

# CHINA SCIENCE AND TECHNOLOGY NEWSLETTER

*Department of International Cooperation  
Ministry of Science and Technology(MOST), P.R.China*

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- **China's 2012 Annual Report on Global Eco-environment Issued**
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## Headline News

### Vice Premier Liu Yandong Emphasizes the Importance of Basic Research and Technological Innovation

On May 28, member of CPC Politburo and Vice Premier Liu Yandong noted during her visit to the National Natural Science Foundation of China (NSFC) that more attention should be paid to the long-term value of science; breakthroughs should be made in basic research to drive technological innovation and create new demand and new economic growth points, so as to ultimately promote sound development and sustained prosperity of economy and society.

Liu pointed out that establishment, development and improvement of NSFC is vital to boosting China's basic research and training R&D personnel, and the Foundation has contributed to improving China's innovation capability and accelerating the building of an innovative nation.

She stressed that the 18<sup>th</sup> CPC National Congress has put innovation at the core position of national development due to its importance to improving social

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productivity and comprehensive national strength. Basic research is a cornerstone of innovation. And China has already developed a full-fledged system of academic disciplines and a sound R&D infrastructure, trained a large number of innovative talents and produced a number of important research results.

She said that the Foundation should adopt new

ideas and new approaches to serve national development, and facilitate the implementation of innovation-driven strategy. Efforts should be made to create an innovation-friendly environment and mobilize scientists' enthusiasm in innovation and creativity. More innovative ways should be embraced to better manage the Foundation.

(Source: Science and Technology Daily, May 29, 2013)

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## Minister Wan Gang Attends International E-Mobility Conference

On May 27-28, an international conference themed "Electric Mobility Going Global" was held in Berlin, Germany. Wan Gang, Chinese Minister of Science and Technology, was invited to the meeting as a keynote speaker. This forward-looking event focused on potential and challenges of electric mobility, and more than 900 delegates from government, academia, industry and social organizations, including German Chancellor Angela Merkel, attended the conference.

In his presentation titled *Electric Vehicles (EV) Development*, Minister Wan elaborated on the necessity for China to develop new-energy vehicles as a strategic option, and he introduced the achievements that China has made in

EV technologies and industry development, the government measures to develop EVs and the international cooperation in this regard since the launch of the Major EV R&D Project at the beginning of this century. He also mentioned in particular that 30,000-plus EVs of various types have been running in 25 EV "pilot cities" in China since 2009.

During the event, parallel sessions were also held on EV-related energy conversion, development of traffic strategies and industrial standards. There were 16 latest EV models developed by over 10 automakers to be offered to the delegates for a test-driving experience as well.

(Source: Science and Technology Daily, May 29, 2013)

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## 12<sup>th</sup> Five-year Plan for National Innovation Capacity Building Issued

According to a government source on May 29, the State Council has issued *the 12<sup>th</sup> Five-year Plan for National Innovation Capacity Building* (the Plan). The document outlines some main policy focuses on innovation infrastructure, innovation key players, innovation team and talent, and institutional and cultural environment, etc.

The Plan consists of 10 parts which respectively are: (1) Foundation and circumstances for innovation capacity building; (2) Guidelines, goals and arrangements; (3) Innovation-support facilities and conditions; (4)

Sustained innovation capacity building in key industries; (5) Innovation capacity building in key social fields; (6) Regional innovation capacity building; (7) Innovation key players' capacity building; (8) Innovation talent aggregation and team-building; (9) Innovation-friendly environment; (10) Implementation of the plan.

The overall arrangements will be involving the work in following aspects:

1. Strengthen government coordination and guidance, give full play to the fundamental role of market in resource

allocation and encourage innovation key players to be involved actively.

2. Promote the building of research facilities and innovation bases, strengthen integration, sharing and efficient utilization of scientific and technological resources, and improve national standards, measurement, testing and certification systems, so as to realize a leapfrog development in science, technology and innovation.

3. Accelerate the R&D of core technologies and the engineering capacity building in key industries, upgrade innovation capability and public services in key social field, build up well-coordinated regional innovation systems with the local features, and make a joint effort to spur economic and social development.

