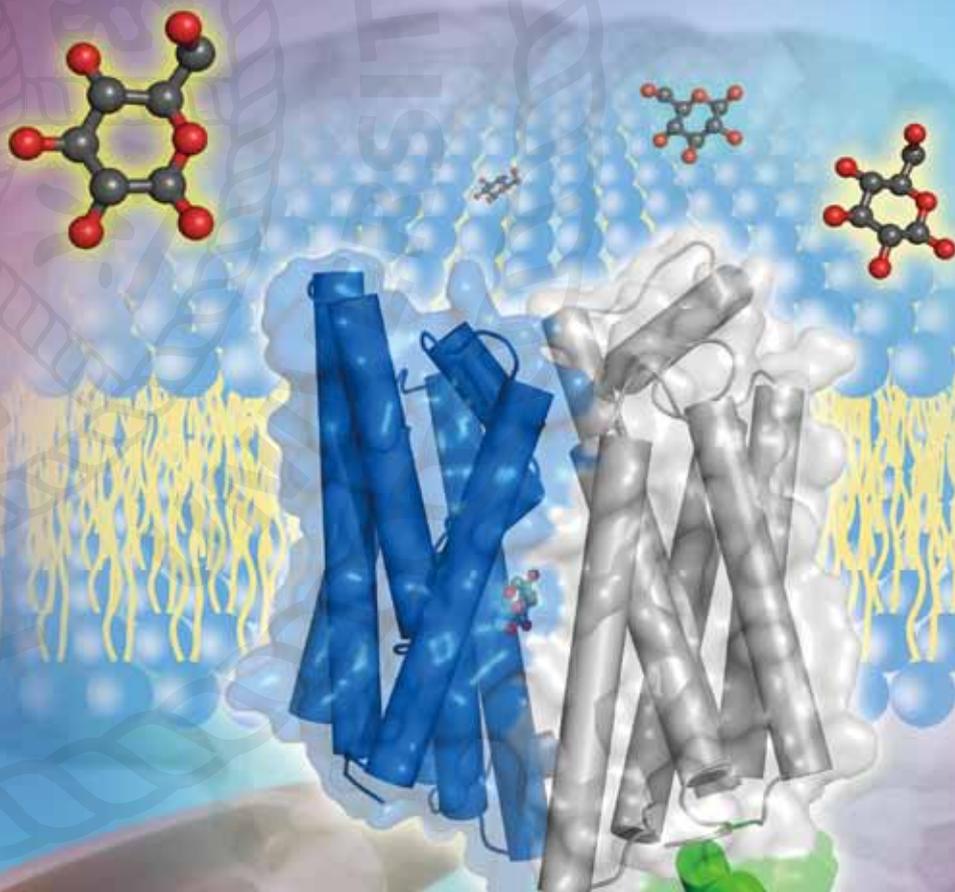




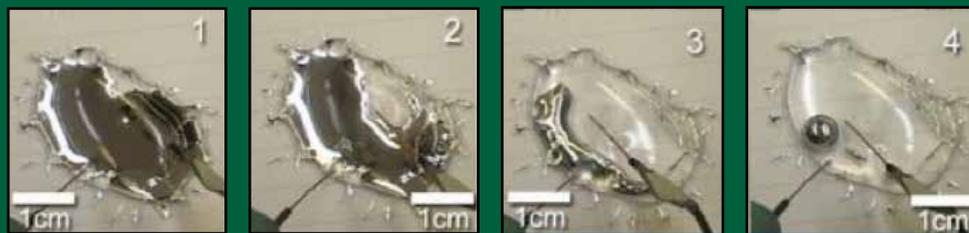
清华大学
Tsinghua University

Tsinghua Newsletter

Issue **26**
October 2014



Breakthrough in Glucose Transporter Research



Transformable Liquid Metal Opens New Way of Making Soft Robots

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News & Events

Tsinghua Welcomes New Students

More than 3,500 new undergraduates registered for the 2014 Academic Year at Tsinghua University on August 27th.

Over one third of the freshmen, 1,227 in total, are female. The gender ratios differ significantly among different departments and schools. For instance, the Department of Physics and the Department of Mechanical Engineering have the highest male-to-female ratio, whereas the Department of Foreign Languages and Literatures

and School of Journalism have far more female than male students.

Class 2014 undergraduates come from over 1,200 high schools. About four out of five, around 81 percent of the total, are enrolled through the National College Entrance Examination (the *Gaokao*) as candidates in science and engineering disciplines. Among the remaining freshmen, 12 percent are enrolled as candidates in humanities and social sciences, and 7 percent in arts.

On September 2nd, new postgraduates,

including about four thousand master's students and two thousand PhD candidates, registered at Tsinghua.



