

ZHENG Zhemin Honored with State Supreme S&T Award

For his pioneering and lasting contributions to explosive mechanics in China, Prof. ZHENG Zhemin from the Institute of Mechanics, Chinese Academy of Sciences received the State Supreme S&T Award, which is the highest honor for science workers in China, from President HU Jintao on January 18, 2013 at the Great Hall of the People in Beijing.

Prof. ZHENG has been engaged in the study of explosive mechanics for over six decades. Born in 1924 in Shandong Province as the son of a successful businessman, ZHENG suffered from the Second World War and was determined to do something for his nation as a boy. During his senior year at Tsinghua University, he was inspired by his teacher QIAN Weichang, China's late "father of mechanics" and became very interested in mechanics. In 1952 he earned his PhD from the California Institute of Technology under the supervision of Prof. QIAN Xuesen, who later became the founding father of China's space and missile programs. ZHENG returned to China in 1955, joined the Chinese Academy of Sciences and soon started his investigations into the mechanism of explosions. He proposed the basic theories and technologies for explosive modeling, and his research was applied to the manufacturing of key components of the nation's first rockets, tanks and space anti-missiles. He also developed a series of technologies for solving engineering problems in construction projects, including the prevention of explosions in coal production and the explosive treatment of underwater soft foundations. Meanwhile, he has chaired or participated in the strategic planning of mechanics as a major scientific discipline for the academy or China.

The 88-year-old professor is a Member of CAS and the Chinese Academy of Engineering and Foreign Associate of the US National Academy of Engineering. He is former Director General of the CAS Institute of Mechanics, former President of the Chinese Society of Theoretical and Applied



ZHENG (R) receives the award from Chinese President HU Jintao (L).

Mechanics and founding director of the State Key Laboratory for Nonlinear Mechanics. He is a laureate of the Tan Kah Kee Science Award in 1993.

"I didn't expect such a supreme award. I'm very delighted. But the award also means an obligation, a responsibility for me," Prof. ZHENG was quoted as saying. "I'm thinking about drawing a new framework from past works. Though I don't have much time left, I wish I could do something to deserve this award."

As usual, Prof. ZHENG would receive five million yuan (about 800 thousand US dollars) for the award. The other recipient of the 2012 State Supreme S&T Award is Prof. WANG Xiaomo, a pioneer in China's airborne warning and control system. Since the year 2000, the Chinese government has conferred the prestigious award on a total of 22 senior scientists for their lifetime contributions to promoting S&T advancement in China.

CAS Headquarters Kick Off Administrative Reform

The CAS headquarters in Beijing announced in early May that it had started an organizational reshuffle aimed at promoting the Academy's administrative efficiency and facilitating innovation.

Via the revocation, merger and establishment of bureaus, CAS will straighten the relationship between its administrative organs and research institutes, strengthen their coordination and enhance the work efficiency. The

institutes are expected to enjoy more decision-making freedom, while the headquarters further reduce its interventions in specific management at institute level.

The planning of the reform began in late 2012 and was undertaken by a special workgroup. It is regarded as an important part of China's on-going reforms in the S&T sector and in the institutional reform of governmental departments.

Founded in November 1949, CAS has been the highest academic institution in natural sciences in China. At present, it boasts more than 100 research institutes and over 60

thousand workers all over the country. Before the reform started, the CAS headquarters had five bureaus for academic management and seven for integrated management.

CAS Furthers Cooperation with Developing Nations via TWAS Platform

With CAS President BAI Chunli's taking office as the President of the academy of sciences for the developing world (TWAS) on January 1, 2013, CAS is planning a set of new drives to boost its collaboration with developing nations, which include the launch of an expanded CAS-TWAS fellowship program and the establishment of research centers outside China.



As for overseas entities, CAS is planning to set up a research center in Kenya in partnership with the Jomo Kenyatta University of Agriculture and Technology, and the details and budget is in discussion. Some joint centers have already been launched, such as the China-Chile Joint

Research Center for Astronomy which was unveiled in Beijing in February and will open soon in Chile.

According to an agreement signed between TWAS and CAS on February 6, from this year, the CAS-TWAS President's Postgraduate Fellowship Programme will support up to 140 early-career scientists from the developing world for PhD study and research at CAS universities or institutes every year. The academy will cover their travel, visa and educational expenses as well as tuition and a monthly payment for housing and living expenses.

