccines against HPAI H5N1 infection with high mortality rate.

Breakthrough in search for avian flu vaccine

A research team led by Professor Zhang Linqi from the School of Medicine and Professor Wang Xinquan from the School of Life Sciences recently discovered precise targets crucial for the development of effective therapies and vaccines for the highly pathogenic avian influenza A virus (HPAI) H5N1.

HPAI H5N1 represents a novel cluster of influenza A virus originating from poultry and wild birds. Humans infected with the virus usually manifest severe respiratory symptoms, with an exceedingly high mortality rate of more than 60%. Understanding the mechanism of protective antibody recognition against HPAI H5N1 in infected and convalescent individuals is critical for the development of effective therapies and vaccines.

The research team reported the systematic characterization of antibody recognition of both neutralizing monoclonal and polyclonal antibodies from two individuals who recovered from HPAI H5N1 infection in China. On the basis of five human neutralizing monoclonal antibodies isolated from the two recovered individuals, they first solved the crystal structure of three representative monoclonal antibodies bound to the globular head of hemagglutinin (HA) with distinct epitope specificities, neutralization potencies and breadth. Structural and functional analysis of the epitopes combined with those published elsewhere identified four major vulnerable sites on the globular head of HPAI H5N1 HA.

More importantly, they showed that convalescent sera contained high levels of neutralizing antibodies targeted to the four major vulnerable sites on the globular head instead of the stem region, suggesting that during natural HPAI H5N1 infection neutralizing antibodies against the globular head worked in concert to provide protective antibody-mediated immunity.

Providing an atomic and holistic understanding of protective antibody immunity in HPAI H5N1 recovered individuals, the research is expected to advance the design and optimization of therapeutics and vaccines against HPAI H5N1 infection.

The research was first published in *Nature Communications* on December 4, 2015. The research team consists of scientists from Tsinghua University, the Chinese Academy of Sciences, China CDC, and Shenzhen Third People's Hospital.

Professor Zhou Jizhong's team reveals effects of global warming on tundra soil

Award-winning Professor Zhou Jizhong and his research team from the School of Environment at Tsinghua have published an academic paper showing the important influence of microbial activities on tundra soil carbon in the process of climate warming. The paper published in *Nature Climate Change* on February 2, 2016 shows that tundra soil carbon is vulnerable to rapid microbial decomposition under climate warming.
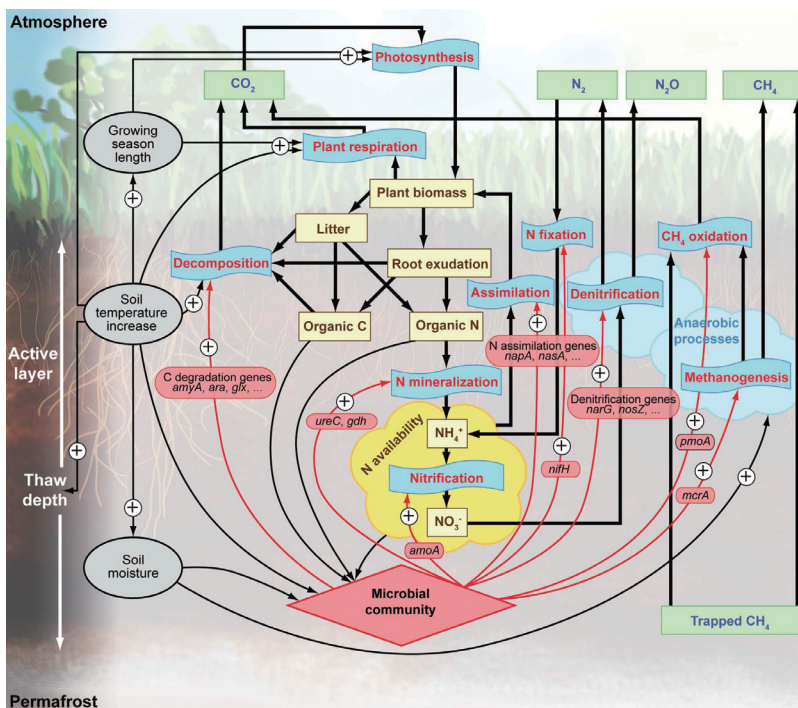
Nearly half of the soil carbon of the northern hemisphere is stored in the arctic regions, because microbial decomposition of soil carbon is largely slowed down by the low temperature, which helps soil carbon to accumulate. However, in the last few decades, due to the influence of human activity, there has been a noticeable increase in the arctic temperature. Therefore, microbial activities are intensified, which transforms a mass of soil carbon into carbon dioxide and worsens the greenhouse effect. Its ecological consequences have frequently been mentioned, but the mechanism has remained unknown.

A team led by award-winning professor from Tsinghua links up with 3 universities in USA to reveal the impact of global warming on soil.

Zhou's team, in cooperation with Northern Arizona University, Michigan State University and Georgia Institute of Technology, analyzed samples of arctic soil.

"Using integrated metagenomic technologies, we showed that the microbial functional community structure in the active layer of tundra soil was significantly altered after only 1.5 years of warming, a rapid response demonstrating the high sensitivity of this ecosystem to warming," the team report in their paper. This important discovery not only reveals the molecular mechanism of microorganisms in response to climate warming, but also contributes to predicting the ecological system's response to climate change and environmental protection.

Zhou joined Tsinghua University in 2010 through the "1000 Talents Plan." He is best known for his invention of GeoChip, a gene chip which can be widely applied in the analysis of different kinds of microflora, including soil, waters, and animal intestines, and which can help solve microorganism-related problems in various fields, such as the detection of microorganisms, growth of plants, human health, and sewage treatment. The invention earned him the Presidential Early Career Award for Scientists and Engineers in 2002, the R&D 100 Award in 2009, and the Ernest Orlando Lawrence Award in 2015.

