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Professor Qiu Yong Appointed
President of Tsinghua University

BRICS Economic Think-tank



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Professor Qiu Yong Appointed President of Tsinghua University



President Qiu Yong

Professor Qiu Yong, a member of the Chinese Academy of Sciences, was appointed President of Tsinghua University on March 26th, 2015.

In his inaugural speech, President Qiu emphasized that higher educational institutions should pay more attention to long term goals, since education itself is a long term process. They should be persistent in the pursuit of truth and

ideals. Higher education also means to surpass and to be inclusive, and to go beyond disciplinary boundaries, the campus, and the limits of time and space.

Professor Qiu's research interests focus on organic electronics, optoelectronics, semiconductors, and organic light emitting materials and devices. Professor Qiu and his team won

one of the only two first prizes of the 2011 State Technological Invention Awards for their work on Organic Light Emitting Diodes (OLED). The technology was used in spacesuits worn by Chinese astronauts when conducting extravehicular activities, for its lower power consumption and longer service life.

Born in Sichuan in 1964, Qiu Yong began his studies at Tsinghua in 1983 and has since studied and worked here for over three decades. He received both his bachelor's (1988) and doctoral (1994) degrees in chemistry at Tsinghua.

Professor Qiu Yong became Chair of the Department of Chemistry in 2002 and was appointed Vice President in 2009. He was elected as a CAS academician in 2013.

Professor Chen Jining, President Qiu's predecessor, served as President of Tsinghua from February 2012. He was appointed Minister for Environmental Protection in late February this year.

TIEMBA continues in Top 3 in FT EMBA Rankings

The Tsinghua-INSEAD Dual Degree EMBA Program (TIEMBA) was ranked in third place in the 2014 Financial Times' rankings of executive MBA programs. It is the third consecutive time that the Program has ranked among the top four on this list.

"These rankings reflect the successes and impact of our graduates as well as the talent of our participants," said Professor Qian Yingyi, Dean of Tsinghua's School of Economics and Management.

Prof. Qian added: "The rankings are also testament to the efforts of the faculty and staff in creating a truly exemplary management education programme."

FT EMBA rankings are calculated with 16 indices. The most important section, which accounts for 20% of the weighting value, reflects average salaries three years after graduation, as well as increases in salary. TIEMBA graduates got an average salary increase of 65% compared to their salary before

they undertook the TIEMBA program.

Also in relation to career progression, TIEMBA ranked in fourth place among the 100 EMBA programs. Many graduates mentioned how TIEMBA supports students in the process of self-assessment and discovery, in parallel with their Leadership Development Program.

Avalyn Lim, a graduate from the class of 2014, who is Global Brand Strategy Director at Skin Inc Global, said, "The program helps you to

develop a depth of self-awareness and momentum to advance yourself both personally and professionally, something that is invaluable to mid-career, forward-looking executives.”

As an intercontinental EMBA program, it offers a multi-cultural experience through Tsinghua's campus in Beijing, and INSEAD's three campuses in Singapore, Abu Dhabi and France.

Since the TIEMBA program was launched in 2007, it has enrolled 317 students from 40 countries, a quarter of them from China. The latest intake shows a male: female ratio of 3:1.

The average age of participants



Tsinghua-INSEAD Executive MBA Programme Opening Ceremony Class 2012

is 38 years, while the average work experience is 13 years. All graduates of the TIEMBA program receive

two degrees from both Tsinghua and INSEAD, as well as the global alumni networks of the two institutions.

Afghanistan President shares opinions on Asian issues

During his speech at Tsinghua on October 29th, 2014, Afghanistan President Dr. Mohammad Ashraf Ghani talked of the promotion of Asian economic integration. He expressed his hope for the establishment of deeper and wider cooperation with Tsinghua University.

President Ghani said China was Afghanistan's strategic partner, and emphasized the importance of making breakthroughs in transportation sectors,

such as railways and roadways. He also stressed the necessity of improved diplomatic ties between China, India and Pakistan.

With the rapid growth momentum of China and India, President Ghani said that Asia would become a new leader of the world economy in the 21st century. He pointed out that educational exchange is an important way to help young people from the two countries

to better know each other, strengthen their communication, and develop their friendships.

Asked by a Tsinghua student about national security issues, President Ghani suggested the notion that Afghanistan is an insecure country should be changed. As the prime need of Afghans is peace, he said the conflict-ridden country would soon be transformed and would become a center of economic activity.