Two Faculty Members and Two Alumni Win Qiu Shi Science Awards



Professor Xue Qikun

Professor Xue Qikun from Tsinghua's Department of Physics has won the only Qiu Shi Outstanding Scientist Award in 2014. Another faculty member, Dr. Xie Wei from the School of Life Sciences, received the Qiu Shi Outstanding Young Scholar Award on September 13th, 2014.

Professor Xue's research team



Dr. Xie Wei

reported the first experimental observation of the quantum anomalous Hall effect in 2013, which was a breakthrough in the field of condensed matter physics. His research interests also include low temperature scanning tunneling microscopy (STM) and spinpolarized STM, fabrication and quantum effects of low-dimensional nanostructured materials,

and moleculebased spintronics.

Dr. Xie has made important contributions to deciphering the epigenetic mechanisms underlying development information inheritance across generations and during cell differentiation.

Two Tsinghua alumni, Dr. Zhao Jun who graduated from the Department of Physics in 2002, and Dr. Zhang Chuan who graduated from Tsinghua's Department of Chemistry in 2003, also won Qiu Shi Outstanding Young Scholar Awards.

The Qiu Shi Outstanding Scientist Award was launched and is organized by the Qiu Shi Science and Technologies Foundation. The foundation was established in 1994 by Mr. CHA Chi Ming and his family with an initial fund of US\$ 20 million. Its primary mission is to promote scientific and technological progress in China by recognizing and rewarding successful Chinese scientists and scholars.

ACM MobiCom 2014 Best Paper Award Won by Tsinghua Researchers

A research team from Tsinghua's School of Software has won the only Best Paper Award at this year's ACM MobiCom held in Hawaii between September 7th and 11th.

The Paper "Tagoram: Real-time Tracking of Mobile RFID Tags to High Precision Using COTS Devices", was co-authored by the research team led by Professor Liu Yunhao, with postdoctorate Yang Lei, postgraduate Chen Yekui, undergraduate Xiao Chaowei, Tsinghua Visiting Professor Li Xiangyang and alumnus Li Mo.

Their research focuses on the issue of object localization and tag tracking. In their paper, they first proposed

the method based on a holograph of enhanced differences and successfully improved its precision to a level of just one millimeter. Furthermore, they first introduced the concept of inverse aperture radar, overcame difficulties such as noise measurement and label variety, and precisely located the label by applying the relevance and mobility of its location. This high-precision and real-time tracking technology is one of the core technologies involved in the artificial baggage sorting auxiliary system co-developed by Hainan Airlines and the Tsinghua research team.

ACM MobiCom, founded in 1995, is considered one of the top three

international conferences on computer networking. Among 200 research papers submitted at this year's MobiCom, 36 were accepted.



Yang Lei (left) and Professor Liu Yunhao (right)

German Chancellor Merkel Discusses Sustainability at Tsinghua



German Chancellor Angela Merkel speaks at Tsinghua

German Chancellor Angela Merkel delivered a speech at Tsinghua on July 14th focusing on sustainable development. Chancellor Merkel's visit was hosted by Tsinghua President Chen Jining. About six hundred faculty members and students attended the event.

Chancellor Merkel made her opening remarks in Chinese and spoke highly of Tsinghua's motto of "Social Responsibility". She remarked on

Tsinghua as an innovation hub where freedom and openness are greatly valued. Over the past years, Tsinghua University has maintained fruitful and long-term relationships with many prestigious German universities and enterprises.

Chancellor Merkel said she was deeply convinced that sustainable development, instead of jeopardizing economic growth, will bring opportunities

for countries to enjoy more resources and live a better life. In her opinion, it is unwise to separate economic performance from environmental protection and social responsibility. She also expressed interest from German enterprises in cooperating with their Chinese counterparts in fields of urbanization and environmental protection. Given China's current status as the world's second-largest economy, Merkel added that Beijing is playing an increasingly significant role in international affairs.

After her speech, Chancellor Merkel answered questions raised by Tsinghua students, covering a wide range of areas including her switch from a research scientist to a stateswoman and the difference she felt as a female chancellor. When asked about the different attitudes taken by Germany and Japan towards their respective involvement in World War II, Chancellor Merkel frankly admitted that self-reflection was not an easy process and Germany suffered a lot of pain. However, the German approach to face their history is a proper one, as it will prevent future generations from repeating the same mistakes, she added.

Vice President of South Sudan Speaks at SPPM

Vice President James Wani Igga of South Sudan visited Tsinghua on July 2nd and gave a speech entitled “A Brief History about South Sudan's Struggle and the Future Perspectives of South Sudan-China Relations” at the School of Public Policy and Management (SPPM).

In his speech, the Vice President highlighted the historical background of South Sudan and developments in educational and cultural areas, sharing his views on bilateral relations and cooperation between China and South Sudan. He said that South Sudan has a deep friendship with China, and complimented the Chinese for their assistance in promoting long-term peace, stability and economic development in South Sudan.