A conceptual model of the impact of warming on the active layer of tundra ecosystem processes
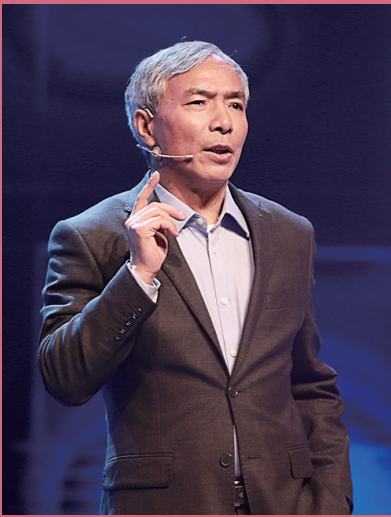
Prof. Liu Yong (Pen name: Ge Fei)

Prof. Chen Lai

"Humanities at Tsinghua," a new beginning at Tsinghua

The inaugural lecture in a "Humanities at Tsinghua" series was given by the famous writer and literature Professor Liu Yong (Pen name: Ge Fei) at the New Tsinghua Auditorium on January 10. This was followed on March 27 by a second lecture by Professor Chen Lai, Dean of the College of Chinese Ancient Studies, with the title "Keep Watch for Traditional Chinese Values."

Tsinghua President Qiu Yong attended and gave the opening speech at Professor Ge Fei's lecture "Returning to the River of Time." Qiu traced the long Tsinghua tradition in humanities from the last century and recalled various great masters of humanities at Tsinghua, including Wang Kuowei, Liang Qichao, Tschen Yinkoh, and Chao Yuen Ren. The opening of the "Humanities at Tsinghua" series, according to Qiu, marked the beginning of a new era of humanities at Tsinghua. Qiu expressed his high expectations for the series as an exhibition of achievements by the Tsinghua faculty in humanities and social sciences. He also expressed hope that its impact may go beyond the campus to inspire society as a whole.

"Humanities at Tsinghua" is an exhibition of achievements by Tsinghua faculty in humanities and social sciences. Its impact may well go beyond the campus to inspire society as a whole.

Professor Ge Fei expounded on the change of chronotope (spatial-temporal frame) in world literature from the 18th century to the 20th century. He pointed out that in traditional literature, the meaning of space is attached to the meaning of time. However, modernist writers of the 20th century proposed that space should replace time, which subsequently stimulated the ubiquity of spatial narrative in modern literature. Ge Fei observed that nowadays, readers are inclined to indulge in "showy spatial objects" and dramatic plots of some popular literary works offered by writers who discard the genuine function of literature — to provide a meaning rooted in history and time. He appealed to both writers and readers to revisit the river of time and rebuild the balance between space and time in literature.

Professor Chen Lai presented a critical and comprehensive reflection on Cultural Radicalism, which was born in the New Culture Movement, and which, since the beginning of the last century, advocated the negation of traditional Chinese values. Chen suggested that modern Chinese intellectuals have a duty to release the unnecessary tension caused by the confrontation between tradition and modernization since the New Culture Movement in China, rather than arbitrarily negate the tradition. They should, according to Chen, critically respond to the survey of traditional Chinese values, rationally develop the tradition, and sustain the uniqueness of Chinese culture, while learning from Western civilization.

As a special lecture series launched by Tsinghua, "Humanities at Tsinghua" aims to guide the interpretation of classic works and present the fruit of humanities research in the new era of Tsinghua humanities. Outstanding humanities and social sciences scholars are regularly invited to give lectures to Tsinghua students.

Ge Fei is one of the progenitors of Chinese avant-garde literature and currently teaches Chinese Literature at Tsinghua University. He was awarded the 2015 Mao Dun Literature Prize, one of China's most prestigious literature awards, for *Jiangnan Trilogy*.

Chen Lai is a renowned contemporary Chinese philosopher and historian of philosophy. He is also an influential figure in the lineage of the Tsinghua school of philosophy.

Professor Li Xueqin wins the Wu Yuzhang Lifetime Achievement Award

Professor Li Xueqin's study of ancient history and culture reveals the origins and development of Chinese ancient classics and thoughts.

The fourth Wu Yuzhang Humanities and Social Sciences Lifetime Achievement Award has been presented to Tsinghua Professor Li Xueqin, the renowned historian. He shares the accolade with the famous economist Wei Xinghua. The award ceremony took place at Renmin University of China on December 17, 2015.

Li has dedicated his life to researching the history of the pre-Qin period, the Qin dynasty and the Han dynasty, as well as carrying out research into archaeology and paleography.

In his study of oracle bones, Li has established the "two-line of development" theory of the oracle bones from Yin ruins, developing the study of oracle bone inscriptions that do not belong to the king, and was the first to identify the oracle bones of the West Zhou dynasty. In the studies of bronze ware, he has emphasized combining the studies of shape, decoration, inscriptions, fonts, function, composition and casting craft, and promoting the formulation of the calendar of the Zhou dynasty. He suggests that people should reevaluate Chinese ancient civilization, an idea that has had a wide and profound influence within academia. He has published more than 40 books and 1,000 academic papers since the 1950s.

Li said: "Winning this award highly acknowledges the achievement of my work and studies over the last 60 years and definitely encourages me to make more progress in the future. Study of ancient historic culture seems far from contemporary society, but it actually relates to the origins of Chinese civilization and the development of Chinese ancient classics and thoughts." Li says he is determined to continue his effort in advancing the research of related fields.

Established in 2012 by the Wu Yuzhang Foundation, the purpose of the Wu Yuzhang Lifetime Achievement Award for humanities and social sciences is to honor those who have been active and made an extraordinary contribution in these fields.

"Those who have won this award have always been dedicated to the academy and loyal to the country in good times and bad. Their undisputed academic achievement, persistence in academic research and compassionate humanism are definitely the key spirit of the Wu Yuzhang Lifetime Achievement award," said Liu Wei, President of Renmin University of China, speaking at the award ceremony.

Prof. Li Xueqin (right)
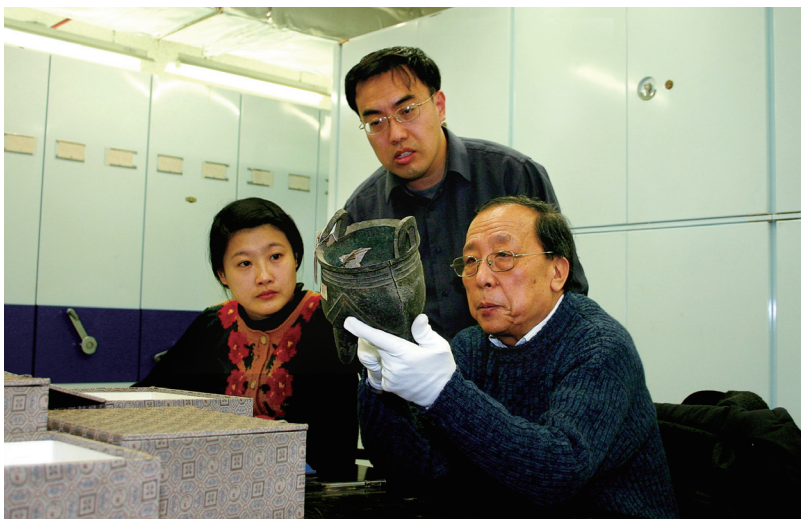
The production team managed to fully record the Everest climb in spite of the significant challenges.

