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NEWSLETTER

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IN THIS ISSUE

SPECIAL ISSUE

Industrial Innovation Advocated

WAN made his remarks at the ceremony.

WANG spoke at the ceremony.

CHEN and HUANG jointly undersigned the MOU.

June 23, 2011- a ceremony was held at a conference center in Beijing to witness the signing of an MOU for promoting technology innovations at the state enterprises that are under the direct supervision of the central government. WAN Gang, Vice-Chairman of Chinese People's Political Consultative Conference and Minister of Science and Technology, and WANG Yong, Chief of the State-owned Assets Supervision and Administration Commission (SASAC) spoke separately at the signing ceremony. CHEN Xiaoya,

Vice-Minister of Science and Technology, and HUANG Danhua, Deputy Chief of SASAC, jointly undersigned the document on behalf of the two agencies. The Memorandum has defined the following missions:

1) Continue to implement national technology innovation projects in a deepened manner, supporting the establishment of technology innovation alliances among major state enterprises, accelerating the development of business-oriented technology innovation service platform, striving for more opening-up and sharing, gathering new innovation resources, facilitating the development of innovation oriented businesses, enhancing the capacity building of innovation personnel, and bringing out more innovative entrepreneurs.

2) Support major state enterprises to be part of key national science and technology projects, encouraging them to be a proprietary innovation leader in the key areas of strategic importance, and encouraging them to establish their own R&D institutions. Meanwhile, efforts shall be made to establish an industrial innovation R&D system, supporting cross-industry joint research for more technological breakthroughs.

3) Promote restructuring and upgrading of major state enterprises, allowing science and technology to be part of the efforts, accelerating the restructuring of major state enterprises, speeding up the transformation and upgrading of traditional industries, and spurring up the development of emerging strategic industries.

4) Enhance the innovation capacity building of major state enterprises, establishing generic technology development platforms, including national key labs and national engineering research centers at major state enterprises, allowing the research institutes that have been converted into an industrial R&D system to play a role in developing generic technologies, applied basic technologies, and visionary technologies. Efforts shall also be made to support major state enterprises to be part of the efforts utilizing international science and technology resources, establishing joint research and R&D centers, and conducting international cooperation.

5) The two signatory agencies will jointly prepare and implement policies and measures that encourage proprietary innovations, implementing and perfecting the policies that will spur up industrial innovations, studying the problems and needs arisen in the implementation of the policies, and facilitating the implementation of the policies that are desirable for the materialization of the national medium and long term S&T development plan.

INTERNATIONAL COOPERATION

Cooperation on Applied Technology

June 17, 2011- A ceremony was jointly staged by the Chinese Ministry of Science and Technology and the Korean Ministry of Knowledge Economy to witness the signing of an MOU on strengthening the collaborations in developing applied technologies and associated commercial applications by CAO Jianlin, Chinese Vice-Minister of Science and Technology, and Yoon Sang-Jick, South Korean Vice Minister of Knowledge Economy on behalf of the two agencies. The MOU said the two agencies have fully recognized the importance of realizing the economic development through technology innovations and having collaborations in developing applied technologies and associated commercial applications. Both parties agreed that it is important to establish an effective cooperation system for the purpose. The two sides agreed to encourage and promote the collaborations

between universities, research institutions and enterprises of the two countries, on the basis of equality and mutual benefit, enhancing the two countries' capability of developing applied technologies and associated commercial applications, and making a contribution to addressing the global issues of resources shortage, environmental pollution, and climate change. The two sides also discussed and defined ways of cooperation, management mechanisms, and intellectual property issues.

During his visit to South Korea, CAO also met with the officials of the Korean Ministry of Education, Science and Technology Development, and discussed a range of issues with his counterparts on the cooperation and exchange activities under China-South Korea Joint Science and Technology Committee and at universities, and S&T cooperation between China, Japan, and South Korea. In addition, Cao visited the Korea Institute of Science and Technology (KIST), and a smart robot lab, and met with South Korean business leaders, exchanged views on enhancing scientific and technological cooperation between Chinese and South Korean S&T and industrial communities.