Currently, two South Sudanese students are studying at Tsinghua. Vice



Vice President James Wani Igga of South Sudan speaks at SPPM

President Igga hoped more young South Sudanese would study at Tsinghua, and that more science and technology

cooperative projects, and student and faculty exchange programs, will be developed in the future.

Danish Prime Minister Visits Lifelong Learning Lab



Danish Prime Minister Helle Thorning-Schmidt talks with members of the Lifelong Learning Laboratory

Danish Prime Minister Helle Thorning-Schmidt visited Tsinghua University on September 11th, and met students who use LEGO bricks as a tool in their curriculum at Tsinghua's Lifelong

Learning Laboratory.

During her visit to Tsinghua University, the Prime Minister was given a briefing from members of a program: “LEGO 2 NANO”. The program tasked

24 teenagers from China and Europe to develop within just one week, and using LEGO bricks, a new type of low cost scanning nano-microscope able to actually work in nano-technology research. By using LEGO bricks with the principles of working robots, the program aimed to explore a new approach to enhance student creativity in the study of technology.

Professor Xu Yingqing, Director of the Lifelong Learning Lab from Tsinghua's Academy of Arts and Design, and Professor Francois Grey, co-director of the Lab, introduced the history and current development of the Lab. Zhang Xuyang, a grade-five girl from Tsinghua Primary School, who is also a member of the lab, presented a gift she had made herself to Helle Thorning-Schmidt, a caricature of Prime Minister Thorning-Schmidt. She also showed Helle Thorning-Schmidt designs made by her and her schoolmates.

Student Education & Development

Postgraduate Thesis Defenses on MOOC

Collections of Tsinghua University postgraduate thesis defenses, uploaded in June onto XuetangX.com, a massive open online courses website launched by Tsinghua, has had thousands of registrations in just a few days.

This online course features a selection of video recordings of oral defenses by Tsinghua postgraduates for their master's or doctoral degrees. The videos record thesis defenses by 21 postgraduates, majoring in areas such as aerospace, architecture, automation, chemistry, computer science, economics, environment, finance, humanities and physics.

The oral defense is an essential part for every student pursuing a degree from Tsinghua, especially at postgraduate level. After completing their thesis, the degree candidate needs to present and defend their findings before a committee comprising five to seven experts, some from Tsinghua and others external to the

university.

Based on their professional knowledge, the committee members decide whether the thesis and research done by the candidate reached the necessary level to earn a degree, or whether further modification or more input is needed to verify the conclusions.

It was the first time such material had been uploaded onto XuetangX. Besides online courses, the Tsinghua TV station also broadcasts live defenses on its website.

Normally oral defenses are only watched by an audience ranging from several to around 50 people. But with this online course, more people have access to high-level academic defenses. At the same time, this may raise the bar for both degree candidates and their mentors, as well as the defense committee.

Wang Xin, a PhD candidate from Tsinghua's School of Economics and Management,

became the first to have his defense broadcast live online. When asked why he agreed to such a high level of publicity, he said, "Thesis defenses have always been open to the public. Online broadcasting can introduce my research to more people, and I may also get more suggestions and advice in return." He also said, "The broadcasting did not have much influence on my defense. I prepared it as I would have done anyway."

Wang Xin's mentor, Professor Bai Chongen, supported his

choice, and said, "The recording and broadcasting offer more people the opportunity to understand the process of a thesis defense, which includes both the student's presentation and answering questions from the committee and audience."

"Thesis defense broadcasting is a way of passing on and sharing knowledge," said Professor Yang Bin, Dean of Tsinghua's Graduate School. "In the future, we want to incorporate more interaction between online viewers and on-site participants."



Wang Junxing Wins Best Student Paper Prize at EC'14

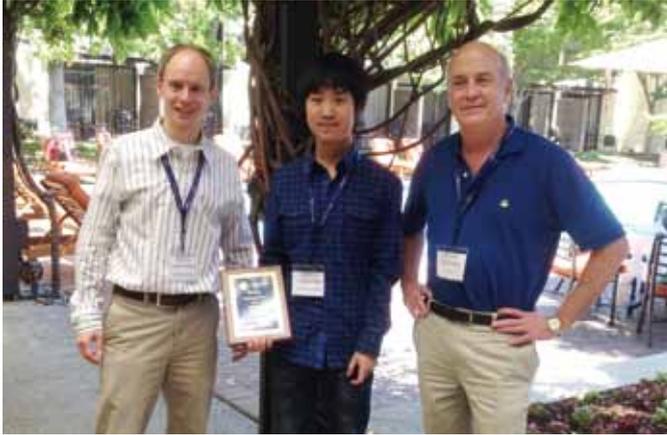
Wang Junxing, an undergraduate from the Institute for Interdisciplinary Information Sciences, was awarded the best student paper prize at the 15th ACM

Conference on Economics and Computation (EC'14). He is the first undergraduate to receive the honor since the conference was established in

1999.

