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SPECIAL ISSUE

Chinese Government Solicits Scientific Puzzles



On July 15, 2009, a news conference was jointly held by the Ministry of Science and Technology, Ministry of Education, Chinese Academy of Sciences, and National Natural Science Foundation to report the phase results of the campaign designed to solicit 10,000 scientific puzzles. The campaign was jointly launched by the said four sponsors in 2007, in an attempt to collect interesting topics for basic research activities. As an important part of the major project initiated by Ministry of Science and Technology to create more innovative methods, the campaign is defined to further implement the strategies of rejuvenating the nation with science and education and national capacity building with talented people, and to render a powerful human resource support and knowledge contribution to building an

innovative country. The solicitation was implemented in a phased manner from discipline based collection to consolidation. Scientific puzzles in the area of mathematics, physics, and chemistry have been collected in 2007, and the results were published by Science Press in three separate volumes for mathematics, physics, and chemistry under the series of 10,000 scientific puzzles. The published volumes have collected 740 scientific puzzles, with 250 for mathematics, 301 for physics, and 189 for chemistry. Some 1,852 contributors from more than 200 education and research institutions are part of the collection efforts, rendering a workload worth 4000 person/time. In 2009, efforts will be made to solicit scientific puzzles in the area of astronomy, earth sciences, and basic biology. The results will be published in the first half of 2010. After that, initiatives will be launched to collect scientific puzzles in the area of agriculture, medicine, and engineering technology.

INTERNATIONAL COOPERATION

China-US Clean Energy Research Center



Chinese Ministry of Science and Technology, Chinese National Energy Administration, and US Department of Energy jointly declared the establishment of China-US Clean Energy Research Center at a news conference held on July 15, 2009. LIU Yandong, Chinese State Councilor, WAN Gang, Chinese Minister of Science and Technology, ZHANG Guobao, Chinese Administrator of Energy, and Steven Chu, US Secretary of Energy were present at the event.

According to a briefing, as a follow-up to the consensus reached by Chinese President Hu Jintao and US President Barack Obama, LIU Yandong, Chinese State Councilor, visited the United States in the mid-April 2009, where she and Steven Chu, US Secretary of Energy, agreed to establish a China-US clean energy research center, facilitating the collaborative studies of Chinese and American scientists and engineers in the area. The newly established research center will make energy efficient buildings, clean coal technology, and clean energy autos the priority topics.

WAN said both China and the United States are a large energy producer as well as a large energy consumer, having complementarity in the area of energy studies. The new center will become a platform and support for the bilateral cooperation in the area of energy studies, playing a positive role in strengthening S&T cooperation between China and the United States.

Both China and the United States will invest USD 15 million as the seed funds for the new center. Chinese Ministry of Science and Technology, Chinese National Energy Administration, and US Department of Energy will soon work on the detailed plan to build the new center.

WAN Met with US Secretary of Energy





On July 15, 2009, WAN Gang, Chinese Minister of Science and Technology, met with Steven Chu, US Secretary of Energy, at the Great Hall of the People. WAN said as a follow-up to the consensus reached between LIU Yandong, Chinese State Councilor, and Steven Chu, US Secretary of Energy, during her visit to the United States in April 2009, both sides agreed to establish a China-US clean energy research center, in an attempt to raise the level of bilateral S&T cooperation, and deal with common challenges such as climate change and energy shortage. WAN also pointed out that the Chinese Ministry of Science and Technology and US Department of Energy will establish a China-US Council for Energy S&T Cooperation to define tasks and directions for the cooperation in the area, and provide the needed funds. WAN and CHU reached consensus on the priority areas that the new clean energy center will work on, including clean coal technology, homebuilding energy efficiency, and clean energy autos. WAN also briefed the other side of the renewable energy development in China and a clean energy auto pilot project, or a thousand clean energy automobiles in ten cities, staged by the Chinese Ministry of Science and Technology.

China-Europe S&T Cooperation Forum



A China-Europe forum to discuss S&T cooperation in an information society was held on July 10, 2009 in Beijing. A Chinese delegation led by CAO Jianlin, Chinese Vice-Minister of Science and Technology, and a European delegation headed by Fabio Colasanti, Director-General, Information Society and Media, European Commission, were present at the event. Participants discussed the priorities for the future collaborations in the area of information technology, and exchanged views on enhancing the cooperation in the area of futuristic internet, futuristic communication, high performance computation, IPV6, and high speed research network among others. In addition, participants discussed the perspective to stage collaborations in the area of RFID, internet of things, and complexity modeling, hoping that the Shanghai Expo will become another platform to demonstrate the potentials of information technology collaborations between China and Europe, after the successful collaborations between China and Europe for a digitized Olympic Game.

Shanghai Cooperation Organization S&T Meeting

At the initiative of the Chinese Ministry of Science and Technology, representatives of Shanghai Cooperation Organization member states, embassy officials, and the secretariat of Shanghai Cooperation Organization had an expert panel meeting on July 7, 2009 in Urumchi. All parties agreed that the first S&T ministerial meeting of Shanghai Cooperation Organization shall be held in 2010.

The expert panel discussed a range of issues concerning multilateral S&T cooperation among the member states, and agreed that science and technology has played an increasingly important role in international politics and economy. In this context, strengthening the partnership of the member states in the area of science and technology

is necessary. All parties agreed to stage multilateral S&T cooperation in diverse forms, to create a regular mechanism for S&T ministerial meeting, and to support the proposal to convene the first S&T ministerial meeting of member states in the first half of 2010 in China.

