## Contents

### News & Events
- President GU Elected Member of Royal Swedish Academy of Eng. Sciences 1
- Professor ZHONG Minlin Elected LIA Fellow 1
- Tsinghua Student QI Xingda Elected Chairman of ACSF 2
- Nobel Laureate in Economics Named Honorary Professor at Tsinghua 2
- Minister of Education YUAN Guiren Speaks at Tsinghua 3
- Pakistani President Asif Ali Zardari Visits Tsinghua 3

### Student Education & Development
- Increasing International Students 4
- Graduate Student Wins Best Paper Award in COLING 2010 4
- Tsinghua Wins at the 7th National Graduate Electronic Design Competition 4

### Research & Achievements
- Brain Pacemaker Helps Parkinson’s Sufferers 5
- FGD Byproducts Reclaim Saline-alkali Soils 6
- Seven More Projects Win Key National Financial Support 7
- Professor ZHANG Shoucheng Wins 2010 Europhysics Prize 7

### Social Commitment
- Tsinghua Alumni Donate to Build Hope Schools 8
- Over 5,000 Students Participate in Social Practice This Summer 9
- 50th Anniversary of Miyun Reservoir 9

### International Cooperation & Exchange
- Tsinghua-MIT-CUHK Research Center for Theoretical Computer Science 10
- Tsinghua Global Vision Lecture Series 11
- 33rd International Symposium on Combustion at Tsinghua 11

### Education Outlook
- Education and Training Program for Excellent Engineers in China 12
- China-ASEAN Ministers of Education Roundtable 12
- University Academic Innovation & Intellectual Recruiting Project 13

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Previous issues of the *Tsinghua Newsletter* can be found on the "News and Events" website at [http://tsinghua.edu.cn/eng](http://tsinghua.edu.cn/eng)
President GU Elected Member of Royal Swedish Academy of Eng. Sciences

Professor Dr. GU Binglin, President of Tsinghua University, was elected as a foreign member of the Royal Swedish Academy of Engineering Sciences (IVA) on September 23rd. Two other Chinese scholars were also elected to the IVA, namely Professor Siegfried WU, Dean of the College of Design and Innovation, Tongji University, and Dr. ZHOU Ji, President of the Chinese Academy of Engineering.

The IVA, founded in 1919 by King Gustaf V, is one of the Royal Academies in Sweden. The Academy is an independent organization which promotes contact and exchange between business, research, and government in Sweden and internationally. Until now the IVA has 867 Swedish members and 266 foreign members.

Professor ZHONG Minlin Elected LIA Fellow

Professor ZHONG Minlin from School of Mechanical Engineering at Tsinghua University has been elected a Fellow of the Laser Institute of America (LIA) in recognition of his distinguished contributions to the LIA and international laser processing. The executive director of the LIA, Peter Baker, expressed his congratulations by saying: “I am very pleased you were elected as an LIA Fellow; you certainly deserve it.”

Professor ZHONG has accumulated 27 years of experience in laser materials processing field. His research interests cover novel materials development, laser surface engineering, direct laser manufacturing and laser micro-nano fabrication. He has been the project leader for numerous domestic projects and also the international cooperation projects with General Motors, General Electric, Boeing, Rolls-Royce and Mitsubishi. His research has yielded eight invention patents, three monographs and over 150 papers.

Since its foundation in 1968, the LIA has elected only 82 fellows. These awards have recognized members who have attained unusual professional distinction in the LIA mission areas of laser science and technology, laser applications and/or safety, and thus provided outstanding service to their field. Professor ZHONG is the first from mainland China who has been elected an LIA Fellow.
Tsinghua Student QI Xingda Elected Chairman of ACSF

Mr. QI Xingda from the Department of Automotive Engineering at Tsinghua University was elected Chairman of the All-China Students’ Federation (ACSF) in late August. He has also become the new Vice Chairman of the All-China Youth Federation.

“It’s a challenge to balance my academic work and my social life, but I got lots of help from Tsinghua professors and my classmates,” he said.

Born in 1987, Mr. QI entered Tsinghua University in 2006. He was elected Chairman of the Tsinghua Students’ Union in December 2009.