His paper "Fair Enough: Guaranteeing Approximate Maximin Shares" was written with his supervisor Professor

Ariel Procaccia from Carnegie Mellon University. By proving the impossibility of Maximin Share Guarantee, the paper solves the long-standing



Wang Junxing and the Chairmen of the Program Committee, Vincent Conitzer (left) and David Easley (right)

unsolved fundamental problem of fair distribution, one of the hottest topics concerning game theory because of its wide utilization in economics and computer science. What is more, the paper is the first that can be directly used in practice to propose a proximate fairness solution to Maximin Share Guarantee, such as in legacy distribution or property distribution in a divorce.

The ACM Conference on Economics and Computation

was initiated in 1999 as the top authoritative conference on computer science. This year's conference was held at Stanford University, Palo Alto in California. Over 300 leading scholars in economics and computer science from across the world were invited to EC'14. Among the 80 papers accepted by the conference, three came from the Chinese mainland, including two from Tsinghua's Institute for Interdisciplinary Information Sciences.

Tsinghua Sailing Association Wins IRC Competition

Only established in March of this year, Tsinghua Sailing Association has won the champion in the IRC Group in the "Dapeng Cup" Sailing Competition. A total of 27 sailing teams participated in the competition held at the Seven-star Bay, Shenzhen, from September 20th to 21st.

As the host of the competition commented, Tsinghua Sailing Association is the most surprising 'dark horse' in this year's competition. Winner of the Group A event was Hongkong Huachuang Ocean Club, while Shenzhen Sailing Association won the Group B event.

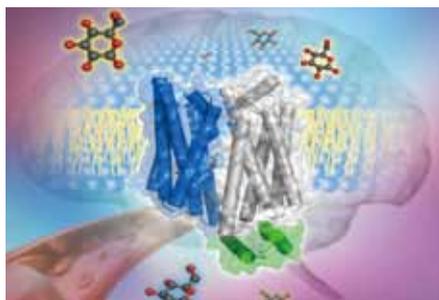


Winners from left, Shi Chunhui, Liu Shiyu and Li Qiang



Research & Achievements

Breakthrough in Glucose Transporter Research



The effect picture of the experimental results

A research team led by Professor Yan Nieng from Tsinghua's School of Medicine has made a significant breakthrough in the field of life sciences. The team has discovered the crystal structure of the human glucose transporter GLUT1.

Besides being the most important and fundamental energy source of various living creatures on the earth, glucose is also the essential energy material of the human brain and nervous system. It is estimated that the human brain consumes 120 grams of glucose per day, making up over half the total consumption of the human body. However, hydrophilic glucose has difficulty in entering the cells directly through the hydrophobic cytomembrane because of low compatibility. So the process must be completed through the

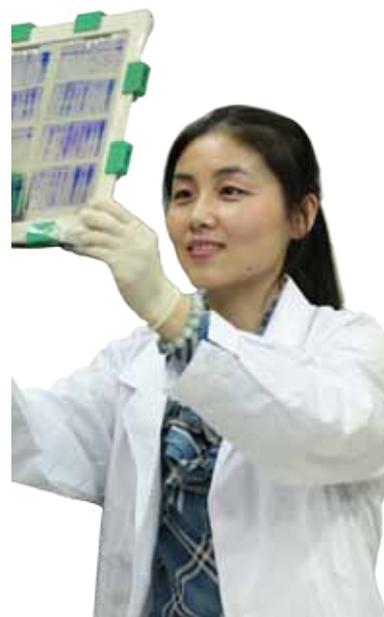
human glucose transporter, which is like a door in the cytomembrane able to transport the glucose from outside to inside.

GLUT1, the most important glucose transporter in human tissues, facilitates the diffusion of glucose into erythrocytes and is responsible for the glucose supply to the brain and other organs. So the inactivated mutations of GLUT1, resulting in compromised transport activities for glucose, are associated with diseases resulting from a lack of energy supply to the brain. On the one hand, dysfunctional mutations can cause GLUT1 deficiency syndrome (also known as De Vivo syndrome), whose symptoms include early-onset seizures, microcephaly, retarded development and similar diseases. On the other hand, the overexpression of GLUT1 can be an important prognostic indicator for cancer, because cancer cells require more glucose supply due to the less efficient energy production through anaerobic glycolysis (the Warburg effect). At present the elevated expression of GLUT1 has been observed in several cancer types.

