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NEWSLETTER

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IN THIS ISSUE

SPECIAL ISSUES

Experimental Reactor Operational in 2010

The 21st World Fusion Energy Conference was held October 16-21, 2006 in Chengdu. XU Guanhua, Chinese Minister of Science and Technology, said at the meeting that China has been working on nuclear fusions for some 5 decades, covering both

magnetic and inertia confinement fusions. China has from the very beginning made fusion energy a major goal, especially for the study using the Tokamak approach. Thanks to several decade long development, China has developed both the capability and expertise for design, constructing, and operating medium sized Tokamak devices, with a range of important lab accomplishments. At present, both HT-7and HL-2A devices have produced experimental results of their worth. EAST, a Chinese made superconductor Tokamak device and the first of its kind in the world, has approached its finality for experimental operation. China will continue to support the pre-phase development of EAST, along with the future decade long construction of ITER, as the former bears a similarity with the later. China will also get prepared for the operation and development of ITER device.

KANG Rixin, CEO of China Nuclear Industry Group, said that the 65-megawatt experimental reactor under construction would reach its critical threshold on June 2009, and expect to generate electricity in June 2010. The 65-megawatt reactor will produce 20 megawatt electric power when operating on an experimental basis.

Raised Chinese Standards

Not long ago, a ceremony was held to confer China Standard Innovation Award. LI Chuanqing, Administrator of Quality Supervision, Inspection and Quarantine, SHANG Yong, Vice Minister of Science and Technology, and LIU Pingjun, Director of the Standardization Administration of China were present and spoke to the event.

According to a briefing, China’s standardization campaign will proceed in two phases:

1) China will establish by 2010 a technical standard system covering major areas, with a rational structure, and strong market adaptability, allowing the nation to sit at a level of intermediately developed nations. Detailed targets are: raising the internationally accepted standards from the current 44% to 85%; standard formulation and revision from current yearly 2,000 in number to 6,000; standard making cycle from 4.5 years down to 2 years; and age of a standard from 10.2 years to 5 years.

2) China will strive for the overall level of its standards reaching

an internationally advanced level in 2015, with technical standards for home appliances, energy, and automobiles at an international leading position. The following are the major objectives: 5,000 standards for proprietary innovation technologies; 2,000 internationally accepted standards, using Chinese standards as major reference, or with China being a major part; 90% domestic adoption of international standards; China becoming a permanent council member of International Organization for Standardization; China's participation in IOS technical commissions, sub technical committees, and working groups rising from current 1.7% to 10%; and making major Chinese industrial enterprises an active part of international efforts for standard making and revising.

SHANG Yong said that the Ministry of Science and Technology will work closely with General Administration of Quality Supervision, Inspection and Quarantine, supporting and promoting standard related innovation activities. China will also strive for more initiatives of formulating standards in the major areas that boost China's core industrial competitiveness, and establishing a high caliber expertise contingent for the purpose.

INTERNATIONAL COOPERATION

China-Japan-Korea Robot Gathering

Under co-sponsorship of the Department of High Tech Development, part of the Chinese Ministry of Science and Technology, China-Japan Exchange Institution for Industry, Universities, and Government, and the Department of Industrial Technology under Korean Ministry of Information and Communication, a China-Japan-Korea Robot Workshop lifted its curtain on October 9, 2006 in Beijing. Representatives from some 70 government agencies, research institutes, universities, and industry in three countries attended the meeting. MA Songde, Chinese Vice Minister of Science and Technology, made a speech at the event. He encourages exchanges and collaborations between scientists in the three countries in robot technology and associated commercial applications.

Government representatives from three countries introduced their respective robot technology development plan at the meeting. Researchers and industrial representatives spoke

about the progresses achieved in the area, exploring possible international exchanges and cooperation. Participants agreed that China, Japan and Korea are the nations with most vitality in Asian economy and S&T activities, enjoying a deserved weight in international affairs. Three countries have witnessed a fast development of both manufacturing and information industries. All these have created new opportunities and room for developing robot technology. Three countries are obliged to render their contributions to the sustained economic growth of Asia and to the world as well, to build a harmonious, peaceful, and prosperous international society, and to advance robot technology. Three sponsoring parties jointly inked a Memorandum of Understanding at the meeting, in an attempt to enhance international exchanges and cooperation in robotics and associated commercial applications, and advance the development of robot technology. Participants believe that the efforts will eventually contribute to the world peace, harmony, and progress. The memorandum also stresses an enhanced exchange between signatory parties in related planning, strategy making, and research. Joint efforts will also work on cooperative studies and development, standards, technical training, personnel exchange, and development strategies.

China-EU S&T Year

Under the joint sponsorship of Chinese Ministry of Science and Technology and Science (MOST) and Research Commission of the EU system, China-EU Science and Technology Year was officially launched on October 11, 2006 in Brussels, where the EU Headquarters sits. The event marks an official start of the S&T cooperation between the two side for innovations and mutual benefits.

From the day to September 2007, both parities will stage an array of activities, including exhibitions, forums, seminars, and science outreach, with a wide coverage over the EU Headquarters and its member states, and Beijing and other China's provincial capitals. In the meanwhile, both parties will initiate a range of S&T cooperation projects, in an effort to facilitate cooperation in the fields of science and advanced infrastructures, technology transfer, and investment.