Studio hits new heights with its film *Himalaya Ladder to Paradise*

A documentary produced by the Qingying Film Studio, based in the School of Journalism and Communication at Tsinghua University, has been chosen as one of the "Five Films of the Year" by the *People's Daily*.

The film, *Himalaya Ladder to Paradise,* has been warmly received by the public and was one of the biggest box office successes among documentaries released

A documentary film made by a production team from the Tsinghua School of Journalism and Communication is selected as one of the "Five Films of the Year" by the People's Daily.

in 2015. Professor Yin Hong, Executive Dean of the School of Journalism and Communication, plotted the documentary, with Dr. Lei Jianjun as producer and Dr. Liang Junjian as co-director. A large number of Tsinghua students and graduates participated in the making and shooting of the film.

Himalaya Ladder to Paradise tells the story of how a team of Tibetan students from a mountaineering school climbed to the top of Mount Everest as mountaineering guides after years of training. The name of the documentary originates from the little white ladders drawn on the rocks in the Qinghai-Tibet plateau by the Tibetans. They are known as "ladders to paradise" in the hope that they can lead human souls to heaven. The young guides in the film were figurative ladders to paradise for mountain climbers. While ordinary climbers view the peak as the end of their expedition, the young guides regard it only as a starting point to maturity and as the threshold to life.

The idea for the film came from a trip by Dr. Lei to Tibet in 2010, with the crew starting a one-year continuous shoot in 2013. The team faced significant challenges in shooting the documentary, yet the production team managed to fully record the arduous process of climbing in the Himalayas. It was the first time a film camera tripod had stood at the summit of Mount Everest, and the first time a drone had captured images and filmed at 6,500 meters above sea level. With a vivid, true-to-life presentation of the image of the brave young Tibetans, the film won many national and international awards and recognition.

The film has been described as a combination of academic soul, professional execution and commercial operation. Creation, education and research are merged into the process of making the film, with the integration of daily life experience with extreme adventure. The way the film reflects on the growth of Tibetan teenagers and of modern life in Tibet gives a better understanding of Tibet's mysteries for people across the world.

The Qingying film studio has for many years endeavored to promote academic research and the growth of students through hands-on practice and creation. In this way, it has also been a ladder leading many young journalists and filmmakers at Tsinghua to bring out the best in themselves.

The Director-General of UNESCO, Irina Bokova (right), designated Prof. Han Meilin (left) as UNESCO Artist for Peace at UNESCO Headquarters on October 13, 2015.

Han Meilin: UNESCO's Artist for Peace

It is not the first time Han has been invited to design for important occasions. Before Kangkang, Han also designed the Five-Dragon Clock Tower for the 1996 Summer Olympic Games in Atlanta, and created the Air China phoenix logo in 1988.

A graduate from the Central Academy of Arts & Design, now renamed as the Academy of Arts & Design, Tsinghua University, Han is a big fan of traditional Chinese art. His works are characterized by their adherence to traditional techniques of Chinese art such as calligraphy and ink-wash painting. Han is committed to learning and promoting the essence of traditional Chinese culture and folk art. He travels extensively in China, staying with the natives for months and learning their crafts and skills.

He says: "I believe what I am doing is valuable, even though some people may mock me. Have you ever heard of any painter who never repeats a similar stroke in his or her painting? I can. Every stroke of my paintings is unique. And I would attribute it to my learning experience with the local people."

Han also endeavors to combine Western art with traditional Chinese art. He has travelled to Africa and Europe, and is planning visits to India and Nepal.

"It is valuable to adopt good techniques and good materials into Chinese design. The key point is that we should never abandon Chinese elements," he adds.

In October 2015, Han was designated as a UNESCO Artist for Peace. The accolade was "in recognition of his long-term commitment to promoting art and artistic education in China, his support in providing quality education to young people, notably through projects led by the HAN Meilin Art Foundation, and his dedication to the ideals and aims of the organization."

This year, Han will celebrate his 80th birthday. Even at his senior age, Han is still energetic and passionate, saying: "I have a lot of muses in my head. If I do not paint them down, they will fly away." He has founded three Han Meilin Art Galleries — in Beijing, Hangzhou, and Yinchuan — to exhibit thousands of his works and to inspire young artists with his deep love for traditional art and craft.

Ahead of the Chinese New Year, Professor Han Meilin from Tsinghua painted a colored ink prototype of a monkey, Kangkang, as a mascot for the 2016 spring festival gala.

Professor Han Meilin is designated as a UNESCO Artist for Peace in recognition of his long-term commitment to promoting art and artistic education in China and his support in providing quality education to young people.

It was just another task for the world-renowned artist who last October was named as UNESCO's Artist for Peace.

His latest painting mainly adopted black, yellow, red and green, with Han's inspiration coming from a monkey eating a banana. Portrayed in a vivid calligraphic style, the image captured the soul of the playful and mischievous animal.

Tsinghua Professor Zhang Li helps to win Winter Olympics glory for China

Prof. Zhang Li

the planning of the Winter Olympics venues through comprehensive studies.

Take the site for ski jump events for example. Zhang Li pointed out that its professional tracks can be transformed into a training base for athletes after the Olympic event, and part of a nearby field can be reserved for the building of small platforms of 20 meters and 40 meters as well as shorter tracks to serve the public. Supporting facilities such as parking lots, reception centers, and dressing rooms will be added, while the ski fields can be built into an outdoor summer resort. In addition, the media center and the spectator areas will be built as temporary constructions to facilitate replacement after the event.