Because of its fundamental physiological and pathophysiological significance, GLUT1 has been a focus for functional study and structural determination. The discovery of its structure allows accurate mapping and potential mechanistic interpretation of disease-associated mutations in GLUT1. Structure-based analysis of these mutations provides an insight into the alternating access mechanism of GLUT1 and other members

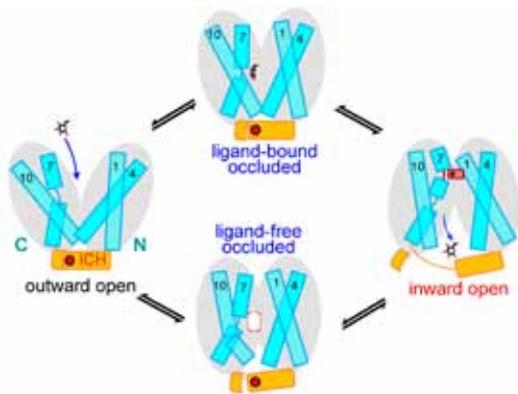
of the sugar porter subfamily. Structural comparison of the uniporter GLUT1 with its bacterial homologue XylE, a proton-coupled xylose symporter, allows examination of the transport mechanisms of both passive facilitators and active transporters.

The discovery at Tsinghua comes after repeated attempts over many decades by top laboratories across the world, including the United States, Japan, Germany and the UK, to find the unknown three-dimensional structure.



Yan Nieng in the experiment

Their paper on this break-through "Crystal Structure of the Human Glucose Transporter GLUT1" was published in *Nature* on June 5th, 2014. Besides the supervisor Yan Nieng, the research team includes postdoc Deng Dong, PhD candidates Xu Chao and Wu Jianping, and undergraduate Sun Pengcheng.



The working model of GLUT1

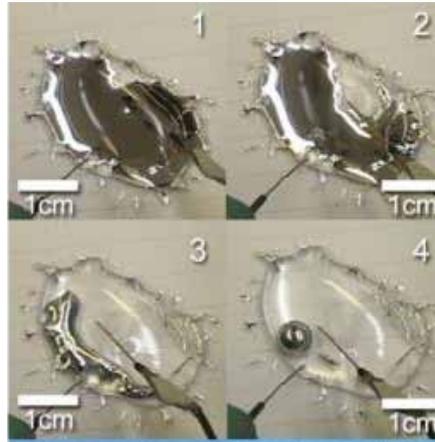
Transformable Liquid Metal Opens New Way of Making Soft Robots

One of the characters in the Terminator films is the robot T-1000, composed of liquid metal. A group of scientists from Tsinghua's Department of Biomedical Engineering have demonstrated that such a concept is no longer the realms of science fiction.

Their findings show that safe, harmless liquid metal droplets can be controlled to rotate on themselves, move freely, shift among different configurations or just fuse together at room temperature.

The "invisible hand" used to control these droplets is an electrical field applied through electrodes inserted in water, in which the liquid metal is immersed or sprayed over. Professor Liu Jing and Post Doctorial Researcher Sheng Lei and PhD candidate Zhang Jie led this interesting and enlightening research.

The liquid metal they tested was Gallium Indium Tin alloy, which has a



Snapshots of liquid metal transformation from a film to a sphere

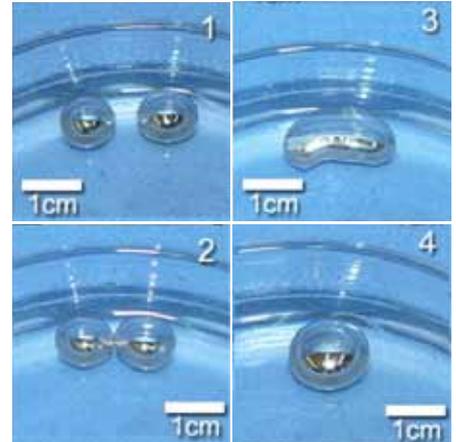
broad temperature range of liquid phase, with a melting point of just 10 degrees Celsius (50 degrees Fahrenheit).

In addition, the liquid metal used is chemically stable and does not react with water at room temperature. A series of previous studies proved that, unlike the most commonly known liquid metal, mercury, such an alloy is safe for humans under normal circumstances.

The configuration and transformation of the alloy could be controlled by adjusting the position and shape of the electrodes, the intensity of the applied electrical field, and water coverage.

For example, the cover of liquid metal film on water forms into a sphere when an anode is placed in the water and the cathode is in contact with the liquid metal. Several such metal spheres can merge together into a larger ball.

If the electrical field is altered by adjusting the arrangement of electrodes,



Snapshots of two separate droplets combining into a fused sphere from stage 1 to 4

the liquid metal sphere can rotate rapidly on itself, with a pair of accompanying water swirls at its side.

When a series of electrodes are aligned in parallel, the liquid metal can become an earthworm-shaped structure. Simple modulation of the voltage will cause the earthworm-like robot to move.

"A 'smart liquid metal machine' could be extended to three dimensions when a spatial electrode configuration is adopted," says Professor Liu. The phenomena may be used to collect scattered liquid metals or to control liquid metal objects or even robots.

Such material transformation capability resembles that of the Terminator style liquid robot as hypothesized in science fiction films. It opens up a way of making soft machines, and even robots in the near future.



Will soft robots become possible?