4. Build up innovation-friendly environment which is related to innovation key players, talents and team

building, and institutional reform; engage more deepen international communication and cooperation; strengthen creation, utilization, protection and management of intellectual property rights, incentivize whole society of innovation forces and gain innovation efficiency and a good performance.

As required by the document, relevant ministries and agencies should pay much attention to the Plan and ensure its implementation by developing specific measures, breaking down tasks and clearly defining responsibilities and roles in their own functions. Local authorities should work out their own plans to build up capacities in innovation in light of the local specific circumstances. Inter-ministry and central-local coordination mechanisms should be put in place to facilitate the Plan's smooth implementation.

(Source: Science and Technology Daily, May 30, 2013)

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## S&T Management Information

### China's 2012 Annual Report on Global Eco-environment Issued

On May 28, the Ministry of Science and Technology (MOST) issued *2012 Annual Report: Remote-sensing Monitoring of Global Eco-environment*. As China's first report of its kind, the document offers in a systematic way the valuable information about land vegetation growth and land-surface water distribution of countries, continents, and even the whole globe.

The report is composed of two sub-reports: One report "terrestrial vegetation growth states" analyses the state of global terrestrial vegetation growth in 2011 and its dynamic changes from 1982 to 2011; Another report "distribution of land-surface water area" analyses the spatial distribution of land-surface water area globally in 2010 and its dynamic changes in the typical lake areas from 2001 to 2011. Based

on the dataset, the general report provides a description on state of global vegetation and land-surface water. These research results will provide robust data for scientific studies on the earth system, global eco-environmental protection, rational resource utilization, response to climate change, etc. and support government decision-making.

MOST will, through both international and domestic channels, expand the comprehensive applications of satellite data in weather, ocean, resources, environment and geography mapping, etc. It will also enhance collaboration with other ministries and agencies to work better on the report in the future.

(Source: Science and Technology Daily, May 29, 2013)

## International Technology-Transfer Congress Held in Beijing

On April 25, Beijing International Technology-Transfer Congress 2013, co-sponsored by the Department of International Cooperation of MOST, the Torch High-Tech Industry Development Center of MOST and the Beijing Municipal Science & Technology Commission, was successfully held in Beijing. The Congress attracted the participation of some senior S&T officials and diplomats from some 40 countries, including the US, the Britain and Italy. The representatives from Chinese and foreign companies and the officials from Beijing municipal government attended the Congress as well.

The Congress, themed “Innovation Drives to Wins”, included two panel discussions and three parallel sessions which were respectively named as the Global Innovation Leaders Summit, the Annual Meeting of the International Technology-Transfer Network and the Special Session on Sino-Italian Technology Innovation. Besides that, there were six country-specific sessions on the cooperation of China-US, China-South Korea, China-Africa, China-Canada, China-Germany and China-Israel. In consideration of the cultural diversity of countries, the focus of the Congress was placed on stimulating innovation force and promoting communication on

the development concepts and business cultures of companies in different industry sectors and technology fields.

At the special session on “SMEs Innovation Accelerator and International Technology-Transfer Cooperation and Development”, the participants held a roundtable discussion on the theme of “global incubator and cross-border accelerator”. The scholars and professionals there offered their views and suggestions on the question of how SMEs innovation accelerators could locate their respective strengths and seize the opportunities for achieving leapfrog development. The meeting was the only forum with a focus on SMEs during the Congress, and it provided an opportunity for Chinese and foreign S&T parks, financial support and other start-up service institutions to explore effective ways for leveraging the role of SMEs innovation accelerators by making coordinated use of international technology transfer, industry clusters and innovation and start-up service systems, and turn SMEs innovation accelerators into an important driver for the development of industries.

(Source: MOST, May 21, 2013)

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## Scientific Research Progress and Achievements

### Chinese Scientists Developed Traffic Accident Information Rapid Collection System

Wang Zhengguo, Academician of the Chinese Academy of Engineering(CAE), worked together with the research team headed by Yin Zhiyong from the Institute of Traffic Medicine, developed a new system for rapid information collection at the scene of traffic accidents. During an International Conference on Traffic Medicine recently held in Germany, the paper titled

*“The Application of New Equipment, New Technology and New Method in the Intensive Investigation of Traffic Accidents”*, presented by the research team and received the Best Paper Award.

