

## **S&T Highlights of China\*** **June and July 2011** **Beijing Office, National Science Foundation**

### **2011 East Asia and Pacific Summer Institute (EAPSI) for U. S. Graduate Students, China Program Opening Ceremony**



*Jacob Wickham, 2008 EAPSI Alumni shared his experiences in China at the Opening Ceremony.*

Forty EAPSI participants for the China program attended the ceremony held on June 14. This is a jointly sponsored program supported by NSF and the Ministry of Science and Technology of China (MOST). EAPSI students will work in laboratories of Chinese universities or research institutes for two months.

Chen Heping, Deputy Director General of the China Science and Technology Center (CSTEC) of MOST hosted the opening ceremony. The Science Counselor of U.S. Embassy Beijing, Director of NSF China Office, and Deputy Director of American Program of MOST gave welcoming remarks. Representatives of National Natural Science Foundation (NSFC) and Chinese Academy of Sciences (CAS) gave briefings about their programs.

James Wicker, 2004 EAPSI alumni and Jacob Wickham, 2008 EAPSI alumni, shared their experiences and provided helpful tips on doing collaborative research in China.

### **EAPSI students visit US Embassy Beijing and attend official briefing**

The NSF China Office organized an Embassy briefing for the EAPSI students on June 14, 2011.

Chargé d'Affaires of Embassy Beijing, Robert Wang, gave welcoming remarks. Embassy officials provided overviews on China-U.S. political and economic relations. They were also informed of partnership programs in energy areas with China,

other services provided to American citizens, and safety awareness.



*EAPSI students, NSF Beijing Office staff and Embassy officials at US Embassy Beijing.*

### **Recognition of NSFC**

A recognition event was held at U. S. Embassy Beijing on July 26 to recognize contributions to U. S. - China Scientific relations by NSFC through its enduring support of joint research programs and partnership. Since 1980s NSFC and NSF have established a number of bilateral programs that support basic research between Chinese and U. S. scientists.

Chargé d'Affaires of Embassy Beijing, Robert Wang, and William Chang, Head of the East Asia and Pacific Program of the Office of International Science and Engineering (OISE), jointly presented a certificate of appreciation to Vice President of NSFC.

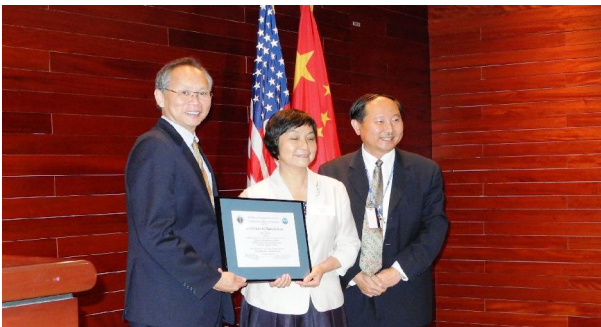
Chen Huai, NSFC Officer and Director of American Programs also received a certificate of appreciation for her dedicated services to foster scientific relationship between China and the U. S. Chen will retire in August, 2011.



*Emily Ashworth opened the recognition of NSFC event at US Embassy Beijing.*



*Chargé Robert Wang, and William Chang jointly presented the certificate of appreciation to Shen Wenqing, VP of NSFC.*



*Chargé Robert Wang, and William Chang jointly presented the certificate of appreciation to Chen Huai, Director of American Programs of NSFC.*

### **NSF-NSFC Biodiversity Workshop**

A biodiversity workshop was held in Beijing on July 27-28 at the Institute of Botany of CAS, the host organizer of this workshop with the Center of Tropical Forest Sciences of Harvard University, co principle Investigators of this project.

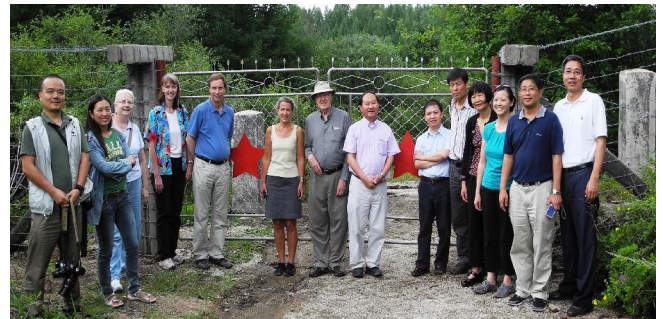
A team of NSF environmental Biology officers led by Pennelope Firth, Deputy Director, participated in the workshop including: Program Directors, Alan Tessier and Sarah Mathews, AAAS Fellow, Sara Chun, and James Wang, China Program Manager from OISE. Firth gave a welcoming address and William Chang gave a presentation on China- U.S. scientific collaboration at the plenary session.