President Zuma remembers Nelson Mandela at Tsinghua

December 5th, 2014 marked the first anniversary of the death of Nelson Mandela. South African President Jacob Zuma chose that date to give a speech at Tsinghua University.

During his speech, entitled “20 Years of Freedom and Democracy and the Legacy of Late President Nelson Mandela”, President Zuma recalled Mandela's speech made in Beijing in October 1992. In that speech Mandela spoke highly of China's nationwide revolution led by the May 4th

Movement in 1919. Mandela hoped that South Africa would “draw strength from the country's achievements and use that power to continue our long march toward freedom and democracy”.

President Zuma said, “Twenty years down the line, we have enjoyed the benefit of political transformation and economic growth. Our people live much better lives than they did in 1994.”

He added, “We will continue to promote President Mandela's legacy, ideas, humanity, values and his

commitment to the notion of a free, united, democratic and prosperous South Africa”.

Before the speech, Tsinghua President Chen Jining awarded an Honorary Professorship to President Zuma, and said “Tsinghua University would love to contribute to the social development of all nations, and work together with our South African counterparts to address regional and global challenges.”

Ecuador President highlights bilateral cooperation

President Rafael Correa Delgado of Ecuador delivered a speech at Tsinghua at the beginning of 2015. During the speech, entitled "The new Ecuadorian Economy: an example of why neo-liberalism is the wrong way", President Correa stressed the importance of achieving justice involving collective management, and revealed several new policies friendly to China and Chinese people, such as the upcoming agreement on visa exemption.

President Correa discussed the current situation of higher education in Ecuador, and expressed his hope that educational cooperation would be enhanced in future between Tsinghua and Ecuadorian universities, to promote personnel training, academic research and the development of innovative systems.

He also talked about the direction of Ecuador in economic development and the challenges of inequality, poverty

and unemployment and highlighted the importance of integration within the Latin American and Caribbean region.

With a campaign video, "All You Need is Ecuador", President Correa promoted Ecuador's highly diversified culture, landscape and species, saying he hoped the number of Chinese tourists would jump from the current 15,000 per year to 150,000 within a few years.

Newly elected Fellows of IEEE

Twelve alumni, four of them currently working at Tsinghua, were recently elected as Fellows of the Institute of Electrical and Electronics Engineers (IEEE).

Liu Yunhao, Dean of Tsinghua's School of Software, was the youngest of the four academics to receive a fellowship. He gained his bachelor's degree from Tsinghua's Department of Automation. His research interests include Sensor Network and IoT, Localization, Network Diagnosis, RFID, Distributed Systems and Cloud Computing.

Lu Jianhua and Zhang Zhijun, both from the Department of Electronic Engineering, also became IEEE Fellows. Professor Lu's research interests include coding theory and technology, multimedia signal processing, broadband wireless transmission, and satellite communications. Professor Zhang's research focuses on antennae and propagation modeling.

Mei Shengwei is a Professor at Tsinghua's Institute of Electrical Power

System. His research interests are power system analysis and control, modern control theory and application, and power grid complexity. He obtained his master's degree from Tsinghua's Department of Mathematical Sciences.

Apart from Lu Jianhua and Zhang Zhijun, four other alumni graduated from Tsinghua's Department of Electronic Engineering. They are Professor Chen Biao from Syracuse University's Department of Electrical Engineering and Computer Science, Hu Jianying, Principal Research Staff Member and Manager in Healthcare Analytics Research at the IBM Thomas J. Watson Research Center, Professor Xie Yuan from the Department of Electrical and Computer Engineering at the University of California at Santa Barbara, and Zheng Yahong, Associate Professor in the Department of Electrical & Computer Engineering at Missouri University of Science and Technology.

Three alumni are graduates from Tsinghua's Department of Computer Science and Technology. They are

Professor Li Baochun from Toronto University's Department of Electrical and Computer Engineering, Professor Li Keqin from the Department of Computer Science at the State University of New York at New Paltz, and Professor Li Xiangyang from the Computer Science Department of the Illinois Institute of Technology. Professor Li Xiangyang is currently an EMC Visiting Professor at Tsinghua University.

Sun Dong, who gained his bachelor's and master's degrees from Tsinghua's Department of Precision Instrument, was also made a Fellow. He is now the Head of the Department of Mechanical and Biomedical Engineering at the City University of Hong Kong.

The IEEE is the world's largest professional association for the advancement of technology. The status of Fellow is conferred on those "of outstanding and extraordinary qualifications and experience in IEEE-designated fields."