"CAS attaches great importance to the relationship with TWAS and continually supports S&T capacity-building in developing countries," President BAI was quoted as saying.

A well-known chemist and leading scientist in nanoscience, BAI is the first TWAS president from China since its establishment in 1983. He was elected to the presidency at the 23rd TWAS General Meeting last September in Tianjin, China.

China and Chile Launch Joint Research Center for Astronomy

The China-Chile Joint Research Center for Astronomy was officially inaugurated at the National Astronomical Observatories, Chinese Academy of Sciences in Beijing on February 1, 2013.

With China's expertise in astronomical theories, numerical simulation and telescope building, and the ideal observation environment and state-of-the-art telescopes in Chile, the center aims at win-win cooperation between the two countries in astronomical studies. China will also explore steady and mutually beneficial partnership with astronomers from other South American countries via the center.

The launch of the center is also an important move in CAS's new internationalization drive to set up research entities outside China, in developing nations in particular, following last year's election of the first Chinese President of TWAS, Dr. BAI Chunli, who is also President of CAS.



CHEN Chuangtian to Receive Prestigious Prize on Crystal Growth



Prof. CHEN Chuangtian, a distinguished expert in materials science from the Technical Institute of Physics and Chemistry, Chinese Academy of Sciences was recently informed by the International Organization for Crystal Growth (IOCG) that he had won the 2013 Laudise Prize for his outstanding achievements in the study of nonlinear optical crystals.

Born in 1937, CHEN graduated from Peking University's Physics Department in 1962 and has been engaged in the research and development of crystal materials for more than 50 years. He proposed and developed a theoretical model called the "anionic group theory" of the nonlinear optical (NLO) crystals, and successfully applied it to the search for new types of inorganic NLO crystals. On the basis of the theoretical analysis, he and his group discovered a series of new borate NLO crystals such as β -BaB₂O₄ (BBO), LiB₃O₅ (LBO) and KBe₂BO₃F₂ (KBBF). These crystals have obtained important applications both in science and industry. He is the laureate of many international prizes including the *Laser Focus World* Commercial Technology Achievement Award (1990) and the Third World Academy of Sciences Award for Chemistry (1987). He is also a Member of the Chinese Academy of Sciences and Fellow of the academy of sciences for the developing world.

The Laudise Prize is sponsored by IOCG and presented every three years since 1989 to recognize those who have made significant technological contributions to the field of crystal growth. Prof. CHEN is the first scientist from China to win a major IOCG prize. The awarding ceremony will be held during the 17th International Conference on Crystal Growth in Poland in August 2013.

Young Physicist from USTC Receives Fresnel Prize

Dr. CHEN Yu-ao, a young professor from the National Laboratory for Physical Sciences at the Microscale, University of Science and Technology of China (USTC), had received the Fresnel Prize for fundamental aspects by European Physical Society (EPS) on May 14 for his "outstanding achievements in the fields of multi-photon entanglement, quantum communication, quantum computation and quantum simulation based on manipulation of photons and atoms".

Born in 1981, CHEN showed extraordinary talent in physics as a teenager and first got involved in quantum information processing in his junior year at USTC. Under the mentorship of Prof. PAN Jianwei, who is a pioneer in quantum teleportation and multi-photon entanglement, CHEN and coworkers set up the world's first experimental platform for five-photon entanglement. CHEN earned his PhD from Heidelberg University in 2008 and returned to USTC three years later as a full-time researcher at the National Laboratory for Physical Sciences at the Microscale.

Dr. CHEN's research focuses on scalable quantum information processing based on the manipulation of photons and ultra-cold atoms. In collaboration with Prof. PAN and other colleagues, in 2011, he successfully observed the eight-photon "Schrodinger-cat state" for the first time in the world. By far, he has authored or co-authored over 40 peer-reviewed publications that have attracted over 1,800 citations.

His mentor and colleague Prof. PAN Jianwei is also a laureate of the Fresnel Prize. In 2005, Prof. PAN was awarded for his "pioneering works on experimental demonstration of quantum teleportation, entanglement swapping, entanglement purification and multi-photon entanglement". PAN and CHEN are the only two Chinese to have received the Fresnel Prize to date.