"Sustainable development entails 'Recycle, Renew and Reuse'," said Zhang, "which is not only the philosophy for the Beijing Winter Olympics, but also an important principle in the development of a city."

Tsinghua has undertaken sustainability-related research in many fields and disciplines. The University has set up the Research Center for Green Economy and Sustainable Development in cooperation with the Volvo Group, integrating research resources in all disciplines and providing high-quality advice on strategies and policies for government and enterprises as a top think-tank in sustainable development.

As part of China's bid to host the 2022 Winter Olympics, Professor Zhang Li and his team from the School of Architecture at Tsinghua spent ten months preparing a sustainable development strategy for the bid application.

The concept of "sustainability" was emphasized by the International Olympic Committee (ICO) President Thomas Bach in the Olympic Agenda 2020. It encouraged candidate cities "to present an Olympic project that best matches their sports, economic, social and environmental long-term planning needs."

The philosophy of "sustainability" has for many years underlain Zhang's research in architecture. "To achieve sustainability requires much more than mechanical systems.

Sustainable development is not only a philosophy for the Beijing Winter Olympics, but also an important principle in the development of a city, says Tsinghua Professor Zhang Li.

How to save energy and protect the environment with appropriate technology and reasonable expectations, as well as due consideration of culture and the building itself, is a frequently-asked question in the field of architecture," said Zhang.

In October 2014, he accepted an invitation from the Beijing 2022 Olympic Winter Games Bid Committee to serve as the responsible person for the 2022 Winter Olympics project planning.

During the bid, Zhang applied his research and understanding of sustainability to

Tsinghua has also been in cooperation with real estate enterprises, transforming the results of scientific research to sustainable housing, thus embodying the ideas of energy saving and emission reduction.

Many changes have been seen in the last year in the Sunshine Community on Beijing's Qinghe Street. The Sunshine School curriculum was expanded, the community's environment was improved, the community market was held regularly, and an activity center for community interaction was set up. As one of the pilot communities by Tsinghua's "Qinghe Experiment", even the Sunshine Community itself was surprised by its changes.

Qinghe Street is a microcosm of a Chinese grassroots community where several local problems have arisen with China's urbanization.

The Sunshine Community is as surprised as anyone else by the many changes that have taken place after it became a pilot community in an innovative project.

The "Qinghe Experiment" is a pilot project in the innovative reform of community governance at a basic level. Professor Li Qiang, the Dean of the School of Social Sciences at Tsinghua, explained the reasons for choosing Qinghe Street: "It is the Sunshine Community's complexity and diversity that made us choose it as one of our pilot communities. There are urban and rural characteristics, traditional courtyards, and old communities as well as new apartments."

The project group proposed to establish community schools, hoping to provide residents with an interactive platform in their community, so that everybody could communicate on this platform, where congenial friends and empathy could be found. Those with specialized skills and willingness to share them were welcomed to the community "talent bank." Classes in learning English, photography, weaving and Tai Chi were started, with most of the teachers coming from this community, making the classes good examples of "lifelong learning, full participation, teaching and sharing."

The Sunshine School's success was demonstrated by a rigorous survey of residents' opinions and regular discussion on relevant issues at panel meetings. The election of panel members was pioneering work in the first phase of the "Qinghe Experiment".

Li added: "In a market economy, the government cannot do everything. It must clarify the boundaries of responsibility, maximize the vitality of communities, and help to construct a positive platform for interaction between government, market and community."

Li stressed that although Neighborhood Committees were autonomous organizations, they focused mainly on completing administrative tasks, leaving hardly any time, energy, or motivation to pay attention to the needs of residents." Panel members are selected by local residents, serving as a bridge between residents, the Neighborhood Committee, and the property management company.

Liu Huili, Director of the Neighborhood Committee, has witnessed the heartening changes since the arrival of panel meetings. "The Neighborhood Committee used to consider residents' needs from the perspective of government, without collecting the suggestions of residents, so that our efforts didn't pay off. But since the consultative committee was established, our residents have been able to determine their own business and their opinions have been conveyed to the neighborhood community. In this way, not only the quality of community service, but also the residents' sense of well-being, has improved."

Post-doctoral student Tan Xiaoyan, from the School of Social Sciences at Tsinghua, believes that only by finding the core of residents' interests and fully motivating them in the community could the entire community improve in a broader sense.

Tan Xiaoyan discovered there was no public place for residents in this community of more than 500 households to interact. To solve the problems of public spaces, such as dirty and untidy surroundings, designers tasked with improving living conditions held face-to-face communication with residents, and residents voted for their favorite program at the panel meeting in October 2014. The project group and the team from the School of Architecture spent nearly half a year to complete the community environmental improvement project.

Tsinghua's Qinghe Experiment leads to a happier community

Rural issues under the microscope at Tsinghua San Nong Forum

The China Institute for Rural Studies (CIRS), based at Tsinghua, hosted the Tsinghua San Nong Forum at the University on January 9, 2016.

Those attending included well-known experts and policy makers, committee members and representatives from the Institute, together with professors and students from colleges, universities and agriculture-related institutes.

The Three Rural Issues, known in Chinese as *San Nong,* is a reference to the three issues related to developments in rural areas in mainland China, namely, agriculture, rural areas, and farmers.

The theme of this year's forum was "Chinese Rural Reform and Development Against a Background of Building a Moderately Prosperous Society". Participants discussed new strategies for implementing new theories on development, pushing forward agricultural modernization and enriching people in rural areas.

The China Institute for Rural Studies is dedicated to seeking solutions to problems relating to agriculture, rural areas and farmers through scholars forums, field research, and student projects.

The forum included a plenary session and three parallel sessions on "Integration and Development of Primary, Secondary and Tertiary Industry in Rural Areas", "Internet and Modern Agriculture" and "Rural Reform and Development in the 13th Five-Year Plan Period (2016 to 2020)".

CIRS, since its establishment in 2011, has been dedicated to seeking solutions to problems relating to agriculture, rural areas and farmers, as well as providing theoretical support and policy advice to central and local governments. In addition to hosting yearly academic forums, CIRS has always encouraged university students to take part in summer rural research programs.

CIRS organizes students from various universities to conduct research fieldwork in rural China during their summer holidays every year, with the aim of drawing students' attention to rural societies, and encouraging students to understand the changes in rural areas by participating in San Nong studies. To encourage and reward these excellent individuals and teams, the Rural Research Award was established in 2012.