Students' stories

Han Yanjun

Han Yanjun, an undergraduate from Tsinghua's Department of Electronic Engineering, was described by some as the "God of Learning" for his remarkable transcript which shows many full marks of 100.

He has published academic papers as first author in international conferences, and attained the honor of outstanding winner in the Interdisciplinary Contest in Modeling (ICM) for US College Students. Prof. Tsachy Weissman from Stanford University, where Han Yanjun had participated in a research project, said, "Yanjun has exceeded by far my expectations of even the best and most



Han Yanjun on Tsinghua campus

senior PhD students at Stanford."

Despite being an incredible straight A student, Han is by no means merely a learning machine. He actively joins in extracurricular activities, such as organizing the Department's TMS Society activities. He participated in the Tsinghua ChallengeCup Competition and Capital Challenge Cup Competition, both unsurprisingly capturing first prize. He is also an enthusiastic waist drum performer.

Tang Shi

Working at a vineyard in New Zealand in September, 2012, was the start of a gap year for Tang Shi as a way to realize her dream of seeing the world and exploring ways of gaining self-knowledge. She travelled around 16 countries on four continents, including Singapore, Malaysia, Thailand, Cambodia, New Zealand, and France.

Setting out with only RMB3,000, she undertook various part-time jobs to support her long journey, including packaging salad in a factory, picking cherries in an orchard, and serving as a waitress in a café. Along the way, she encountered a myriad of unexpected hardships and hazards. It started at the beginning with her parents misunderstanding her gap-year



Tang Shi on her way

expedition. She was dropped halfway through a journey from Paris to Lyon by a driver who had given her a lift. With her wallet stolen and telephone charges overdue, and visa problems from Laos to Thailand, Tang Shi's growing independence, hard work, optimism, patience and wisdom always helped her overcome her troubles.

On her return, with a much clearer idea of life and a study plan, Tang Shi resolutely transferred from the School of Medicine to the School of Life Sciences, though she had achieved outstanding academic performance in her previous two-year medical studies. Meanwhile, she took up cross-cultural psychological studies in which she has a genuine interest. Her next step is to pursue research in psychology.

Student newspaper an independent observer

Run mainly by undergraduates from Tsinghua's School of Journalism and Communication, *Qingxin Times* has become the largest weekly student newspaper in China with a weekly circulation of 6,000. The newspaper positions itself as an "independent observer on campus" and expects to

voice its opinions on a wide range of topics concerning students.

Its first issue was published on November 8, 2002, to celebrate China's Journalists' Day. It is in circulation all year round, except for the winter and summer breaks. In addition to the weekly newspaper, *Qingxin Times*

publishes a New Year Special edition on January 1st.

Any undergraduate student on campus is eligible to join one of its eight boards. They are In-depth Stories (investigative articles on campus issues), Editorial (comments and original thinking), Special Topics

Architecture students win VELUX Design Award

Students from Tsinghua's School of Architecture won first prize in VELUX 2014, one of the world's leading architectural design competitions. In their project "Light, Revitalization" the team led by supervisors Zhang Xin and Zhou Rong reintroduced the Chinese traditional 24 solar terms into Beijing's Hutong neighborhoods, using light and shade to visualize time.

The team consisted of doctoral student Du Dikang and three undergraduates, Li Le, Ma Yao and Zhou Yujing. Their project was designed to lead people to restructure the relationship between daily life, time

and light, and to find valuable things that should be preserved from the past to be reconnected to modern life.

In the old solar term system, ancient Chinese people could define time with the status of light. According to this rationale, the team utilized grilles to make canopies between narrow Hutongs, which cast light stripes and shadows on the wall. Within a day the light stripes maintain a relatively fixed position and produce an oval light spot only at noon. With the passing days, the oval changes. Until a particular solar term comes, the oval becomes a perfect-circle spot at midday. Take the canopy



The winning team and the judges of the competition

of Grain Rain (the 6th solar term, April 19, 2014) for example, only at noon on that day can we see a perfect circle on the wall.

Apart from this, another two projects, "Dance of Light" and "Light-Memory of the Wounds" designed by Tsinghua students, won special recognition at the VELUX event.

The competition, co-organized by UIA, EAAE and the VELUX Group, attracts the most participants and the highest monetary awards. VELUX 2014, with the theme "Light of Tomorrow", was held in October, 2014, and attracted 2,794 teams entries from 86 countries and regions, with 802 accepted to take part.