Unlike the traditional way of information collection at the accident scene, the research team used aerial

photography and other technologies in the collection of on-site information, and developed an information collection device based on the wireless model aircraft. With the use of GPS positioning and other methods, the system provided effective solutions to image jittering, shooting position control, image distortion and accuracy error and other operational problems. In the meantime, the research team also developed the information analysis

software compatible with the relevant technologies, which is able to reproduce a complicated accident scene in only ten minutes, and transmit the images to the traffic management and command center at the earliest possible time, so that the relevant personnel could immediately get a general picture of the accident.

(Source: Science and Technology Daily, May 28, 2013)

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## **Breakthroughs Made in Key UV Laser Technologies**

The “development and application of key technologies for Ultraviolet(UV) laser industrialization”, a joint project undertaken by the Tsinghua University together with other institutions, has recently passed the acceptance check, marking an important step forward in industrialization of the device. The project is supported by the 863 program during the 12<sup>th</sup> Five-year Plan period.

The research team of the project has provided satisfactory solutions to a number of challenges in production process, including the growth of centimeter-level BBSAG crystal, the processing of nonlinear crystal ultra-smooth surface and the whole-unit assembly

of Diod-Pump Laser (DPLs) suited for industrial application, mastered a full range of key technologies such as frequency conversion of high-quality UV beams, life and damage resistance of nonlinear optical crystals and beam direction stability, developed internationally competitive UV-DPLs with power output ranging from 10W to 30W and a new BBSAG quadruple frequency device, acquired a whole set of core UV-DPL technologies with independent intellectual property rights, and succeeded in conducting a trial application of UV lasers in micro-processing equipment.

(Source: MOST, May 22, 2013)

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## **China Built the First Pilot Floating Tidal Power Plant Using Vertical Axis Tidal Turbine**

According to reports, a 100KW tidal power plant named Haineng-I, designed by a team headed by the Marine Renewable Energy Research Institute of the Shipbuilding Engineering College of the Harbin Engineering University, recently had a successful trial operation in the Guishan waterway of Daishan county, Zhejiang province. It is China’s first pilot tidal power plant using dual vertical axis tidal turbines and floating technology with a total capacity of 300kW, which is developed by the university itself.

The power plant has provided a systemic solution to the problems associated with the integrated designs of floating tidal power generation system and shallow-water large-load system. In the building of the power plant, the project team has developed a number of key technologies, including high-performance variable-angle vertical axis turbine, lightweight high-strength composite blades, electric energy conversion stability and control, and dynamic submarine cable design and laying, established the theories and software systems for the designing of

tidal power generator units, and developed a range of essential equipment such as floating carriers, moorings, vertical turbines, low-speed generators and electric energy convertors. Through the trial operation, the power station succeeded in achieving automatic operation at sea and

power supply to the shore via submarine cables. Experts believe that the designing techniques and devices of the pilot system have both reached advanced international level.

(Source: Science and Technology Daily, April 18, 2013)

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## International Scientific and Technological Cooperation

### China-Australia Joint Research Center Unveiled in Beijing

On April 9, 2013, Australian Prime Minister Julia Gillard attended the reception marking forty years of successful S&T and education cooperation between China and Australia and unveiled the plate of the China-Australia Joint Research Centre during her visit to China. Leading officials of MOST, Ministry of Education, Ministry of Agriculture, Chinese Academy of Sciences and other Chinese government departments attended the inauguration ceremony.

Last December, witnessed by then-State Councilor Liu Yandong and Prime Minister Julia Gillard, Chinese Vice Minister of Science and Technology Wang Zhigang and Australian Minister for Industry, Innovation, Science, Research and Tertiary Education Chris Evans, on behalf the two governments, signed the *Joint Statement on the Building of Joint Research Centers*. According to

the document, the two sides will jointly provide 10 million Australian dollars through the China-Australia Science and Research Fund to support the development of joint research centers in energy, engineering and material science, agriculture and biological science, environmental science and other fields as well as various academic disciplines related to the building of a sustainable future.