In the past four years, student research has focused on various issues including the changes in villages and the economic status of farmers. Research revealed urgent and real problems in the progress of rural development in China. The research was carried out through field studies, interviews, questionnaires and statistical analysis. More than 2,000 students from over 20 universities participated in the program. They visited about 900 villages and 20,000 households, and completed more than 300 research reports. The results from their research, including reports, books, policy proposals, and a database, have provided essential information for a deeper understanding of the Three Rural Issues.

In 2015, the research program attracted 500 undergraduates nationwide, with 27 provinces and regions surveyed, over 270 villages visited, more than 5,000 copies of questionnaires handed out, and 71 reports completed. The research topics included multiple aspects of rural land, ecological agriculture, rural water conservancy, rural education, farmers' income, and grassroots governance.

Students conducting field study in rural China

Tsinghua President Qiu Yong was invited by the Asia Society Hong Kong Center to deliver a keynote speech in the Ambassador Burton Levin Lecture Series on December 14, 2015. He is both the first Chinese speaker and the first university president to address at the series since its establishment in 1995.

In the lecture, President Qiu shared his insights on several issues, including the evolution of the function of universities, the characteristics of the era of innovation, and the mission of universities in that era.

His address, "The Mission of Universities in an Era of Innovation," attracted an elite audience of more than 180 people from all walks of life in Hong Kong. Tsinghua University Vice President and Provost Yang Bin also attended the event.

The Ambassador Burton Levin Lecture Series was established to boost, widen, and enrich dialogue about intra-Asian relations and US-Asian relations. President Qiu

President Qiu Yong delivering a keynote speech in the Ambassador Burton Levin Lecture Series on December 14, 2015.

was following in the footsteps of prominent speakers such as former US President George H. W. Bush, and former US Secretary of State James A. Baker. Other luminaries to address the lecture series include Jonathan D. Spence, Sterling Professor Emeritus of History from Yale University.

Quotations from Qiu's Speech on the Mission of Universities

A university should adhere to the pursuit of truth, as a long term goal, guarding the lighthouse and the human spiritual home.

Universities have a dream; dream is also the premise of innovation. Universities should not only teach students to dream, but also encourage them to stick to their dreams, and help students to gain the ability to realize their dreams.

People need to have the ability to innovate. Universities should reform the curriculum and disciplines, and update educational philosophies and school systems, to pave the way for the cultivation of innovative talents, and actively promote a globalization strategy, to encourage students to develop creative thinking in a multi-cultural context.

The spirit of innovation also means that universities have to keep to their own unique philosophy, form an educational ideology that is consistent with the environment of the educated, and foster unique qualities of talent, thus completing the mission of the university.

During this era of innovation, the university should not passively blend in with society, but rather its role is to take the initiative to use advanced technology and ideas to promote social development, and to effectively be the engine driver. Different universities in different countries have their own perception of what it means to lead.

China is currently in a stage of rapid growth and development. This special historical period will confer a new mission onto China's universities. Tsinghua University and other Chinese universities all shoulder this responsibility, providing valuable thoughts for social transformation, and sending China's voice out to the world.

The university as an institution was born in the year 1088; 2088 will be the millennial anniversary of the world's universities. What the scenario will be like then is worth looking forward to.

President Qiu Yong: The Mission of Universities in an Era of Innovation

The Inaugural Forum of Presidents of Israel-China Higher Education Institutions was held on March 29 in Jerusalem. Chinese Vice Premier Liu Yandong delivered a keynote speech at the forum.

An MOU is signed in Israel by Tsinghua University and Tel Aviv University to strengthen their cooperation in innovation, entrepreneurship and scholarship. Both are members of the 7+7 Research University Alliance.

innovation are the inherent missions of a university. It is a place where we pass on civilization, sow our hopes, nurture our dreams, and create our future. I believe that with the joint efforts from universities in China and Israel, collaboration in technological innovation between the two countries will be greatly strengthened," said Qiu.

During the forum a number of educational or research agreements were signed, witnessed by Chinese Vice Premier Liu Yandong and Israeli Minister of Education Naftali Bennett. The agreements included a Memorandum of Understanding by Tsinghua University and Tel Aviv University on comprehensive cooperation in innovation, entrepreneurship and scholarship.

Professor Qiu Yong, President of Tsinghua University, shared his insights into future cooperation between the two countries. "Cultural inheritance and technological

Led by Tsinghua University, the "7+7" Research University Alliance was founded in 2014 with the aim of promoting strategic cooperation between China and Israel.

"An open call for joint projects last year at Tel Aviv University and Tsinghua University resulted in more than 100 project proposals in biology, materials science, healthcare, energy, environment, electronics, aerospace and other fields," said Professor Joseph Klafter, President of Tel Aviv University and the representative of the Committee of University Presidents of Israel.

Tsinghua and Tel Aviv University vow to advance comprehensive cooperation

The forum was organized by China's Ministry of Education and Tsinghua University, together with the Council for Higher Education of Israel. Senior administrators of the members of the 7+7 Research University Alliance, along with representatives of 28 other invited peer universities and colleges, attended the forum. They signed a number of agreements that will strengthen future collaboration in higher education, cultural exchange, and technological innovation between the two countries.

As the members of the 7+7 Research University Alliance, the seven Chinese universities include Tsinghua University as initiator, Peking University, Nanjing University, Renmin University of China, Shandong University, China Agricultural University, and Northwest A&F University.

The Israeli counterparts include Technion — Israel Institute of Technology, Tel Aviv University, the Hebrew University of Jerusalem, the Weizmann Institute of Science, Ben-Gurion University of the Negev, the University of Haifa, and Bar-Ilan University.

An MOU was signed by Tsinghua President Qiu Yong (front right) and TAU President Joseph Klafter (front left), witnessed by Chinese Vice Premier Liu Yandong (back right) and Israeli Minister of Education Naftali Bennett (back left).

The first student group of the
Indian Culture Immersion Program

Tsinghua students attend the Culture Immersion Program in India

Twenty undergraduate students from 14 schools and departments at Tsinghua travelled to India on January 15 to attend a 19-day Indian Culture Immersion Program.

On their arrival in India, the students were warmly welcomed by their host, O.P. Jindal Global University, where they stayed during their visit.