Light,Revitalization

(comprehensive explanations of an interesting topic), Photography (photographs of high quality provided by student photographers), International Students (articles written by exchange students), Culture (articles on the historical heritage of Tsinghua), Features (articles on particular people and events), and Multimedia (WeChat platform with more than 20,000

subscribers so far).

Qingxin Times is actively involved in journalism, public services on campus and educational reform. Previous stories, such as "Hot Water Supply in Students' Apartments", "Reform on internet fee", and "Online Courses, Programs on Entrepreneurship Cultivation", have prompted policy changes on campus. Dedicated to

bringing positive changes to campus and society, *Qingxin Times* has grown steadily with the passionate input from enthusiastic students across the campus.



Rhythmic gymnasts shine in Sichuan



From left: Coach Zhou Xiaojing, Dang Weikun, Chang Yulei, He Ming, Jiang Nan, Qiu Kexin, Chen Peiyi, Lou Jing

The Tsinghua Rhythmic Gymnastics Team won group runner-up position at the Tenth Aerobics and Rhythmic Gymnastics Competition for Chinese

college students held at Southwest Jiao Tong University, Chengdu, Sichuan, on November 26th, 2014.

The team also took first place in the Five-gymnast Hoop, second place in Collective Rhythmic Gymnastics, and third place in the Five-gymnast Ribbon. This competition was in fact also the Rhythmic Gymnastics Selection League Tournament for the 2015 World University Games. Over 2,000 students from 119 universities and colleges nationwide entered the competition.

The Tsinghua Rhythmic Gymnastics Team was founded in 2012, consisting of 18 non-professional members.



Tsinghua Rhythmic Gymnastics Team members

Tsinghua wins national college tennis tournament



Tsinghua Tennis Team, from left: Fang Weiqi, Liao Chengwei, Zhang Fengyou, Zhang Boxuan and Sun Jianguo

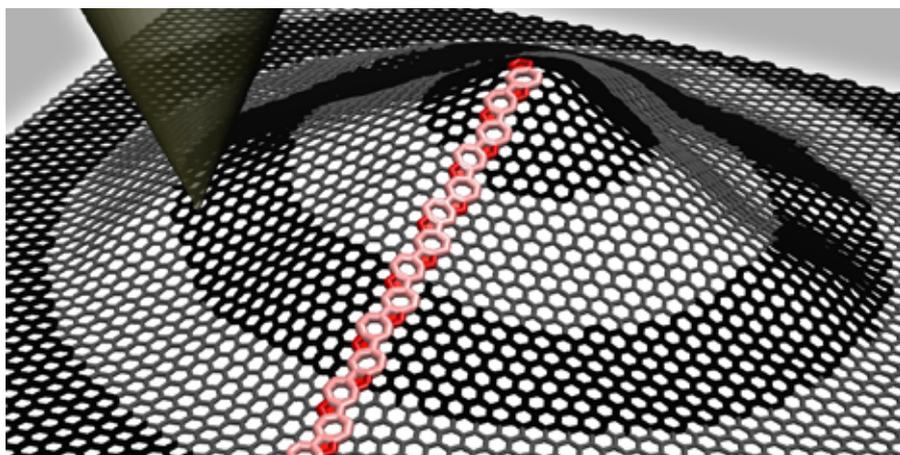
Tsinghua won the men's team championship of the amateur group in the national college tennis tournament finals held at Tsinghua in October 2014.

The finals, against Kunming University of Science and Technology, consisted of two singles and a double. Liao Chengwei from Tsinghua's

Department of Automotive Engineering took a 7-5 lead in the first single. Zhang Fengyou from Tsinghua's School of Environment and Liao Chengwei lost 5-7 in the doubles final. In the second single Fang Weiqi from Tsinghua's Department of Electronic Engineering turned the tables with a convincing 6-1 win. The Tsinghua team also included Zhang Boxuan from Tsinghua's School of Architecture.

Despite it being the first session, the competition attracted 261 teams from 134 universities and colleges. Since last November, preliminaries to select 22 teams for the finals have been held respectively in eight cities. Both men's and women's teams were divided into three groups, namely amateur, specialty and professional. Tsinghua men's team was enrolled in the amateur group.

Dual roles of defects in modulating mechanical responses of 2D materials



Atomistic simulation studies reveal the topological and geometrical effects of defects in graphene and two-dimensional materials in general.

A joint team from Tsinghua University and Rice University revealed the topological and geometrical roles of defects in modulating the mechanical responses of graphene, a single-atom thick membrane or a two-dimensional (2D) material, which provides guidance for rational material design for both structural and functional applications.