The Fresnel Prize, named after the French physicist Augustin-Jean Fresnel, is regarded as the highest honor for young scientists in quantum electronics and quantum optics awarded by EPS. Every two years, two young scientists under the age of 35 are awarded with the prize, one for fundamental aspects and the other for applied aspects.



Construction of a New CAS University Kicks off in Shanghai

Following the success of the University of Science and Technology of China (USTC) in Hefei and the University of CAS (UCAS) in Beijing, CAS is now building a third university – ShanghaiTech University in east Shanghai in a joint effort with local government.

Located in the middle of Zhangjiang High-tech Park with a design area of one square kilometer, ShanghaiTech will be built into a small-sized but internationalized research university, “a dynamic hub where research, education and innovation meet to encourage multi-disciplinary learning and solving problems facing society”.

According to plan, ShanghaiTech consists of four schools: the School of Physical Science and Technology, the School of Information Science and Technology, the School of Life Science and Technology, and the School of Entrepreneurship and Management. By offering various programs tailored to undergraduates, master’s and PhD students as well as professional graduate degrees, it is dedicated to nurturing “students of high ability and integrity, who have the potential to be the meritocracy in scientific discovery, high-tech innovation and entrepreneurship in creating emerging industries and management of business and administration.”

To create a tight connection between education, research and entrepreneurship, each undergraduate will be assigned to a supervisor from a relevant field and is required to participate in research activities. Meanwhile, advisors from outside institutes or enterprises will be invited to mentor the students.

CAS Shanghai Branch has actively participated in the university’s establishment, sharing with ShanghaiTech a



pool of leading educational resources, research facilities and technology platforms. Now the university is well integrated with the Shanghai Advanced Research Institute of CAS in Zhangjiang Park, and has already launched two institutes of its own: the Shanghai Institute for Advanced Immunochemical Studies and the iHuman Institute. Some of the most distinguished scientists have been recruited from around the world to work for the institutes.

Under the joint sponsorship and management of CAS and the Shanghai Municipal Government, ShanghaiTech will be governed by the University Council and employs a two-tier administration system that operates at university and school levels. The Shanghai Municipal Government will be mainly responsible for the university’s operation.

The ground-breaking ceremony of ShanghaiTech was held on December 28, 2012. In September 2014, the university will embrace its first students – some 2,000 undergraduates and 4,000 postgraduates.

Female Researchers Awarded Chinese Young Women in Science Fellowship

Dr. MA Xucun from the Institute of Physics (IOP) and Dr. LU Lei from the Institute of Metal Research (IMR) under the Chinese Academy of Sciences received the Chinese Young Women in Science Fellowship, together with other eight recipients of the fellowship, at a special ceremony in Beijing on December 11, 2012.

Dr. MA Xucun was awarded for her pioneering achievements in the growth and atomic-level control of thin

films of topological insulators and Fe-based superconductors via molecular beam epitaxy. Experiments conducted by her group had demonstrated that topological surface states are protected by time-reversal symmetry. Born in 1971, MA obtained her BS degree in chemistry from Peking University in 1992 and her PhD in condensed matter physics from IOP in 2000, and conducted postdoctoral research at the Max Planck Institute of Microstructure Physics from 2000 to

2002. She is now a research professor and leading scientist at the State Key Laboratory for Surface Physics based at IOP.

Dr. LU Lei received the fellowship for her outstanding contributions to the development of high-strength/high-conductivity materials. She and her colleagues at IMR synthesized pure copper samples with a high density of nano-scale growth twins, and the new material demonstrated ultrahigh mechanical strength while retaining an electrical conductivity comparable to that of pure copper. Dr. LU earned her PhD degree in 2000 from IMR and now heads a research group on the mechanical properties of bulk nano-structured materials at IMR in Shenyang. She is also a member of the International Committee on Nano-structured Materials.

According to a speech delivered at the ceremony by Ms. Song Xiuyan, vice-president and first member of the Secretariat of the All-China Women's Federation, there are 21.6 million female S&T workers in China now, which account for 40 percent of the total. She also said that the China has attached great importance to cultivating female scientists and supported them with preferential policies and favorable working conditions.