Nobel Laureate in Economics Named Honorary Professor at Tsinghua

Professor Oliver Eaton Williamson, the 2009 Nobel laureate in Economics, was named an Honorary Professor of Tsinghua University on June 29th. Tsinghua Vice President YUAN Si conferred the certificate. After the ceremony, Professor Williamson delivered a speech titled “Transaction Cost Economics in Historical Perspective”, sharing his achievements in economics and life experiences with Tsinghua students.

Professor Williamson was awarded the Nobel Prize for “his analysis of economic governance, especially the boundaries of the firm”, together with Elinor Ostrom. He is currently the Edgar F. Kaiser Professor Emeritus of Business Economics and Law at the University of California, Berkeley and a member of the American Academy of Political and Social Science, the National Academy of Sciences in the USA, the American Academy of Arts & Sciences and the Econometric Society.
Minister of Education YUAN Guiren Speaks at Tsinghua

On the eve of the 26th National Teachers’ Day on September 10th, Minister of Education YUAN Guiren delivered a speech on the National Medium and Long Term Educational Reform and Development Plan (2010-2020) at Tsinghua University. He noted that educational reform is necessary for rapid economic and social development in an era of increasingly intense global competition. Through the efforts of society in general, he added, we can greatly facilitate the scientific development of the nation’s educational system and build a great storehouse of human resources. Yuan also said that the Ministry of Education will continue to support Tsinghua in the university’s development and reform.

After his speech, Minister YUAN visited the University’s Research Center of Structural Biology and the Ancient Bamboo Strips at the Center for Excavated Texts Research and Preservation.

Pakistani President Asif Ali Zardari Visits Tsinghua

Pakistani President Asif Ali Zardari visited Tsinghua University on July 8th and unveiled an exhibition of Mohenjo-Daro and Gandhara Civilization organized by the Tsinghua International Center for Communication. Tsinghua President GU Binglin welcomed President Zardari and commented on the outstanding performance of Pakistani students. President Zardari noted that he would like to see enhanced exchanges between young people from the two countries and invited President GU to pay a visit to Pakistan.

After the conversation, Mr. Zardari and Tsinghua President GU Binglin jointly inaugurated the photo exhibition “Walking into the Greatest Civilization – A Glimpse of Mohenjo-Daro and Gandhara”.

President Zardari Meets with Tsinghua President GU (right)

President Asif Ali Zardari at the Photo Exhibition
Increasing International Students

By the end of September, the newly enrolled international students had all arrived at Tsinghua. Over 3,200 students from 122 countries are studying here this term, marking a historical high. About 1,240 of them are postgraduates.

Tsinghua has always focused on student diversity and internationalization. It offers twelve English-taught masters programs in management, engineering, environment, computing, journalism, architecture, and law.

Meanwhile, more scholarships have been made available for international students. Nearly 130 international students have won national government scholarships, and 763 have received scholarships from the Beijing government since 2006.

Offering international curriculum and research facilities, Tsinghua University has become a major destination for international students and receives thousands of applications from abroad every year.

Graduate Student Wins Best Paper Award in COLING 2010

Mr. BU Fan, a doctoral candidate in the Department of Computer Science and Technology at Tsinghua University, won the Best Paper award in COLING 2010, the 23rd International Conference on Computational Linguistics, held in Beijing on August 23-27th.

His paper “Measuring the Non-compositionality of Multiword Expressions”, supervised by Professor ZHU Xiaoyan, proposed a new Multiword Expression metric MED (Multiword Expression Distance) from the first principles via Information Distance to measure the distance from an n-gram to its semantics. It was the only one selected as the Best Paper among over 800 submitted to COLING.

Tsinghua Wins at the 7th National Graduate Electronic Design Competition

The final rounds of the 7th ALTERA National Graduate Electronic Design Competition were held at Tsinghua University from August 20th to 22nd. The competition was organized by the Office of the State Council Academic
Mr. WANG, who had suffered from Parkinson’s disease for years, regained control of his limbs after having a brain pacemaker implanted in his brain. Within a month after the surgery he even began to do Tai Chi Chuan. By September 2010, 21 Parkinson’s sufferers had benefited from this kind of pacemaker. All of them experienced meaningful improvement in movement.