The joint research centers now proposed by the two sides include the following: China-Australia joint research center on energy, China-Australia joint research center on light metal, China-Australia joint research center on wheat improvement, China-Australia joint research center on mining materials, China-Australia joint research center on watershed management and China-Australia joint research center on materials.

(Source: MOST, May 31, 2013)

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### Chinese and British Academic Communities Co-publish World Leading Journals on Chemistry

On May 23, 2013, the Chinese Chemical Society, Peking University, Shanghai Institute of Organic Chemistry of Chinese Academy of Sciences (CAS) and the

UK Royal Society of Chemistry (RSC) formally signed an agreement on the co-publication of two international academic journals, *Inorganic Chemistry Frontier* and

*Organic Chemistry Frontier*, which is an extension of the existing bilateral cooperation between the two sides. According to the agreed plan of cooperation, the partner institutions from the two sides will share the ownership of the two journals and the proceeds of journal publication proportionate to their investment in the project and jointly contribute to the promotion of the journals. Taking *Organic Chemistry Frontier* for example, the Chinese Chemical Society, the Shanghai Institute of Organic Chemistry and the UK Royal Society of Chemistry have

respectively contributed a 20 percent, 40 percent and 40 percent share to the investment in this journal. The review of the academic papers submitted to the journal will be conducted in ways consistent with international common practices, using the expert database of both sides to support paper selection and review. It is understood that the proportion of papers submitted by Chinese authors will be kept below 25 percent in this cooperation.

(Source: Science and Technology Daily, May 28, 2013)

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## Cooperation Projects and Channels

### International Science and Technology Cooperation Base (14): Hefei General Machinery Research Institute

Hefei General Machinery Research Institute, established in 1956, is a national innovation-oriented enterprise, and the hosting unit of the “National Pressure Vessel and Pipeline Safety Engineering Technology Research Center” and the “State Key Laboratory of Compressor Technologies”. In 2009, the institute was approved by MOST as an international science and technology cooperation base. It now has 3 national quality inspection centers, 1 ISO branch, 10 national standardization committees, 4 national standardization subcommittees, 5 provincial/ministerial engineering technology research centers, and 4 provincial/ministerial key laboratories. The institute is principally engaged in the designing, development, R&D, testing, supervision, project contracting and vocational training of general machineries and chemical engineering equipment used in the petrochemical, energy, metallurgy, gas, environmental protection, national defense and other industries, providing technologies and products covering over 20 fields, including pressure vessels and pipelines, fluid machinery, petroleum equipment, science-education

equipment and food packaging machinery. The National Pressure Vessel and Pipeline Safety Engineering Technology Research Center, which was established in December 2003 in the Hefei General Machinery Research Institute with the approval of MOST, is dedicated to developing new materials, new processes and new methods in the fields of “pressure vessel and pipeline safety assurance technologies” (localization of the designing and manufacturing of essential equipment in the process industry) and “in-service equipment security technology” (risk assessment and control of process industrial devices in long-term operation) and tracking the progress of international pressure vessel and pipeline technologies. In 2012, the Center was certified as the “International Joint Research Centre on Pressure Vessel and Pipeline Safety” by MOST.

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## International Training Workshop on Soil & Water Conservation and Dry-land Farming

**August, 2013**

**Yangling, Shaanxi Province, China**

**Working Language: English**

**Objectives:**

The aim is to help the participants to learn about the research and technical application of water-saving technologies in China through lectures and visits; to learn key technologies and management approaches of water-saving technologies; to facilitate the technology exchange, cooperation between China and other

developing countries in agriculture.

**Organizer:**

Yangling International Exchange Center

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No.6 Xinqiao North Road, Yangling, Shaanxi,  
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## International Training Workshop on Medium and Small Hydroelectric Technology

**August, 2013**

**Changsha, Hunan Province, China**

**Working Language: English**

**Objectives:**

The aim is to promote automation and informatization of small and medium hydropower in other developing countries and to promote upgrading and updating of small & medium-sized hydropower automation control equipments; to cultivate a group of hydropower automation specialized technical personnel for other

developing countries.

**Organizer:**

Hunan Huazi Science & Technology Co.,Ltd

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