The team, led by Dr. Xu Zhiping and Dr. Boris I. Yakobson, published their research, “Defect-Detriment to Graphene Strength is Concealed by Local Probe: the Topological and Geometrical Effects”, in the journal *ACS Nano* on December 18th, 2014.

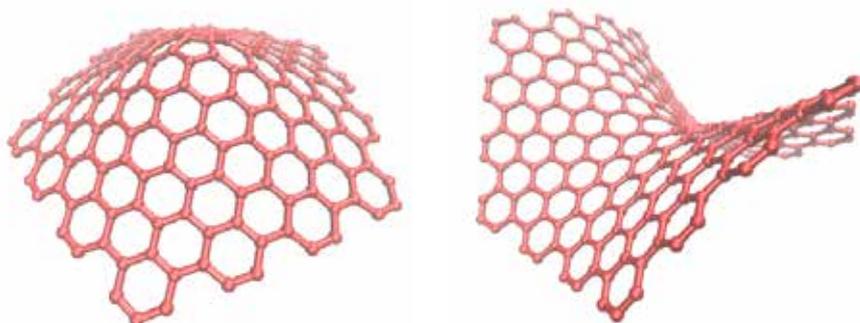
Graphene has been considered for some time as a magic material that not only features unique mechanical and optoelectronic properties, but also acts as a test bed for research on fundamental physics in 2D. Although significant effort in synthesizing graphene through techniques has demonstrated the capability of making single-crystalline graphene, the quality of continuum film of graphene and other 2D materials

is still limited at the polycrystalline level, where crystalline domains up to centimeters are patched into a monolayer material with single-atom thickness. At the interfaces joining neighboring domains, there are numerous defects created during the synthesis, which could degrade the performance of graphene-based materials and devices, within which the response of such a 2D material under mechanical perturbation becomes of key importance. In contrast to the transport properties, the mechanical strength is determined by the weakest point in the material that does not show apparent dependence on the density of

defects.

Compared to those in the bulk phase of materials, lattice imperfections in low-dimensional solids such as vacancies, dopants and dislocations play more remarkable roles in modifying material behavior. Recent experimental evidence has demonstrated that grain boundary defects in graphene are mainly composed of pentagons, heptagons and their pairs that can be considered as positive, negative disclinations and dislocations respectively. These topological defects not only create stress build-up in the material, but also warp the planar geometry of perfect graphene membrane. In recent studies by Dr. Xu’s research group and their collaborators, it was found that the pile-ups of dislocations along the grain boundaries of polycrystalline graphene led to significant stress accumulation that was scaled logarithmically with the length of the grain boundary that consists of pentagon/heptagon pairs as polar dislocations. This phenomenon is reminiscent of the well-known grain boundary strengthening mechanism in polycrystalline metals, namely the Hall-Petch relation, but originates from a different branch of physics.

In addition to this pseudo Hall-Petch effect, the distorted geometry of graphene out of its basal plane due to the presence of topological defects also modifies its mechanical response. Due



Distorted geometry of a graphene sheet containing a single pentagon (left) and heptagon (right), which can be considered as disclinations with positive and negative disclinations.

to the technical difficulties in carrying out in-plane mechanical tests of single-atom-thick membranes, such as graphene, quantitative characterization of their mechanical responses can only be made through nanoindentation. In nanoindentation, a nanosized tip is pressed onto suspended membranes to measure the relationship between force and tip displacement. This approach, however, is limited to measuring local mechanical response only, which could be very different from the global one, as experienced in practice. Specifically, the strength probed is defined predominantly by the material under the tip, rather than the weakest point within the whole material. This deficiency

becomes even more significant once the membrane buckles out of the plane, as occurs with graphene consisting of topological defects. The study by Xu and Yakobson's team demonstrates that by considering this effect, the mechanical stiffness, strength and resilience probed by the nanoindentation could be significantly under- or overestimated, depending on the detailed atomic structures and geometry under the probe.

A conclusion from these studies is that understanding of the roles of topological defects in 2D materials should thus be reassessed by considering both the topological and geometrical effects for a reliable

mechanical design of their applications. On the other hand, the topological effects could also be used to engineer 2D materials by implanting intrinsic stress, strain field and curved geometry, which is feasible as every atom of the single-atom-thick materials is exposed to the environment and can be modified.