This brain pacemaker was designed by a 40-odd-member team led by Professor LI Luming from Tsinghua’s Institute for Man-Machine-Environment Engineering Research. Professor LI and his colleagues in electronics, information, software, materials, manufacture and other fields started to develop brain stimulators in 2002. Based on their former research on micro-satellite and manned spaceflight, the team made many indigenous innovations in such areas as stimulation software update, integrated design, reliability and energy consumption control.

Professor LI is very confident about the outcome. He said, “After the clinical trial is completed, the brain pacemaker can get registered and put on the market. The cost of it would be much less than similar imported products.” Furthermore, according to Professor LI, the software in their implanted products could be updated wirelessly without being removed. The team is working on a rechargeable battery for the pacemaker which could be recharged wirelessly while it is in the brain.
China’s arable land per person has always been very limited, and it has decreased further due to urbanization and other reasons. Meanwhile, there are millions of hectares of saline-alkali soils in China. To make these soils arable has been a dream for decades. Tsinghua’s Department of Thermal Engineering has worked out a solution. With byproducts of FGD (flue gas desulfurization), they have reclaimed eight thousand hectares of alkali soils in more than ten provinces in China.

Most coal-fired power plants in China use the wet FGD process to control sulfur dioxide emissions. The major byproduct of the process is calcium sulfate or a mixture of calcium sulfite and calcium sulfate. With the rapid growth of energy and power industries, the installed capacity of power plants with FGD devices and therefore the production of FGD byproducts have increased dramatically. The installed capacity will reach 460 GW by 2010, with an annual production of FGD byproducts of 26.6 million tons. As FGD byproducts contain large amounts of moisture and ash, they can be used as building gypsum only after a series of purification and dehydration, which is less economical when compared with natural gypsum. If disposed of directly, FGD byproducts would occupy vast areas of valuable land, and inevitably lead to secondary pollution.

Meanwhile, large areas of alkali soil in northern China are unsuitable for growing agricultural crops or most other plants. These barren lands always deteriorate the local ecosystem. According to statistics from China’s Ministry of Land and Resources, there are 34.6 million hectares of alkali soils in the northwestern, northern, northeastern, and coastal areas of China.

Faculty members in the Department of Thermal Engineering have worked on the reclamation of alkali soils and investigated the influence of heavy metals on soils and...
crops since the 1990’s with related organizations. They applied desulfurization gypsum in northern China’s alkali soils in 1996. The reclamation of alkali soil relies on the long-lasting replacement of exchangeable sodium ions in the soil with calcium ions from desulfurized gypsum. Existing experimental data suggest that desulfurized gypsum may last 15 years. It has been estimated that 6.67 million hectares of alkali soils may be reclaimed in a few years with this technique.

Professor CHEN Changhe from Tsinghua’s Center for Ecological Restoration and Carbon Fixation of Saline-Alkali Land, who leads the technique team, stated that the water consumption of alkali soil reclamation by FGD byproducts is two-thirds less than the traditional irrigation approach. The heavy metal contents in FGD byproducts are much lower than those of soil background, and therefore no accumulation has been found. The heavy metal contents in reclaimed soil and crops grown in it are well below the national controlled levels. FGD byproducts reclamation is safe to soil, crops and people. It has been granted a patent by the China’s State Intellectual Property Office. The soil reclaimed can be planted from the first year and become even better in the following years.

Seven More Projects Won Key National Financial Support

The Chinese Ministry of Science and Technology recently announced the projects in its 2010 National Basic Research Program and National Key Scientific Research Program. Seven from Tsinghua University are included in the two lists, each of which will receive RMB 20-30 million in funding.