Deepest Laboratory to be Extended

China Jinping Underground Laboratory (CJPL), the world's deepest laboratory, is to be massively extended.

Co-founded by Tsinghua University and Yalong River Hydropower Development Company (Yalong Hydro) at the end of 2010, the laboratory is

situated at the center of a 17-kilometer traffic tunnel under the Jinping Mountain in Sichuan Province in southwest of China. Buried beneath 2,400 meters of rock, CJPL is the deepest operational underground laboratory with horizontal access in the world.

Sheltered from the background commotion of cosmic rays and human activity, it provides a perfect environment necessary to conduct sensitive particle physics and astrophysics experiments, including searching for extremely rare phenomena.

To carry out rare-event experiments, the cosmic ray flux of the environment is a very important and necessary factor. Based on experimental data taken between November 2010 and December 2011, the cosmic ray muon flux in CJPL was measured at $(2.0 \pm 0.4) \times 10^{-10} / (\text{cm}^2 \cdot \text{s})$. This ultra-low cosmic ray background guarantees an ideal environment for rare-event experiments such as direct dark matter detection.

With the self-designed world's first 1kg-mass point-contact high-purity germanium detector, Tsinghua

led the China Dark Matter Experiment (CDEX) at CJPL. In 2013, the first phase experimental results on low-mass weakly interacting massive particles were published. These were the first sensitive results obtained by Chinese scientists and were also one of the best search results in the world for dark matter.

To advance their dark-matter experiments to new extremes, more sensitive detectors, such as tonne-scale germanium detector, are necessary. For that reason, as well as to accommodate

more scientific projects, Tsinghua has decided to expand the laboratory with YRHDC. The CJPL phase-II project includes eight laboratory halls with a total space volume of 120,000 cubic meters. The CJPL phase-I provides only 4,000 cubic meters of space, which has already almost been used up.

With more state-of-the-art facilities and space, the CJPL will be open to more deep science research, which it is estimated will illuminate many of the most compelling questions in 21st century science.



Tsinghua Ranks Third for US Utility Patents Granted in 2013

Tsinghua faculties were awarded 193 US utility patents in 2013, ranking third among worldwide universities, according to a list released by the US National Academy of Inventors (NAI) and Intellectual Property Owners Association (IPO).

The "Top 100 Worldwide

Universities Granted U.S. Utility Patents" is compiled annually by NAI and IPO. It calculates the number of utility patents granted by the United States Patent and Trademark Office, which list a university as the first assignee on the printed patent.

The latest figures covering 2013

show Tsinghua University received 193 patents, ranking third behind the University of California System (399 patents) and Massachusetts Institute of Technology (281). The other two universities in the top five positions were Stanford University (170) and the University of Texas (169).

Social Links

TusPark, 20 Years of Promoting Technology Transfer and Entrepreneurship

Southeast of Tsinghua's landscaped campus stands a cluster of high buildings. Characterized by its high azure glass buildings, Tsinghua University Science Park, known as TusPark, has become a hub of innovation and entrepreneurship.

In 1993, Tsinghua's annual research funds had reached about one billion yuan, yet only 20 percent of the prolific research outcomes were signed with partners from industry. Among those reaching the contracted intellectual property stage, just a fifth were successfully implemented. It meant a mere four percent of the university's intellectual fruits could be transferred into actual use.

Faced with those facts, Tsinghua conceived the idea of building its own university science park. Tsinghua Science Park Development Center was set up in 1994 to fulfill this dream. In 1998 the first phase of TusPark was completed, four buildings with a floor space of 100,000 square meters.

Not until July 2005 was the whole site completely built, spanning 25 hectares with a total floor space of 770,000 square meters. It became and remains the world's largest university science park. TusPark was recognized in August 2003 as the only Class A level university-owned science park in China.

Tsinghua Business Incubator, the predecessor of TusPark Venture Capital Management, Inc., and the Technological Assets Management Co., were established in March 2003. It provided both incubation services and investments to innovative high-tech start-ups and enterprises.

More than 1,500 companies have been incubated from TusPark. Among those, 13 have progressed to public ownership through initial share offerings. As an example, Spreadtrum Communications started its journey from a private to a public company in May 2007 through an Initial Public Offering (IPO) on the Nasdaq Stock Exchange in New York. Another two portfolio companies, Highlander Digital Technology and Sumavision Technologies, were listed in 2010 on the High-Growth Board of the Shenzhen Stock Exchange.

TusPark VC has invested in dozens of start-ups and is managing one billion yuan's worth of funds and assets. The money has been mainly invested in fields such as IT, life sciences, clean technology, creative industry and modern service industries.

Among the 400-plus companies and organizations currently operating at TusPark are not only startups. Some of the world's biggest companies have also set up offices or R&D centers at the park. The annual revenue of these companies has reached over 100 billion



TusPark

yuan, with research and development investment at over 5 billion yuan.