Following the workshop, the NSFC and NSF team visited two research sites at Changbaishan in Jilin and Xishuangbanna in Yunnan to obtain a better understanding of the diversity of Chinese forests.

The NSF team also met with NSFC biodiversity program officers to discuss future areas of collaboration.



*Pennelope Firth gave welcoming remarks at the workshop on July 27 at CAS Institute of Botany, Beijing.*



*NSF biodiversity team site visit to Changbai Mountain forest.*



*NSF biodiversity team site visit to Xishuangbanna Tropical Botanical Garden, CAS.*

## **A National Space Science Center established in Beijing**

A National Space Science Center (NSSC) was established at the Center for Space Science and Applied Research (CSSAR), CAS on July 7, 2011.

The NSSC is built on the current Center for Space Science and Applied Research (CSSAR) to carry out a national strategic Space Science Project, including the development of five space science satellites. CASSAR will support several new mission studies and a number of long term enabling technology studies for future missions. These studies will lead to building national space science in China.

CSSAR has conducted a serial of projects on space science since 2000, such as "Double Star Project", "Yinghuo-1 Project", the first Chinese Mars exploration program, "Meridian Project", and others.

## **NSFC awards the 2011 Research Fund for International Young Scientists**

NSFC announced forty international young scientists will be sponsored by its 2011 Research Fund for International Young Scientists. The award will provide each scientist ¥100,000 Yuan for 6 months or ¥200,000 Yuan for 12 months to work with their Chinese collaborators at the host research institutions or universities. The following nine American scientists have been funded this year, which accounts for 23% of the international scientists:

<b>American Awardees</b>	<b>Host Institutions</b>
John Fortner	Nankai University
Christopher J. Vavricka J	CAS Institute of Microbiology
Bird Broxton Williams	CAS Institute of Tibetan Plateau Research
Evan Beach	Central South University
Benjamin Biron Yellen	Shanghai Jiaotong University
Andrea Armani	Tianjin University
Karen M. von Deneen	Xidian University (Xi'an University of Electronic Science and Technology)
Christopher Daniel Green	CAS Shanghai Institutes for Biological Sciences
Brad Manor	Peking University

The NSFC Research Fund for International Young Scientists was established in 2009, aiming to encourage excellent international young scientists to conduct basic research in China and promote research collaboration and academic exchanges between Chinese and international young scientists. The applicants must have Ph.D. degrees and be under 35 years-old, and have over three years of basic or post-doctoral experience.

## **China allocates 818 million Yuan to commercialize research findings in 2011**

Ministry of Finance has allocated ¥818 million Yuan (\$126.4 million U.S. dollars) annual fund to promote commercialization of research results in 2011.

The fund will primarily be directed toward projects in key industries and in low carbon environmentally friendly industries. The average subsidy for each project is ¥7.71 million Yuan in 2011, up 20 percent from 2010. The maximum subsidy for a single project is ¥45 million Yuan.

It is aimed at accelerating the transfer of S&T achievements into productivity, promoting industry technical innovation and speeding up economic reform in China.

## **China establishes State Key Lab for Hybrid Rice research**

China established a State Key Lab for Hybrid Rice Research on June 25, 2011 in Changsha, Hunan Province, with the support of Hunan Hybrid Rice Research Center and Wuhan University aiming to cultivate rice that will bring yields of 15 tons per hectare. Yuan Longping, Zhu Yingguo and Xie Hua'an, top scientists in cultivating hybrid grains, will lead research in the Lab. Another goal of the lab is to do transgenic research.

## **National Paddy Engineering Laboratory approved to be established in Nanchang**

The National Development and Reform Commission (NDRC) has approved the establishment of The National Paddy Engineering Laboratory (NPEL) in Nanchang, Jiangxi Province, as part of China's new approach to food safety. The NPEL will receive ¥12 million Yuan (\$1.8 million U.S. dollars) to build a research center. The NPEL

will be connected with the existing Jiangxi Provincial Academy of Agriculture and is intended to enhance the production capabilities of China's rice paddies.

#### **China's national multi-functional deep-sea base to be established**

China will begin the construction of its national multi-functional deep-sea base in 2011 as an institution for study and exploration of the ocean. The base, located in Qingdao, Shandong province, will cost ¥495 million Yuan (about \$76.2 million dollars) and will be affiliated with the State Ocean Administration (SOA).

The base will focus on research on seabed and the deposits of rare metals and methane hydrate and serve as a ground support station for a submersible vehicle "Jiaolong," which reached a record depth of 3,759 meters during test runs conducted in 2010.

#### **China to promote building of national digital library network**

In the next five years, China will launch a national project aiming to build a nationwide digital library network, according to a statement jointly issued by the Ministry of Culture and the Ministry of Finance.