These projects are “Intelligent Processing of Internet Visual Media” led by Professor HU Shimin from the Department of Computer Science and Technology, “Structural and Functional Study of Important Protein Complexes” led by Professor Sen-fang SUI from the School of Life Sciences, “Molecular Mechanism and Function of the Major Protein Degradation Pathway: Autophagy” led by Professor LIU Yule from the School of Life Sciences, “Novel Quantum Phenomena in Dirac-system-like Low Dimensional Systems” led by Professor DUAN Wenhui from the Department of Physics, “Controlled Synthesis of Metal and Intermetallic Nanocrystals and Their Catalytic Properties Research” led by Professor LI Yadong from the Department of Chemistry, “Regulation of Germ Layer Induction and Differentiation by Important Parental Molecules” led by Professor MENG Anming from the School of Life Sciences, and “The Structure and Function of Proteins in Stem Cell Differentiation and Reprogramming” led by Professor SUN Fanglin from the School of Medicine.

The National Basic Research Program, also known as the 973 Program, was launched in 1998. Thus far, it has supported 610 projects with nearly RMB 13 billion. Thirty-three of these projects have been run by Tsinghua professors.

The Ministry of Science and Technology started the National Key Scientific Research Program in 2006. The cumulative financial support has reached RMB 3.3 billion.

Professor ZHANG Shoucheng Wins 2010 Europhysics Prize

Professor ZHANG Shoucheng from Tsinghua’s Academy of Advanced Studies won the 2010 Europhysics Prize for his pioneering research and theoretical prediction of the quantum spin Hall effect (QSHE) and topological insulators on September 1st in Warsaw, Poland. He is the first Chinese scientist to win the Prize.

“A new generation of semiconductors, based on the QSHE, could keep Moore's law in force for years to come,” said Professor ZHANG. His research on the QSHE was also recognized by Science as one of the top 10 breakthroughs in all scientific fields in 2007.

The quantum spin Hall effect is a novel phenomenon that
occurs in very thin insulating materials, in which the quantum spin of each electron is aligned with the electron's motion. In other words, the electrons are so well organized in certain materials that they will not dissipate heat as they move. This notion, first proposed only a few years ago, lead to the discovery of topological insulators. Topological insulators do not conduct current on the inside bulk of the material but do so quite efficiently along the surface. Physicists hope to use topological insulators to create more efficient conductors, perhaps leading to much faster computer chips and other advancements in electronics.

Professor ZHANG joined Tsinghua University as a visiting professor in 1999. He had worked closely with Professor XUE Qikun of Tsinghua's Department of Physics, a member of the Chinese Academy of Sciences. They successfully fabricated the topological insulators Bi2Se3 by molecular-beam epitaxy at Tsinghua before the end of 2009, ahead of similar research elsewhere in the world.

Many Tsinghua alumni give back to the community by supporting economically disadvantaged pupils through Project Hope. Some of them have done distinguished work for many years.

Members of the Tsinghua EMBA Graduates Association of Henan Province made a million-Yuan donation to build a primary school in a mountainous area in that province this year. The planned school will cover 14,400 square meters and include 15 classes with a total of 450 students. It also includes a standard sports field. The Association members had donated RMB 1,000,000 earlier to support 210 financially-challenged students and help to provide 1,000 job vacancies. This year, the Association made another million-Yuan donation for building a Hope Primary School in Tongbai County, a mountainous area in Henan.

Mr. ZHENG Yongxi, an 82-year-old Tsinghua alumnus, has raised RMB 7.77 million and built 32 Hope Primary Schools since 1995. He graduated from the Department of Chemistry and worked in the University’s School of Sciences until retirement. His donation started in 1989 with a sum of RMB 10,000, which he had saved for nearly 40 years. The donation was for establishing scholarships for outstanding students at Taizhou Middle School in Zhejiang Province. In 1994, Mr. ZHENG decided to mobilize more people to join in the funding campaign for Project Hope. Within the 100 days after he sent solicitation letters to Tsinghua alumni, he received more than RMB 200,000 from over 1,300 of them from all over the world. “With the money, we set up two Tsinghua Hope Primary Schools in Hebei Province and Beijing,” he recalled.
Over 5,000 Students Participate in Social Practice This Summer

More than 5,000 Tsinghua students spent their summer vacation doing research projects, field investigations, charity work, educational assistance and other social services. The social practice projects, proposed and planned mainly by the students themselves, cover a number of current issues, such as living a low carbon life in urban areas, ways of providing better care for elderly people, and how the new type of rural cooperative medical care system works.