According to a briefing issued by the Chinese delegation, MOST will host four China-EU S&T cooperation forums in the nation's middle, east, northern, and southwest sections respectively in

the second half of 2006. The forums will allow Chinese S&T personnel and management to be familiar with EU's S&T policies, framework programs, China-EU S&T cooperation perspectives, and action plans.

3-D Cellular Protein Image

NATURE BIOTECHNOLOGY published on October 2, 2006 a cover story entitled "Analyzing proteome topology and function by automated multi-dimensional fluorescence microscopy" co-authored by Walter Schubert and 8 other authors from Magdeburg in Germany and Andreas Dress from the CAS-MPG Partner Institute for Computational Biology (PICB). The development marks cell biology entering a topology era.

The new technique allows scientists to track down hundreds of proteins on a same pathologic slice, not only viewing their 3-D distributions, but also complex relationships between them. In the past, a conventional means only allows tracking down the activities of several proteins at a time.

The new finding constitutes a laudable contribution to identifying diagnostic markers, and sorting out new targets. Chinese and German scientists have collected huge amount of sophisticated data, from analyzing cancers, chronic pains, and psoriasis using the technique. In the meanwhile, they have worked out basic theory and calculating methods for handling the sophisticated data. The finding shows that the technique can be used as a new means for diagnosing diseases, looking for therapeutic targets, or for protein positioning.

RESEARCH AND DEVELOPMENT

High Performance Computer and Grid Service

High performance computer and grid service environment, a major project initiated under the information technology component of the National 863 Program, passed a feasibility review of its action plan on September 28, 2006. The action plan puts forward a range of sophisticated targets, including a high performance computer system for 100 trillion floating-point operations per second, key technologies for making a computer system having 1,000 trillion floating-point operations per second, and a grid service environment applicable for Chinese

made high performance computers and grid software. It also defines strategic goals for industrial applications, and encourages the combinations of major R&D efforts, of industry, universities, and research institutes, and of technology innovation and application. The action plan supports enhanced international cooperation, and advanced management of research teams. The supposed breakthroughs in high performance computer technology will spur up the development in the area, while the construction of a well functioned grid service environment will make new infrastructure available for China's information industry. The development of application systems will facilitate the information process of involving industries and sectors, which is strategically important to raising China's research and application levels in the area, and to enhancing China's comprehensive national strength and S&T competitiveness.

Low Cost Quality Computers

Advanced computer system art a lower cost, a major project under the information technology component of the National 863 Program, passed a feasibility review of its action plan on September 29, 2006. Aiming at working out the key technologies for producing advanced computer systems at a lower cost, and reducing the cost of information process in the country, the project will play a major role in facilitating the development of China's basic software and hardware technologies, narrowing down digital divide, and accelerating the nationwide information process. On the basis of analyzing diverse low cost alternatives, the project puts forward a feasible action plan featured with innovations in organizational structures, a Linux based technical roadmap for individualized industrial applications, and a preference for domestic made software and hardware, including CPU.

Chinese Made Hydrogen Car

China's first proprietary sedan car burning hydrogen fuels, jointly developed by Jiangsu Zhenjiang Jiangkui S&T CO. Ltd., Tsinghua University, and Chery Auto, has passed a recent experts' review.

Experts believe that the hydrogen car makes a zero-emission transport tool in a real term, as it has found solutions to most difficult part of the technical difficulties. As a result, the car

exhausts pure water only, without any gases. With an hourly speed of 80 km, the cost for producing a hydrogen engine is only 10% more, compared with a conventional engine. Only limited modifications are needed to allow conventional engines to burn hydrogen, which creates a fine market perspective for utilizing existing engine production facilities.

Precision Deep Sea Positioning and Tracking

A proprietary deep sea positioning system, developed by the Ha'erbin Engineering Universities and No. 1 Marine Institute affiliated to the State Oceanography Bureau, recently applauded its success. The novel system has achieved a top positioning accuracy at a depth of 3700m, with a diagonal level between 0.2% and 0.3%. Having a function for dynamic underwater tracking, the system makes a new piece of technical equipment for high accuracy submarine sounding and operation.

Equipped with a string of innovative technologies, including multi-elements based high precision super short baseline acoustic array, self correction without changing the center, multi-parameter based error correction for system installation, and deep water pressure resistant acoustic switcher, the prototype has been repeatedly tested of its reliability in lab, lake, and marine environments.

Enjoying numerous merits, including smaller size, high precision, and convenient operation, the system can be widely used in deep-sea resources survey, exploration, and development, and in underwater engineering activities. It is highly desirable for applications in ecological oil field prospecting and development, such as deep-sea oil and gas fields in particular.

E-Government for Digital Yellow River

Chinese Ministry of Water Resources is currently working on an e-government system for the "Digital Yellow River", using advanced platform and portal technologies. As a major application component in the Digital Yellow River, the platform will connect different government agencies involving in Yellow River affairs at different levels, through data and information sharing, and a concerted working environment. It will provide information service for both production and research activities, administrative management, public service, and decision

making. It makes an integration of diverse functions, including e-government, information resources sharing, and information service.

According to a briefing, the Digital Yellow River is a computer based database containing all the information on the Yellow River, allowing a convenient simulation, analysis, and study. It will be used study the inner rhythms of the Yellow River, and provide S&T evidences for the River's control, development, and management. The system is made up of five components, including communication, networking, comprehensive application support, applications, and portals.

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