Dr. Xu Zhiping and Dr. Boris I. Yakobson are the corresponding authors of the *ACS Nano* paper. Song Zhigong, a PhD student at Tsinghua's Center for Nano and Micro Mechanics, is the lead author. Co-authors include Dr. Wu Jian from Tsinghua's School of Aerospace Engineering, and Dr. Vasilii I. Artyukhov from Rice University.

Staying in contact, easier in water

The relative positions of floating objects can remain stable for days, despite some disturbance in water or waves. This phenomenon was illustrated and verified by a team led by Professor Zheng Quanshui from the Department of Engineering Mechanics.

They found that the formation rigidity of floating particles is a result of the existence of lateral liquid bridges between contacting particles. Acting as capillary springs between particles, the liquid bridges with contact angle hysteresis can keep the particles stable or even drag them back to their previous positions under conditions of minor disturbance. This mechanism may make assembly in water easier or more accessible.

Their findings also resolve a long-existing riddle in capillarity. Ideally, rafts of identical floating objects should assemble closely in liquid. However, the assemblies always exhibit large



Circle of caps behaves as a rigid object: wind takes it without deforming it, and waves at the water surface do not modify its shape

and various defects. The conjunction of lateral liquid bridges and contact angle hysteresis freezes the rotation of particles around their neighbors, which results in imperfect assemblies.

The team published their findings in the interdisciplinary journal *Langmuir*. The paper "Strongly Metastable Assemblies of Particles at Liquid



More compact structure with holes; there again, caps do not close-pack despite their proximity

Interfaces" was chosen by the American Chemical Society as an Editor's Choice paper. The ACS introduced its Editor's Choice in 2014 to feature new scientific articles of broad public interests to be made open to anyone at no charge. Third-year undergraduate at Tsinghua, Xue Nan, was the first author.

Successful surgical treatment of rare congenital heart disease



Dr. Wu is performing a cardiac operation with his surgical team

Dr. Wu Qingyu, Professor of Cardiovascular Surgery from the First Hospital of Tsinghua University, recently reported a successful surgical technique for the treatment of an unusual pathological anatomy of Ebstein's anomaly.

Ebstein's anomaly is a complex and severe congenital heart disease. Its common morphological change is the downward displacement of the septal and posterior leaflets, with the anterior leaflet remaining in the normal position. It is very rare for the anterior leaflet to displace downward while the septal and posterior leaflets remain in the normal position, although both leaflets may be hypoplastic.

Patients suffering from Ebstein's anomaly may have symptoms of palpitations, shortness of breath, cyanosis and poor cardiac function. They have a low quality of life and may even die from heart failure, anoxia and arrhythmia if they cannot get timely and effective surgical treatment. Some patients present life-threatening symptoms such as dyspnea and congestive heart failure. The one-year survival rate is about 15%, of whom up to a half may die before they reach the age of two.

The anatomical repair technique developed by Dr. Wu has proved to be the best surgical treatment. Six patients with the abnormality underwent anatomical repair by Dr. Wu at the First Hospital of Tsinghua University, and excellent results were achieved. At follow-up from 2 months to 7 years, no notable tricuspid valve regurgitation or stenosis was found.

Dr. Wu's team reported their achievements in the article, "Anatomical Repair of Ebstein's Anomaly with Isolated Anterior Leaflet Downward Displacement", published in the October 2014 edition of the *Journal of Thoracic and Cardiovascular Surgery*, the official journal of American Association for Thoracic Surgery (AATS). This was the first report of cases with such kind of abnormality.

Dr. Wu is a renowned cardiac surgeon, who pioneered surgical treatments of congenital heart diseases. He was the first Chinese surgeon invited to speak on the topic of "Surgical Treatment of Ebstein's Anomaly" at the 87th annual meeting of AATS. He is also a governing councilor representing China and Asia on the World Society for Pediatric and Congenital Heart Surgery.

Sixteen projects win 2014 National Science & Technology Awards

Sixteen scientific research projects carried out by faculties at Tsinghua won accolades in the National Science and Technology Awards for 2014.

The sixteen projects won five State Natural Science Awards (SNSA), three State Technological Invention Awards (STIA), and eight State Scientific and Technological Progress Awards (SSTPA).

The winning projects covered various research areas, including computer science, thermal engineering, physics, medicine, electronic engineering, and automotive engineering.

Professor Zhang Xiaoxue from the Department of Computer Science and Technology and his team won the only first prize for State Natural Science Awards for their research on network computing paradigms and their fundamental theories.

It brings the total number of national awards for science and technology received by Tsinghua to 487.