One hundred and fifty Tsinghua students, 30 Tsinghua faculty members, and 68 volunteers from 18 American universities participated the Education-Aid-the-Poor programs in 30 remote and impoverished counties where Tsinghua University has set up distance education stations. They delivered English language training sessions, provided basic computer knowledge and lectures for local students and teachers, carried out investigations on their concerned issues, and organized cultural exchange events. Such programs have run annually since 2006. By 2009, the programs had attracted 994 Tsinghua students, 139 Tsinghua faculty members, and 216 American volunteers to serve at 97 distance education stations.

Another educational aid team, comprising 10 students from Tsinghua University and 30 from five universities in Taiwan, worked at a primary school in Dujiangyan City for a week in July. The school is located in Wenchuan, an area seriously stricken by an earthquake in 2008. The student volunteers delivered English lessons, science lectures and quality outreach programs for the pupils.

One student said after he returned, “What we can change is limited, but I believe that more and more people will pay attention to them and help them through our continuous efforts.”

50th Anniversary of Miyun Reservoir

Miyun Reservoir, which was designed and partly constructed by Tsinghua faculty members and students in the late 1950s, has served Beijing residents for 50 years. It has been the most important source of drinking water in Beijing and has supplied about 60% of all domestic water used by Beijing residents for years.

To eliminate the flooding problem caused by Beijing’s Chaobai River and to meet the city’s water supply demand, Tsinghua University took up the challenge of designing the Miyun Reservoir in 1958. Led by Professor ZHANG Guangdou as chief designer of this project, many faculty members and students from the Department of Hydraulic Engineering participated in the reservoir’s planning, design, construction, and earthquake-proof reinforcement.
Professor ZHANG Chuhan from the Department of Hydraulic Engineering summarized that the reservoir had three innovative designs at that time: an earthen dam with a thin, inclined soil wall, the concrete cut-off wall, and the under-dam diversion tunnel. In 2009 the China Construction Industry Association included Miyun Reservoir in its list of 100 Great Projects in China since 1949, together with the Three Gorges Hydro Project on the Yangtze River and the Xiaolangdi Hydro Project on the Yellow River.

The project was finished on September 1st, 1960. Since then, the staff and students of the department have devoted a great deal of effort to the expansion, reconstruction, reinforcement, safety and operation of the reservoir.

International Cooperation & Exchange

Tsinghua-MIT-CUHK Research Center for Theoretical Computer Science

The Tsinghua-MIT-CUHK Research Center for Theoretical Computer Science was inaugurated at Tsinghua University on June 21st. Co-founded by three leading institutes in the field, the Institute for Theoretical Computer Science at Tsinghua University (ITCS), the Computer Science and Artificial Intelligence Laboratory at the Massachusetts Institute of Technology and the Institute of Theoretical Computer Science and Communications at the Chinese University of Hong Kong (CUHK), the Center will conduct collaborative research in theoretical computer science and provide an important platform for international exchange of both students and faculty members in the field.

The Center's initial research agenda is broadly based on the theory of computation, which includes algorithm design and complexity analysis, computing safety, and quantum computation. However, this will gradually expand to include various other research areas in the field of computer science,
such as computational biology and machine learning. A. M. Turing Award laureate (2000) and ITCS Director Andrew Chi-Chih Yao and Professor Silvio Micali from MIT will serve as co-directors of the Center.

Chinese Vice-Minister of Education CHEN Xi, Tsinghua President GU Binglin, MIT President Susan Hockfield, CUHK Vice Chancellor Designate Joseph Sung, and other guests, faculty members and students from the three universities attended the inauguration ceremony.

Tsinghua Global Vision Lecture Series

Mr. Jimmy Carter, former President of the United States, lectured on “Advancing Open Government Information around the World” on September 6th at Tsinghua’s School of Law. Over 200 students and specialists attended the lecture which was the 83rd in the Tsinghua Global Vision Lecture Series organized by the Office of International Cooperation and Exchange.

Presentations in this series, which was launched in September 2007, are given by notable world figures such as Nobel laureates, university presidents, the world’s leading entrepreneurs, and distinguished statesmen and experts in a wide range of fields. The lectures are open to all students.