Now TusPark has branches in over 20 cities and regions across China, as well as incubators and bases in the US, South Korea, Israel, and Russia. It accommodates more than 1,200 companies. Every year those companies apply for over 4,000 patents and receive over 2,000 patents worldwide.

In its 20th anniversary year, TusPark has launched, in conjunction with ten companies that started up from TusPark, the "Entrepreneur Bank: Start-up Incubator Fund". With an initial capital of 50 million yuan, the fund aims to help more entrepreneurs to fulfill their dreams.



Student Volunteers in Kenya

Seven Tsinghua undergraduates went to Kenya during their summer vacation to carry out a program of voluntary work. They took with them educational programs and helped at local primary schools and teenage community centers.

In a one-week teaching period at the Plainsview Primary School in Nairobi, the volunteers divided into two groups, one teaching science and social science classes to grade seven pupils, and the other teaching mathematics and English lessons to grade three pupils. They succeeded in encouraging the pupils to join in group discussions and class presentations, helping to promote the ability to work together and actively express opinions. DVD players and discs they took with them helped to relieve the problem of a lack of educational materials, proving to be popular teaching tools among the local students.

As well as two complete machines fitted with Beidou (Compass) Navigation Satellite system, the Tsinghua volunteers also took two sets of microchips using

Beidou Navigation Satellite systems able to receive signals and record information. The new technology improved the quality of route displays, and the ability to more precisely locate positions. By using this technology, the volunteers helped local research on the behavior of wildlife, a location-sharing service for anti-poaching and rescue, as well as the operation of a life channel, and the prevention of conflict between humans and animals in wildlife reserves in Kenya. They also edited wildlife field conservation manuals for tourists.

On July 25th, the first session of the China-Africa Youth Forum was held in the University of Nairobi. Based on the theme of “Volunteering in Kenya”, local governors, primary school principals, professors and students in Nairobi University, wildlife

experts, wildlife program officials and volunteers from Tsinghua shared their thoughts and opinions.

At a “China Day” Festival, volunteers designed several programs to introduce Chinese traditional culture and food. By collecting seals in the interactive games, participants could get a Chinese paper cut as a gift. Local university students responded by organizing a Chinese song show at the University of Nairobi. They also learnt about the art of Chinese paper cuts and enjoyed the weaving of red string bracelets.



Tsinghua volunteers with the Kenyan pupils

Tutoring Platform for Teenagers

Thousands of teenagers have benefited from an online interactive tutoring platform set up by over 300 Tsinghua students.

The students, from 31 of Tsinghua's schools and departments, use their platform, “Yizhizaixian”, to deliver lectures, answer online questions and provide one-to-one consultation. Most of these services are offered free of charge.

Yizhizaixian provides more than 1,000 lecture videos for junior and senior high school students covering six categories. They are Chinese language, mathematics, English language, physics, chemistry and biology. Not only does the platform impart knowledge and tutorials, members of Yizhizaixian also share their

own study and life experiences with website users, which include matters such as how to plan school life or how to handle relationships with schoolmates or parents. Apart from lecture videos, participating teenagers can also ask online questions and interact with the tutors during the two-hour homework slots from 19:30 to 21:30 on Mondays to Fridays.

Cai Guoliang, a PhD student from Tsinghua's School of Economics and Management is one of the website initiators. He said that the platform is aimed at helping teenagers from non-first-tier cities. It provides teenagers from rural areas access to high-quality educational resources.

After running “Yizhizaixian” for

one year, another founder member, Zhang Mengqing from the Department of Hydraulic Engineering, felt strongly the impact of internet on education ideology and teaching methodology. “We believe it is an irreversible trend”, said Zhang Mengqing. “We wish more organizations, including investment institutes, education foundations and other educational institutions would join our platform”.

Yizhizaixian's aim is to encourage individual independence and develop the self-study and learning capabilities of young students. Cai Guoliang said, “We want to integrate more universities as well as junior and senior high schools into our efforts, and provide the best education to more students”.

International Cooperation & Exchange

Tsinghua and UC Berkeley Establish Joint Institute in Shenzhen

Tsinghua University and the University of California Berkeley signed an agreement on September 7th in Shenzhen, China, as the first step in the launch of the Tsinghua-UC Berkeley Shenzhen Institute.

The new institute will focus on three research areas: nanotechnology and nanomedicine; low-carbon and new energy technologies; and data science and next-generation internet. The first group of 35-50 doctoral students will be enrolled in September 2015. Master's students' enrollments will begin a year later in 2016.

"It is an unprecedented platform for international collaboration based on our long strategic relationship with UC Berkeley, through the innovative model of university-government-industry partnership," said Tsinghua President

Chen Jining. "A significant milestone for the collaboration is expected to provide a unique global ecosystem for transformational technology research and education, as well as a novel graduate curriculum for the cultivation of tomorrow's entrepreneurs and world leaders in science and technology."