TB Alliance Works with China for Better TB Drug

TB Alliance announced recently that it will work with a number of Chinese institutions, including the Institute of Medical Materials, part of the Chinese Academy of Medical Sciences and Beijing TB and Chest Tumor Institute, to develop new Clofazimine TB drugs that are able to treat drug-resistant TB cases. The collaborative study will be powered by the monetary and technical support of TB Alliance. The Institute of Medical Materials will render its medicinal chemistry expertise to the study, while Beijing TB and Chest Tumor Institute will take care of animal experiments and tests. The Chinese government is also part of the efforts to finance the study.

Young Scientists from Developing Countries

Exchange Protein Technology

On July 15, 2009, young scientists from some 20 developing countries gathered together in Beijing to discuss new techniques and approaches to study proteins. The scientists, 35 years old or younger, came from more than 20 third world countries, including Egypt and Georgia. They were invited to exchange new techniques and approaches of studying proteins, including proteins' expression, purification, quantitative measurement, crystallization, and structure identification, protein functions and dynamic processes, and protein drugs. Young scientists also visited the protein research platform and protein industrialization incubators run by the Chinese Academy of Sciences, and a number of protein drug producers, including BIOSINO and BAIAO Pharm.

BAI Chunli, Vice-President of Chinese Academy of Sciences, told reporters that the exchange is designed to diffuse the latest protein study techniques and approaches, especially to the third world countries. It is also a good opportunity for Chinese scientists to listen to the comments and views of scientists from other countries, deepening S&T exchanges between China and developing countries, and facilitating the collaborations with developing countries in the area.

RESEARCH AND DEVELOPMENT

World's First Semi-Direct Drive Wind Turbine

Shenzhen Fengfa Technology rolled out the world's first semi-direct drive wind turbine at the megawatt level in the afternoon of July 15, 2009. Thanks to their many-year explorations and proprietary innovations, researchers at Fengfa Technology have mastered a range of key technologies, including switched reluctance motor, for developing the new wind turbine. The efforts have resulted in 24 patents, including 8 national invention patents. The new wind turbine weighs 24 tons, or half of the weight compared with other similar turbines. Researchers worked out an array of technical innovations, allowing the turbine to operate in a widened work range, desirable for wind power generation, especially, the vertical power generation. As a semi-direct drive model, it enjoys enhanced transmission efficiency. It produces direct current, making an adverse process unnecessary. The new system has an enhanced power generation efficiency exceeding 92%, within a rated power range from 10% to 250%. Improved stability and duration allows the wind turbine to work for more than 3,000 hours a year, directly reduced the unit cost for producing electricity.

The new system has been test run for more than one year in Qinghai, with an enhanced technical strength, including high efficiency, super overloading capacity, enhanced safety feature brought by high intensity vane made of composite materials and suspension arm structures, and greatly reduced total cost, construction cost, and maintenance cost.

Mini Magplane Pipeline System Tested

A mini Magplane pipeline transportation system, jointly developed by Inner Mongolia based Magplane Technology, Inc. and US based Magplane Technology, had a successful test run launched on July 9, 2009 at the premises of the Rare Earth Development Park in Baotou. Having a length of 80m, the demonstration line is made up of a fully closed magnetic pipeline and a magnetic cargo compartment. The strong magnetic driving power produced by the linear synchronous motor in the pipeline pushed the cargo compartment to move at a speed of 10m a second. Experimental data show that a magnetic pipeline with a diameter of 1100mm is able to realize an annual transportation volume worth 5 million or 15 million tons of solid cargo, such as coal and iron ores. The demonstration line is designed to provide experimental data for a longer demonstration line (1km) and a commercial demonstration line (12km).

Free from the impacts of climate and environment, the new transportation system is able to cope with complicated and tough terrains, enjoying the strength unmatched by any other transportation tools, in terms of economy, energy efficiency, environment friendliness, and efficiency. It has an energy cost that is only 5% of the highway transportation system.

Twin Panda Cubs Born



Panda Lily and her kids.



Panda Lily gave birth to two cubs, the first twin event this year in the world.

Panda Lily gave birth to two cubs on July 19, 2000, the first twin event this year in the world. The healthy two female cubs weighed 122g and 100g respectively on birth.

Three H1N1 Test Kits Won Approval

Chinese Ministry of Science and Technology has recently approved three H1N1 test kits for clinical application. Three test kits, including the influenza virus A test kit developed by Guangzhou Wanfu Biotechnology, the FluA-Ag test kit rolled out by Beijing Wantai Biopharmaceuticals and Xiamen University, and the Flu A/B test kit (colloidal gold immunochromatographic strip assay) worked out by Beijing ASCLE Bioengineering, have stood out in the screening for their fine sensitivity, easy operation, and quick readout. The approved test kits are able to tell the results within 15 to 30 minutes.

BEPC Upgraded

BEPC , a project to upgrade the Chinese made Positron and Electron Collider, was smoothly passed the approval of national authorities on July 17, 2009. Expert panel that is part of the approval process believed that major upgraded performances and parameters of linac, storage ring, synchrotron radiation module, and Beijing Spectrometer III have reached or exceeded the design requirements. BEPC is able to, under a given energy, produce a luminosity that is 33 times its predecessor, securing its position as an

international leader in the area.

According to a briefing, applied with the state-of-the-art dual-ring cross collision techniques, BEPC has raised the collision luminosity by 30-100 times, through creatively addressing the problems of narrow storage ring channel and limited colliding range, and by taking full advantage of the existing facilities. BEPC is designed to work on both high-energy physics and synchrotron radiation, and has become one of the most advanced dual-ring colliders in the world.

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