The network will provide multi-media library services to the public, and the services will be available in public libraries and through the Internet, mobile phones, and mobile televisions.

#### **Chinese scientists map world's first complete goose genome sequence**

Chinese scientists have sequenced the complete genome of the Zhedong white goose for the first time in the world. The genome sequence was done by researchers from Zhejiang Provincial Academy of Agricultural Sciences, Zhedong White Goose Institute and Beijing Genomics Institute. The complete sequencing of the Zhedong white goose genome will provide a solid foundation for understanding of the growth performance, meat quality and biological breeding of the goose at the DNA level, and plays an important role in the selective breeding of high-quality varieties and improving reproduction.

#### **CAS researchers set world record for molecular simulation**

Researchers at the CAS Institute of Process Engineering have recently set a world record for molecular simulation when working on molecular dynamics modeling at Tianhe-1 supercomputer.

With the help of 7,168 NVIDIA GPUs in the system, researchers launched a gigantic molecular dynamics modeling project, in an attempt to understand the micro-behavior of crystalline silicon, a material commonly used in the solar cell and semiconductor industry. The simulation has unveiled the micro-behaviors of some 110 billion atoms. The prior simulation record was 49 billion atoms at a speed of 369 trillion floating point operations per second.

#### **Vanadium battery's 10,000 cycling operations**

Zhang Huamin and his research team at the CAS Dalian Institute of Chemical Physics (DICP) have developed a 2-kilowatt vanadium energy storage system with ability to perform 10,000 charge/discharge operations, without significant energy efficiency decay. The development makes the Chinese made system the second of its kind able to hit the 10,000 charge/discharge operations in the world, after the one produced by Japan's Sumitomo Corporation.

The system started to operate on July 6, 2007, performing seven charge/discharge operations a day. As of June 4, 2011, the system has been running smoothly for 1,429 days, or 34,000 hours on a combined basis, hitting 10,000 charge/discharge operations, without significant energy efficiency decay. The system is under a durability evaluation.

#### **CAS-University of Pennsylvania Joint Center of Excellence in Brain Mapping**

The University of Pennsylvania and CAS signed an MOU on May 27, 2011 announcing a joint Center of Excellence in Brain Mapping for the purpose of collaborative research and education in neuroimaging. Researchers and scientists from the University and the CAS Institute of Biophysics will collaborate to advance the application of neuroimaging to basic and cognitive neuroscience research. These will include the development and evaluation of novel imaging technologies and their

translation into new biomedical applications, and basic science studies for detection, characterization, diagnosis, and image-guided treatment of brain diseases affecting people.

### **East China Normal University and Colorado State University established Joint Research Institute for New Energy and Environment**

The East China Normal University (ECNU) and the Colorado State University (CSU) established the Joint Research Institute for New Energy and Environment (JINEE) on June 10, 2011, which will focus on the study of new energy materials, solar energy, efficiency use of new energy, technology innovation, and the sustainable development of ecological environment. The institute will also work as an international exchange and cooperation platform and invite senior scholars and experts from the United States to give lectures and work at the ECNU. In the meantime, the institute will carry out environment monitoring work and the study of effective utilization of water resources.

### **Fudan University finding: Brain cells can regrow**

Fudan University released on June 13, 2011 a finding saying its scientists have found that there are nerve stem cells and newborn neurons in adult monkeys and human brains, which hints at the possible repairing of damaged brain cells based on their three year study. A research team, led by Prof. YANG Zhengang at Fudan's Brain School, has confirmed the existence of newborn neurons derived from stem cells in adult macaque's brain.

They also investigated the long-distance migration of newborn neurons uniquely found in the brain. In addition, researchers spotted nerve stem cells in the brain tissues provided by an adult human brain bank based in Wuhan. They said these neural stem cells were active in presence, and contributed to the continuous growth of new neurons.

### **One-fifth of Chinese universities have heavy debts**

According to officials from the National Audit Office, a total of 1,164 universities in China have heavy debts that are worth about ¥263.5 million Yuan. China has close to 5,000 higher education institutions. The main reasons are due to ambitious infrastructure expansions of many campuses and fewer student enrollments. More than 9.3 million students took the national college

entrance examination in 2011, 240,000 fewer than 2010. It was the third consecutive years that there has been a decrease. Jilin University in Changchun has ¥3 billion Yuan of debt (U.S. \$464 million dollars). This is closely followed by Guangdong University of Technology with ¥2.3 billion Yuan and Zhengzhou University, which has debt of ¥2.1 billion Yuan.

\*The summaries of science and technology information from Chinese media are for use by NSF staff and US policy makers; they are not statements of NSF policy. For more information, questions may be directed to [nsfbeijing@nsf.gov](mailto:nsfbeijing@nsf.gov).