As the only award tailored for female scientists in China, the Chinese Young Women in Science Fellowship was jointly founded by the All-China Women's Federation, China Association for Science and Technology, the UNESCO China National Committee and L'Oreal China in 2004 to reward elite female scientists aged below 45 in all fields of science and to encourage young females to engage



themselves in science research and contribute to the welfare of mankind. The ten young women scientists selected for the award this year have made significant innovative research achievements in their fields from physics, geography and genetics to applied mathematics. Since 2004, the fellowship has been awarded to a total of 76 female scientists from 20 provinces and Hong Kong.

CAS Scientist Honored for Leading Studies in Traditional Chinese Medicine

In March 2013, Dr. GUO De-an from the Shanghai Institute of Materia Medica (SIMM), Chinese Academy of Sciences received the prestigious Norman R. Farnsworth Excellence in Botanical Research Award for his outstanding research achievements in the chemistry and pharmacology of traditional Chinese medicinal plants.

Dr. GUO is a leading figure in the modernization of traditional Chinese medicine (TCM) in China. His research focuses on the quality control, biochemistry and metabolism of TCM ingredients. His phytochemical investigations of traditional Chinese herbal medicines have resulted in the identification of about 100 new chemical entities and more than 430 published scientific papers to date. He also serves as Director of the State Engineering Laboratory for TCM



Standardization Technology and Director of the Shanghai Research Center for TCM Modernization at SIMM.

Dr. GUO earned his PhD in pharmacognosy from Beijing Medical University in 1990 and conducted postdoctoral research at the Department of Chemistry and Biochemistry, Texas Tech University from 1993 to 1996.

The Farnsworth Award, set up by the American

Botanical Council (ABC) in 2006, has been presented each year to one person or institution that has made significant contributions to ethno-botanical or pharmacognostic research. Dr. GUO is the first Farnsworth Award recipient from Asia. He was conferred on the award during the annual ABC Botanical Celebration and Awards Ceremony in Anaheim, California.

CAS and EU to Strengthen Cooperation under FP7 and Horizon 2020

To enhance the communication and cooperation between the Chinese Academy of Sciences and the European Union, a special information seminar themed “Research and Innovate with Europe” was held on March 26 at the CAS Academic Hall in Beijing, bringing together a group of 19 science diplomats from European embassies to China, headed by Science Counselor of EU Delegation to China and Mongolia Dr. Philippe Vialatte, and some 200 officials and researchers from CAS.

During the seminar, Dr. Vialatte introduced EU’s 7th Framework Programme (FP7, 2007-2013) and Horizon 2020 initiative (2014-2020). CAS Vice Secretary-General Dr. TAN Tieniu gave an overview of the Academy and its international cooperation. Dr. LIU Minghua, director general of the CAS Bureau of Basic Sciences, reported on the large-scale research infrastructures built by CAS. Representatives from European embassies also presented the major research activities in their countries and collaborations with China and CAS.

At present, the cooperation between CAS and EU is mainly under the EU Framework Programmes. According to Dr. Vialatte, as of February 2013, FP7 had supported 561 research proposals from China in major areas like knowledge-based biological economy, information and communication technology and environment. A total of 35



ongoing projects are signed with CAS involvement, and CAS scientists have been playing a leading role in China’s participation in FP5, 6 and 7.

Under Horizon 2020, EU will continue to strengthen its partnership with China, especially in infrastructure-related areas with CAS, Dr. Vialatte noted. “We have a strategy forum in Europe to discuss large research infrastructure alliances, and we also have a roadmap that envisages participation of non-European researchers, particularly Chinese researchers,” he was quoted as saying.

The seminar provided a good opportunity for boosting mutual understanding. “We need to know more about each other. We want to make French science and technology better known in China, and Chinese science and technology better known in France,” said Dr. Philippe Martineau, deputy S&T counselor at the French Embassy to China. China and France has set up 34 joint labs by far to work on frontier technologies like bio-technology and medicine.

Before the seminar, the European guests visited an exhibition on the history of CAS. According to CAS, follow-on activities will be arranged for the Europeans to visit a number of CAS institutes and seek for more cooperation opportunities.