UC Berkeley Chancellor Nicholas Dirks said, "With this new partnership, we seek to develop a research program that will enable the sort of complex, multidisciplinary collaborations necessary to successfully confront societal and economic challenges we face in China and California, as well as those that are global in scale and know no national borders."

The institute has raised funds and will provide 10 million yuan in student scholarships, and another

12 million yuan in venture funds to support students' innovation and entrepreneurship. A key supporter of this partnership is the Shenzhen municipal government, along with global companies in Shenzhen and the Pearl River Delta region.

Students will conduct research or study at the Shenzhen Institute for up to one year. Internships at local companies will also be available for international graduate students.

In addition to the faculty resources from the two universities, the institute plans to recruit top researchers globally who are able to conduct innovative, cutting-edge research in which the graduate students will be able to participate.



UC Berkeley and Tsinghua University sign the agreement

Dual Degree Program in Business Analysis



Dean QianYingyi of Tsinghua's School of Economics and Management and Columbia University Vice Provost Soulaymane Kachani sign the collaboration agreement

Tsinghua University and Columbia University have jointly launched a dual degree Master's program in Business Analytics. An agreement of collaboration was signed at Tsinghua on September 19th.

During the two-year program of four semesters, students will study at each institution for two semesters. Those successfully completing the program will receive two degrees:

Master of Management from Tsinghua and Master of Science from Columbia. The first group of Tsinghua students is expected to attend Columbia in fall 2015.

"Through this collaboration, Tsinghua and Columbia will create an interdisciplinary system that combines management with data science," said Tsinghua

President Chen Jining. "This program empowers the global efforts by leading institutions in advancing education and research in the field of big data. In addition, this collaboration will effectively strengthen academic and research collaborations between the faculties of both institutions."

Provost John H. Coatsworth of Columbia University added: "Columbia

University and Tsinghua University have a long history of collaboration in several scholarly and professional fields. The new dual degree Master's program in Business Analytics builds on areas of great strength at both institutions. We look forward to expanding our partnership on educational programs and research."

The dual degree program will be offered jointly by the School of Economics and Management of Tsinghua University and the Fu Foundation School of Engineering and Applied Science of Columbia University.

"Tsinghua aims to produce exceptional talent in business analytics from this dual degree program," said Professor Yang Bin, Dean of Tsinghua's Graduate School, "the graduates are expected to be cultivated with a global vision, a business sense of data, and the will to venture."



Asian Students Focus on Water Ecosystems

Eighty students from five Asian universities joined together for the Asian Students Environmental Platform (ASEP) 2014. The opening ceremony was held at Tsinghua University on August 4th, 2014.

Dr. Liu Xuehua from Tsinghua's School of Environment, coordinator for ASEP2014 in China, introduced the theme of this year's platform as the impact of water on ecosystems and humans. She said that Beijing had been the capital of the State of Yan during the Warring States Period, about 2,000 years ago. It once had plenty of water resources. Haidian, a district in northwest Beijing where Tsinghua is located, literally means 'sea' and 'wetland'. Many rivers, lakes, canals and wetlands dotted the area, including the renowned Summer Palace, Yuanmingyuan Park, and the Wanquan River winding through the Tsinghua campus. Today the rivers are short of water and the groundwater is vanishing. Statistics from Beijing Water Authority



in 2011 revealed that the city's per capita water resources declined to 100 cubic meters, far lower than the international warning line for water shortage of 1,000 cubic meters.

With the theme of "Water-Ecosystem-Human", the programs of ASEP 2014 consisted of visits to sites with different characteristics in four cities, including wetlands in the eastern

coastal area, grasslands in Baotou, the Engebei desert, and mountain areas in Chengdu. Highlights also included in-depth surveys of typical projects such as the Beijing Olympic Forest Park (BOFP) and the Dujiangyan irrigation system. Construction at Dujiangyan, which began in the 3rd century B.C., still controls the waters of the Minjiang River and distributes it to the fertile farmland of the Chengdu plains.

Designed by Professor Hu Jie from Tsinghua's School of Architecture, BOFP has become the lung of Beijing. Its water system mainly uses recycled water. The whole ground area in the park was designed to be permeable, with sumps around the arenas to gather rainwater, followed by a series of natural filtration purification systems for recycling. The wetland areas in the park can treat 2,600 cubic meters of reclaimed water and 20,000 cubic meters of circulating lake water every day.

Apart from the on-site surveys and lectures by renowned experts, the students also had hands-on practice, with schemes such as forest maintenance in the Great Wall areas.

First held in 2012 in Japan, ASEP is funded and supported by the AEON Environmental Foundation and Asian universities. Students from Tsinghua University, Waseda University, Korea University, Vietnam National University in Hanoi, and the University of Malaya joined in this year's event.



Tsinghua University



Four Seasons on Tsinghua campus

<http://www.tsinghua.edu.cn/eng>