The program agenda included in-class learning in the mornings and off-

As the first overseas study program of the "Tsinghua Global South Culture Immersion Series", the Indian Culture Immersion Program has enabled students to better understand an emerging India from both academic and social perspectives.

campus visits in the afternoons. Students attended a series of morning lectures, covering topics such as Indian politics, economy, culture, science and technology.

The lecturers included professors and scholars from O.P. Jindal Global University, as well as famous and highly respected public figures, such as representatives from Clean Air Asia, an NGO. They also had group discussions on hot issues like Sino-Indian relations, NGO organizations, and environmental protection.

In the afternoons, students left the campus and made trips to various institutions around Delhi, including the United Service Institution of India, the Tata Consultancy Services, and the Foreign Service Institute. They also visited Navjyoti, a rural NGO organization, where they investigated how local people organized rural autonomy and realized sustainable development. At a meeting held at the Sino-Indian Chamber of Commerce, the students exchanged views with the local entrepreneurs on Sino-Indian relations. Such visits enabled students to better understand an emerging India from both academic and social perspectives.

During their stay in Delhi, the students also visited some cultural spots around the city, including the Gandhi Smriti Museum, the Gateway of India, and the Taj Mahal, a UNESCO World Heritage Site.

The Indian Culture Immersion Program is the first overseas study program in the "Tsinghua Global South Culture Immersion Series". The series aims to broaden the minds of students and cultivate an inclusive outlook on the world.

Li Yimeng, a student from the School of Humanities, commented after the program that the 19-day visit had been very fruitful. "The unique Indian culture and scenery were attractive. I enjoyed sharing my thoughts and ideas with the Indian students on a wide range of topics from food and films to the environment and politics."

"The program combined study with visits, just as the old Chinese saying goes, 'Read a lot of books and travel a long way.' Yes, I have learned a lot and seen a lot," said Li.

Tsinghua and UNICEF join forces to help disadvantaged children

Tsinghua and UNICEF join in a partnership to bring together creative problem solvers from China and around the world in developing products and services to improve the well-being of vulnerable children.

Tsinghua University and the United Nations Children's Fund (UNICEF) signed a new long-term partnership on March 21 to use innovation, design and technology to help reach some of the poorest and most disadvantaged children across the world.

The partnership was launched at an official event at Tsinghua by the Chairperson of the Tsinghua University Council Chen Xu and UNICEF Deputy Executive Director Yoka Brandt.

As part of the partnership, the Tsinghua Global Innovation Center for Children (GICC) will be established, where products and services to improve the well-being of vulnerable children can be developed. Creative problem solvers from China and around the world will be brought together to develop innovative solutions. These will help towards meeting the Sustainable Development Goals (SDGs) adopted by United Nations member states last September.

"Tsinghua is dedicated to educating the next generation of innovators who are committed to bringing about transformational technological breakthroughs as well as positive social change," Professor Chen Xu said. "Partnering with UNICEF provides an opportunity for Tsinghua to take part in the global cause for children and sustainable development."

One of the partnership's aims will be to use innovation as a way of achieving cross-sector collaboration between academia, young people, and the private sectors, as well as South-South cooperation.

"This partnership is an exciting opportunity to tackle some of the immense challenges faced by children in China and across the world, through creative and innovative solutions. The new partnership with Tsinghua University is a vehicle for concrete and practical action to improve the lives of millions of children," said Brandt.

The new partnership comes after two years of cooperation between Tsinghua and UNICEF that has included a youth-focused program as well as a Youth Innovation Forum which has already brought together young innovators from the southern hemisphere.

The partnership will identify projects, products and services developed in China that can improve welfare, public services and governance, evaluating how their potential can be adapted, localized or scaled-up. It will also work towards enhancing and inspiring the leadership, global citizenship and innovation capacity of young people, and foster a better understanding of the welfare and sustainable development of children to improve their lives.

Chairperson of the University Council Chen Xu (left) and UNICEF Deputy Executive Director Yoka Brandt (right)

Tsinghua to set up institute on drug discovery with the Bill & Melinda Gates Foundation

MOU signing ceremony

At a meeting in Davos, Switzerland on January 22, Qiu Yong, President of Tsinghua University, and Bill Gates, Co-chair of the Bill & Melinda Gates Foundation (BMGF), agreed to co-found the Global Health Drug Discovery Institute (GHDDI) in Beijing, and signed a memorandum of understanding.

Committed to creating an advanced drug discovery and translational platform, the Institute will contribute to innovative pharmaceutical R&D for developing countries. The Institute will be the first research and development center of its kind in China.

The GHDDI (Beijing) will enter into a strategic alliance with the California Institute for Biomedical Research (Calibr). This partnership will help the Institute strengthen its expertise and capacity in translational medicine.

The GHDDI in Beijing aims to create a transformative drug discovery and translational medicine institute for global health with advanced biomedical research and development capabilities. The institute will tackle major diseases faced by many developing countries, including China.

The establishment of the GHDDI is an important effort by Tsinghua University to advance pharmaceutical research and translational medicine.

President Qiu emphasized that, in parallel with the development of the pharmaceutical sciences, Tsinghua University will leverage its strengths in related disciplines such as chemistry and chemical engineering, materials science, medical engineering, and information technology to enhance its overall capabilities in biomedical research.

Qiu said, "I hope this initiative will facilitate the reform of the pharmaceutical R&D

Tsinghua and BMGF have signed an MOU for a drug discovery institute which will be the first research and development center of its kind in China.

system in China and impact global health."

Bill Gates said: "China has made incredible progress in reducing poverty and shares the foundation's commitment to harnessing advances in science and technology to address the critical health challenges affecting the world's poorest."

"We are excited about the GHDDI's potential to drive innovation in global health research and development, and look forward to partnering with Tsinghua University on our continued work to address the world's most pressing global health challenges."

As co-founding partners of the GHDDI (Beijing), Tsinghua University will invest various resources to support the Institute, including talents/scientists, programs, and facilities, as well as operation and management, whereas the BMGF will provide financial support as well as assistance on institutional development. The GHDDI (Beijing) is expected to build an open and collaborative environment, and to attract and work with many more outstanding partners from China and around the globe.