Tsinghua Changgung Hospital starts operation

After 10 years of preparation and construction Beijing Tsinghua Changgung Hospital finally opened its doors in November 2014 in Tiantongyuan, a residential area of up to 700,000 people in Beijing's Changping District.

Integrating medical treatment, teaching, scientific research, prevention and rehabilitation, the new hospital aims to provide the best general medical service to patients. The hospital features 44 clinical and technical departments, including internal medicine, surgery, obstetrics and gynecology, pediatrics, ophthalmology, and dentistry, as well as clinical laboratory, pathology, and radiology departments. The first-stage project alone can accommodate 1,000 in-patients.

Precision Surgery for Health Care

Tsinghua Changgung Hospital is the first in China to use 3-D solutions

in hepato-biliary-pancreatic surgical operations. By mid-March, the hospital had completed 10 biliary tract cancer curative resections, with six of the patients assessed as ineligible for surgery at other hospitals.

By reproducing an original liver prototype using 3-D image reconstruction and printing technology, doctors are able to observe the channels and focus of infection in the liver. The technology accurately guides doctors close to the location of lesions, helps them to make surgical plans, and avoids incorrect operations. With 3-D real-time navigation, the technology decreases the amount of internal bleeding as well as surgical complications, and reduces the duration of operations.

The hospital's goal is to promote the concept of precision health care services for every patient. Relying on Tsinghua's advantages in interdisciplinary research, a precision-surgery research institute has been established. Several departments, including the Department



of Biomedical Engineering, the Department of Automation and the Department of Microelectronics and Nanoelectronics, have teamed up to develop medical materials and instruments.

Many sophisticated medical facilities have been equipped. These include the world's first coronary energy spectrum machine [Discovery CT750HD FREEdom], a magnetic resonance imaging machine [Discovery MR750 3.0T], a Digital Subtraction Angiography X-ray machine [GE Innova 4100 DSA] and an Elekta Synergy series medical linear accelerator.

Academic and Research-Oriented Hospital

The hospital, constructed with the support of Taiwan Chang Gung Memorial Hospital, is the third affiliated teaching hospital of Tsinghua. The key mission of the hospital is to integrate professional education and develop innovative clinical research. Since its opening, the hospital has held 21 academic lectures delivered by 27 medical experts from around the world, which is also part of the training program. Various forums and summits



Dr. Edward Hogan, a neurologist, treats a child patient

on different areas have also been held.

The hospital has built relationships with the Johns Hopkins Hospital, Mayo Clinic, University of Pittsburgh Medical Center, and other institutions. In February 2015, a case-consultation on neurology was conducted using remote video conferencing facilities with Dr. Edward Hogan from Washington University in St. Louis.

Tsinghua was ranked first in basic medicine in 2013 by the Chinese Ministry of Education. A clinical medicine research institute focusing on clinical issues is to be set up later.

In June 2014, an article, “Three dimensional structure of human γ -secretase” written by a group led by Professor Shi Yigong, was published in *Nature* magazine. The article highlighted a breakthrough in the understanding of the causes of Alzheimer’s disease. In May 2013,

brain pacemakers developed by Tsinghua faculty were used in clinical applications. Related research also includes artificial organs combined with 3D printing solutions and other medical technological innovations.

Highly Effective and Convenient Services to the Public

Tsinghua Changgung Hospital has implemented an “Attending in charge system”. An Attending physician is responsible for a patient’s entire medical treatment and long-term follow-up to ensure the completeness and continuity of the treatment. Attending physicians are assisted by Certified Registered Nurse Anesthetists (CRNA), medical clerks and physician assistants for efficient treatment.

Each patient is cared for by a team of



nurses responsible from hospitalization, disease care, daily nursing, health education, medication treatment, and symptom-observation to out-patient service.

A specialized social service department has also been set up at the hospital. Dedicated hospital volunteers provide public services for neighboring communities. A series of activities including lectures and free clinic services are organized about 10 times each month.

Free recycled bicycles on campus



Recycled bikes ready to go

Tsinghua’s Green Office and Security Office gave out 200 recycled bicycles free of charge to students and faculty members at the beginning of 2015. The bicycles were all reclaimed from abandoned bicycles left on campus.

Bicycles are the primary and most convenient transport vehicle on Tsinghua’s extensive campus which

covers 394 hectares. Parts of the campus limit access by cars. Each year when students graduate, their bicycles become a problem. Liang Lijun, Deputy Director of Tsinghua’s Green Office, says about 1,000 “zombie” bicycles are left after the graduation season. Many are still usable after a little maintenance and renovation work.