The Global Vision Lecture Series includes the Global Leadership Series and the Advanced Studies Series. The former includes lectures intended to promote students’ leadership capabilities, broaden their view of the world, and enhance their ability to compete in a globalized world. The Advanced Studies Series focus on providing students with state-of-the-art insights into academic research from a wide range of disciplines, ranging from natural science and engineering to social sciences and the humanities.

33rd International Symposium on Combustion at Tsinghua

The 33rd International Symposium on Combustion was held at Tsinghua from August 1st to 6th. Organized by the Combustion Institute and hosted by Tsinghua University, it gathered over 1,270 scholars and postgraduates from about 40 countries and regions.

Topics of the Symposium included chemical and kinetic fundamentals of combustion, pre-soot and soot formation, the physical and chemical process of the formation of large molecules, combusting diagnostic technology, laminar flames, turbulent flames, heterogeneous combustion and material synthesis, spray and droplet combustion, explosion, supersonic combustion, internal combustion engines, gas turbines, and new energy technology.

Over 300 academic papers were presented, and more than 500 others were posted during the Symposium.

The Symposium, held every other year, is the highest-level international conference in the combustion field. This was its first time to be held in China.
Sixty-one Chinese universities, including Tsinghua, have been approved by the Ministry of Education to be the first group of universities for the Education and Training Program for Excellent Engineers. Launched in June, this Project is a key reform initiative in higher engineering education in the National Medium and Long Term Educational Reform and Development Plan (2010-2020). It aims to cultivate engineering talents with global competence, a spirit of innovation and a strategic vision for future industry.

In 2010, 1,003 universities and colleges in China have undergraduate programs in engineering. To date, there are 3.71 million undergraduate students and 470,000 postgraduate students studying engineering at China’s universities.

China-ASEAN Ministers of Education Roundtable

The First China-ASEAN (Association of Southeast Asian Nations) Ministers of Education Roundtable and the Third China-ASEAN Education Exchange Week were opened on August 3rd in Guiyang City, China.

State councilor Ms. LIU Yandong met with the Ministers of Education from the ten member countries of ASEAN and delivered a keynote speech at the opening ceremony. She said that the Chinese government has long attached great importance to educational exchange and cooperation with ASEAN members, and has established an all-around collaborative partnership in education with them.

Ms. Liu also suggested taking measures to promote and secure cooperation between China and ASEAN in education, science, culture, health and sports. First, China will provide 10,000 government scholarships during the next 10 years and increase the number of both students from ASEAN to China and Chinese students to ASEAN countries to 100,000 by 2020. Secondly, China will invite 10,000 young scholars and...
The Project of University Academic Innovation & Intellectual Introduction (also called Project 111) was launched jointly in 2006 by the Ministry of Education and the State Administration of Foreign Experts Affairs. It aims to recruit to China about 1,000 leading experts and outstanding scholars with innovative capability from the world’s top 100 universities and research institutes, and establish around 100 first-class academic innovation bases. Project 111 can further promote high-level research cooperation and academic exchange to improve universities’ innovative capabilities and general competence. The first group of 26 bases was approved in 2006; another 17 were established in 2008.

Two bases of Academic Innovation & Intellectual Recruiting at Tsinghua University have passed the evaluation by the Ministry of Education this year and will be granted financial support for five consecutive years. There are now three bases in total at Tsinghua, namely the Base of Intelligence and Networking System (operated by the Department of Automation), the Base of Several Frontier Issues and Their Applications in Mathematical Sciences (operated by the Department of Mathematical Sciences) and the Base of Water Environment Pollution Control (operated by the Department of Environmental Science and Engineering). Within the last few years, they have made noteworthy achievements in scientific research, human resource training, creation of knowledge and recruiting talents from overseas.

The Association of Southeast Asia Nations was established in 1961. Its member countries include Indonesia, Malaysia, Singapore, the Philippines, Thailand, Brunei, Vietnam, Myanmar, Laos, and Cambodia.
Tsinghua University

Entering University

Freshman Barefoot Games

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