According to Professor Ding Sheng, the Dean of the School of Pharmaceutical Sciences of Tsinghua University, the School will collaborate with its partners to assist the GHDDI (Beijing) in its future development.

Ding said: "As the Institute's mission aligns with the development strategy of the School of Pharmaceutical Sciences, there will be win-win cooperation in a number of respects, including technology development and translational research innovations, thus fulfilling the common vision of enhancing drug discovery and development to improve global health."

Chairperson of the University Council Chen Xu (fifth from left, first row) and Vice President Xue Qikun (third from left, first row) attend the signing ceremony.

Tsinghua University, Intel Corporation, and Montage Technology Global Holdings, Ltd. signed an agreement on January 21 to develop a new general-purpose CPU module. It will create locally developed and indigenous solutions to meet specific requirements for data center infrastructure in China.

According to the agreement, Tsinghua will develop a reconfigurable computing processor (RCP) module and associated system software that will work with a standard Intel Xeon microprocessor to add capabilities that address specific local demands. The new general-purpose CPU module, based on the integration of reconfigurable computing technology and the Intel x86 architecture, will help deal with specific local capacity. It will also meet the urgent demands of data centers and other high performance applications and servers.

Intel will provide funding and serve the growing data center market in a variety of ways, using industry-leading Intel Xeon processors and other silicon components. Montage Technology will commercialize the innovative new products that use Intel Xeon processors and Tsinghua's RCP, and deliver them to the Chinese market in 2017.

Tsinghua collaborates with enterprises to develop a new general-purpose CPU module which will address specific requirements for data center infrastructure in China.

The reconfigurable computing technology will feature both the high flexibility of a general-purpose computing system and the high performance and low power consumption of a special-purpose computing system. It is recognized as ground-breaking integrated circuit technology for the next generation.

Professor Wei Shaojun from the Institute of Microelectronics at Tsinghua University has made considerable achievements in the research of reconfigurable computing technology. Many of his internationally-recognized studies have already been applied to the industry.

The core technology developed by his team won the second prize in the 2015 State Technological Invention Awards. It also won the 2015 China Gold Patent Award, which is issued by the State Intellectual Property Office (SIPO) and the World Intellectual Property Organization (WIPO).

Tsinghua to build new general-purpose processor with Intel
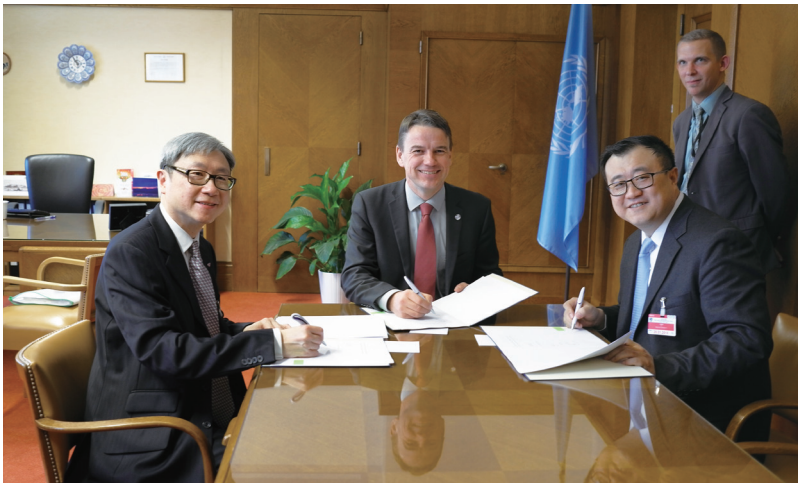
Tsinghua Vice President and Provost Yang Bin (right), CityU Vice President Horace Ho-shing IP (left), and UNECE Executive Secretary Christian Friis Bach (middle) signed the founding agreement.

Tsinghua advances PPP in partnership with UNECE

The UNECE PPP China Center aims to help achieve Sustainable Development Goals through multi-dimensional research on PPP, promotion of PPPs in China, and strengthened cooperation between China and the UN.

Tsinghua University, City University of Hong Kong (CityU), and the United Nations Economic Commission for Europe (UNECE), announced at the United Nations Office in Geneva the co-founding of the UNECE PPP China Center on January 20. Tsinghua Vice President and Provost Yang Bin, CityU Vice President Horace Ho-shing IP, and UNECE Executive Secretary Christian Friis Bach signed the founding agreement.

The new center will aim to help achieve Sustainable Development Goals (SDGs) through multi-dimensional research on Public-Private Partnership (PPP), promotion of PPPs in China, and strengthened cooperation between China and the UN.

Based in both Beijing and Hong Kong, the Center will actively participate in developing PPP standards, especially those in the field of public transport logistics (i.e., roads, subways, and high-speed railways), and will report on the best PPP practices. It will also be responsible for plans laid out in an agreement between UNECE and China's National Development and Reform Commission, including a PPP Forum, PPP training courses, and promotion of PPP demonstration cities.

"The collaboration indicates our general consensus and uniform act to tackle the challenges of SDGs," said Yang Bin, adding that international cooperation has always been essential to research and education at Tsinghua."With the new PPP China Center, Tsinghua is ready to offer unique Chinese perspectives on PPP research and help solve the most pressing problems in China with latest PPP models."

In the recent years, there has been considerable development in the research and applications of the PPP model in China, with a number of policies and regulations on PPPs published. Tsinghua University has already introduced educational and research projects into PPPs.

According to Bach, UNECE is dedicated to enhancing regional cooperation on PPPs. A number of regional PPP centers have been established, including centers in India, Spain and France. The new centers in China will mark another significant progress on PPPs for UNECE.

With a plan to establish 27 PPP standards centered on the 17 SDGs, UNECE has set up the International PPP Center of Excellence and PPP Business Advisory Board.

Tsinghua spotlight on G20 agenda and global governance

The seminar began with an introduction by Wang Yan, Deputy Director of Academic Affairs at Tsinghua University and John L.Thornton, Co-Chairman of the Brookings Institution. It was followed by keynote remarks by Bruce Jones, Vice President and Director of Foreign Policy at the Brookings Institution.

Two panel discussions followed, with the theme of "Leadership, Responsibility and Reform: Global Economic Governance" and "Innovation, Infrastructure and Climate Change". Participating were Wang Xiaolong, Special Envoy on G20 Affairs at the Ministry of Foreign Affairs, Hu Angang, Director and Professor at Tsinghua's School of Public Policy and Management, and Qi Ye, Director and Senior Fellow of the Brookings-Tsinghua Center.