They would collect these bicycles, remove the broken parts and replace them with relatively good parts from other bikes or new replacements, then paint the recycled bikes in purple before they are ready for the road. The first batch of 525 bicycles was snapped up by new owners within just a few days. Each of the bicycles came with a one-month warranty.

Jiang Hai, a student at Tsinghua, said the “new cycles from old” scheme saved students the expense of buying new bicycles and also helped the university deal with its abandoned bicycle “mountain” more easily.

The recycling initiative also helps promote a low-carbon lifestyle on campus. With free and handy tools, more faculty members have chosen to ride bicycles instead of driving cars around the campus.

Sun Mengnan said he used to drive about one hundred kilometers a month on campus. By switching to a free bicycle, he not only saves nearly RMB 100 on his monthly fuel bill, but also helps reduce air pollution.

Careers fair for Postdocs and PhD students

PhD students and post-doctoral scholars wondering where to go after they have finished their degree or research programs were given the perfect answer at Tsinghua in late 2014.

A Careers Fair aimed especially at postdoc scholars and PhD students

provided an opportunity to discuss ideas, answer questions and help resolve any uncertainties.

Over 130 universities, research institutes and companies from across China participated in the event. With face-to-face communication, more than 500 PhD students and postdocs found

positions of interest.

The Careers Fair was organized by Tsinghua's Postdoctoral Management Office. Since 2004, such events have been held annually to provide diversified career opportunities for high-level academic personnel.

Tsinghua and Yale launch Dual Master's Degree Program in Environment

A dual master's degree program in Environment was jointly launched by Tsinghua's School of Environment (SOE) and the Yale School of Forestry and Environmental Studies (F&ES) at a signing ceremony on October 27th, 2014.

The program aims to foster future international and creative talents in environmental studies to better tackle major environmental problems faced by various regions and in some cases, the whole world. A five-year pilot run

for the program will see six students enrolled each year. Students admitted to the program will study courses taught in English for three years. One noteworthy point is that the program will use the double-tutor system, with each university designating a tutor to guide one student. The first group of dual-degree students are scheduled to register in August 2015. Around 28 joint master programs have now been launched at Tsinghua.



The signing ceremony



BRICS Economic Think-tank

Co-organized by the Center for China in the World Economy, Tsinghua University and Reinventing Bretton Woods Committee, the inaugural BRICS (Brazil, Russia, India, China and South Africa) Economic Think Tank Forum was held in Beijing on November 6th, 2014.

Over 150 government officials, scholars, and specialists from all the BRICS countries, as well as from other countries, participated in the event, during which the BRICS Economic Think-tank was launched. Members of the Think-tank include economists, banking executives and government advisors from all five BRICS countries.

The Think-tank released its first report, “The BRICS: from Concept to Concrete” at the Forum. The report covers both unfavorable and unreasonable elements of the existing international financial system, and an analysis of the basis of internal cooperation between the five BRICS countries. It also looks into concrete



prospects of cooperation within BRICS followed by constructive suggestions.

All five BRICS countries share a number of common characteristics, such as a huge potential for growth, a high rate of savings, and a big demand for investment.

David Daokui Li, director of the Center for China in the World Economy at Tsinghua University,

and a promoter of the event, said that apart from the report presented at the conference, the Think-tank would not only provide a platform for further discussion and exploration, but also conduct substantial research to promote practical cooperation among the BRICS countries.

Conference on additive manufacturing and bio-manufacturing

Additive manufacturing, better known to many people by its popular name of 3D printing, has become a worldwide technological trend as new ways are sought to innovate many aspects of peoples' lives. It was a subject put under the spotlight at the Fourth International Conference on Additive Manufacturing and Bio-Manufacturing (ICAM-BM). Organized by Tsinghua's Department of

Mechanical Engineering, the event was held in Beijing from November 12 to 14, 2014.

Almost 200 experts and scholars took part in the conference. Over 80 reports were presented on topics including cell printing technology, scaffold 3D printing technology, metal additive manufacturing, novel additive manufacturing technology, design with

3D printing and novel application.

The series of conferences organized by Tsinghua have been the largest conferences in Asia on rapid prototyping, additive manufacturing, bio-manufacturing and 3D printing. Sponsors of the conference included the State Administration of Foreign Experts Affairs of China, National Natural Science Foundation of China, Beijing Municipal Science and Technology Committee, the Chinese Mechanical Engineering Society and the Chinese Society for Biomaterials.

Spring on Tsinghua campus