As the world's two largest economies, the United States and China will both benefit greatly by a mutual understanding of each other's standpoints and views. Think tanks, like the Brookings-Tsinghua Center, contribute much to this bilateral and multilateral exchange of views.

Given that China plays a critical role on the world stage with its first presidency of the G20 this year, Tsinghua University hosted a conference on March 22 to celebrate the 10th anniversary of the Brookings-Tsinghua Center and the John L. Thornton China Center. The event highlighted how China can fulfill its 2016 G20 goal of achieving "an innovative, invigorated, interconnected, and inclusive world economy."

As part of the Brookings Centenary commemorative activities, the second meeting of the Brookings China Council was held at Tsinghua on the same day. It was the first meeting of the Brookings China Council to be held in China. A celebratory dinner was also held in Beijing, attended by State Councilor Yang Jiechi, who delivered a speech.

In celebration of the 10th anniversary of the Brookings-Tsinghua Center, the University hosts a conference highlighting how China can fulfill its 2016 G20 goal.

Tsinghua University is a significant partner of the Brookings Institution. The two institutions co-established the Brookings-Tsinghua Center for Public Policy (BTC) in October 2006.

The conference centered on keynote remarks on the significant advances China and the United States have made in think tank development and people-to-people diplomacy. Chinese and international scholars and officials put forward a set of keynote remarks and panel discussions examining Chinese and American perspectives on the G20 agenda and the present status and the future of global governance.

The BTC seeks to produce high quality and high impact policy research in areas of fundamental importance for China's development and for U.S.-China relations. It provides research by Chinese and American scholars on economic and social issues in China's development, hosts visiting researchers, and holds seminars, panels and conferences bringing together leading policy experts and officials from China and around the world.

In September 2015, the Brookings Institution announced the founding of the Brookings Council of China. Tsinghua President Qiu Yong, and John L. Thornton, Chairman of the Board of the Brookings Institution, co-chair the council.

As well as realizing the benefits of its leadership role and its accompanying obligations, China can use this opportunity as it presides over the G20 to take more action to further innovation, global security, and infrastructure development to impact and change the system of global governance in a world under increasing stress.

Chinese Vice Premier Liu Yandong (second from left, front) and Egyptian Higher Education Minister Ashraf al-Shehi (first from right, front)

Tsinghua University joined the China-Egypt University Presidents Forum and Chinese Higher Education Exhibition, both held on March 26 in Cairo, the capital of Egypt. Chinese Vice Premier Liu Yandong attended and addressed the closing ceremony of the forum. Tsinghua University Vice President Yang Bin and Cairo University Vice President Amr Adly co-hosted the forum.

This year marks the 60th anniversary of the establishment of diplomatic relations between China and Egypt. Themed by the "Belt and Road" and China-Egypt People-to-People and Cultural Exchanges, the forum aims to build a new platform to promote bilateral cooperation in education and China-Egypt friendship.

Participating in the forum were 19 Chinese universities and 21 Egyptian universities. Cooperation between Egyptian and Chinese Universities in various educational and research fields was discussed. The event strengthened the ties between Egypt and China in terms of youth exchange, research cooperation and technological innovation.

Tsinghua joins the China-Egypt University Presidents Forum and Chinese Higher Education Exhibition to promote cooperation in education, research, and technological innovation.

Chinese Vice Premier Liu Yandong and Egyptian Higher Education Minister Ashraf al-Shehi cut the ribbon for the Chinese higher education exhibition. In front of the exhibition area of Tsinghua University, Liu proudly introduced her alma mater to Egyptian officials. On finding out that the construction of the Schwarzman College was completed, Liu asked Ashraf to extend her warmest encouragement to outstanding Egyptian students to apply for this program.

During the exhibition, numerous Egyptian students made inquiries about studying opportunities at Tsinghua. Many of them were learning Chinese language and were enthusiastic about Chinese culture.

Currently, Tsinghua has enrolled four Egyptian students, all with scholarships. "The professors at Tsinghua have always been a source of inspiration and great support for me," said Dina Mohamed El-Hadi, an Egyptian student pursuing her doctoral degree in the School of Life Sciences.

Tsinghua joins China-Egypt University Presidents Forum

First cohort of Schwarzman Scholars to start at Tsinghua

An initial enrolment of 111 Schwarzman Scholars have been admitted to the newly formed Schwarzman College, Tsinghua University (SCTU), kicking off their once-in-a-lifetime experience for a Master's Degree.

All of the students in the program will concentrate on one of three main study areas — Public Policy, Economics & Business, and International Studies. They will also be immersed in an international community of élite thinkers, innovators and senior leaders in business, politics and society.

Tsinghua's location in Beijing will give students the opportunity to experience life in the capital of the world's rising economic and geopolitical power. Students in the program will be able to discover the many dimensions of China's different landscapes and cultures.

The 111 students were selected through a rigorous application process designed to evaluate proven intellectual and academic ability, as well as leadership potential, strength of character, ability to anticipate emerging trends, and desire to understand other cultures, perspectives and positions.

The inaugural class of Schwarzman Scholars, consisting of more than 100 outstanding graduates from world-renowned universities, are set to gain an in-depth understanding of modern China and the interdependency of global development, in preparation for a leadership role in the world.

More than 3,000 applications were first reviewed by a distinguished team of readers from around the world, with 300 semi-finalists invited for in-person interviews in Beijing, Bangkok, London or New York before international panels composed of CEOs, former heads of state, university presidents, non-profit executives, journalists and other leaders.

The first cohort of 111 students were selected from 75 universities in 35 countries and regions. Among them, 23 are from China, 49 from the United States and 39 from other countries and regions.

Taught in English and designed for students of exceptional caliber, courses will draw on some of Tsinghua University's most accomplished professors and visiting scholars from leading global institutions.

The program will link China and the global community, and offers a profound and distinct perspective on key global issues, helping to shape people with the potential in the future to take up key leadership roles in the world.

The architecture of the Schwarzman College embodies the cross-cultural spirit of both tradition and modernity.

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Join us to celebrate the grand opening of
the Tsinghua University Art Museum in September, 2016.