China-EU S&T Evaluation Workshop

A China-EU Science and Technology Evaluation Workshop, sponsored by MOST Science and Technology Evaluation Center, was held on June 9, 2011 in Beijing. 45 representatives, from the EU Directorate General for Research and Innovation, the EU diplomatic missions, the Netherlands Embassy, the Science and Technology Evaluation Center, MOST departments, Chinese Academy of Sciences, universities, and research institutions, attended the workshop.

At the meeting, participants discussed a range of issues, including science and technology evaluation system, evaluation methods and theories, evaluation organizing and associated implementation among others. Peter Fisch, Director of Planning and Assessment under the EU Directorate General for Research and Innovation briefed the audiences of the FP7 monitoring and mid-term evaluation results. Experts from the MOST Science and Technology Evaluation Center spoke about a range of issues, including S&T evaluation system, international evaluation of natural science foundation, national science and technology program evaluation, research institution evaluation, and international cooperation in the area. Participants also discussed science and technology evaluation related theories, methodologies, and experiences.

After the meeting, a talk was held between the Science and Technology Evaluation Center and EU representatives. Both parties agreed to have more cooperation and exchanges in the area of information, comparative studies, and joint evaluation.

China-Japan Deep Ice Drilling

China Polar Research Center and National Institute of Polar Research of Japan have recently developed a deep ice core drilling system, based on the successful ice drilling experience gathered by Japanese scientists at Dome F. The drilling system, designed to cope with the thicker ice sheet at Dome A, is able to collect ice cores at a depth of 4,000 meters under an extreme temperature up to -55℃.

Dome A has an averaged ice thickness at 3,200 meters, which makes it the last deep ice core drilling site in the South Pole. LI Yuansheng, project leader and a research fellow of China Polar Research Center, said Dome A is a site most promising for 1 million years old ice cores, considering the conditions it has possessed, including low temperature, low ice flow velocity and low surface accumulation rate.

The system is made up of a range of subsystems for core drilling, winch uplifting, control, and support. The 12.25m long ice core drilling system is able to harvest an ice core of 3.8-4m long and 9.5cm across. The 4,000m long lifting system can collect an ice core sample from a depth of 4,000 meters. The system will soon be delivered to China’s Kunlun Station in the South Pole.

Scientists are currently preparing for a deep ice core drilling at the highest point of Dome A, which will start from the end of the year or the beginning of next year. Scientists expect to collect complete ice cores at a depth of 3200m in three or four summers, so as to reconstruct a high-resolution climate change record for the past 1 million years, unveiling global climate change patterns and their impacts on biological evolutions.

RESEARCH AND DEVELOPMENT

High Quality Iron-Selenide Superconductor Film

XUE Qikun and CHEN Xi of Tsinghua University, and MA Xucun of CAS Institute of Physics have confirmed the electron-pairing mechanism in an iron selenide (FeSe) based superconductor, with the help of novel material preparation techniques. The finding laid a solid ground for understanding the superconducting mechanism of iron based superconductors.

In the study, Chinese scientists rolled out high quality iron-selenide superconductor single crystal film, using the molecular beam epitaxy technique. The new technique allows scientists to control the chemical composition of the thin film to an atomic level. Meanwhile, scientists measured the film using scanning tunnelingmicroscopy and spectroscopy, so as to obtain a spatial resolution and a high-energy resolution at atomic level. The finding was published in the recent issue of *Science*.

Novel Blood Substitute

JING Xiabin and coworkers at CAS Changchun Institute of Applied Chemistry have landed an important progress in studying the role played by biodegradable polymer vesicles in hemoglobin loading, with a patent grant. Researchers made biodegradable polymer the carrier of hemoglobin, and wrapped up hemoglobin using poly-lysine and alanine diblock copolymer of polystyrene-peptide vesicles, in an attempt to make the hemoglobin structure closer to that of human red blood cells. The new carrier is able to meet the basic requirements for being a blood substitute, including oxygen transfer, biocompatibility, safety, and stability.

Compared with conventional liposomes, biodegradable polymers enjoy a range of unique merits. The polymer is biodegradable. When completing the task of oxygen transfer, it would be broken down into amino acids that can be easily absorbed by human body, before becoming harmless water and CO^2 discharged from the body. In addition, the structure of the polymer can be easily modified for desired size and aggregation of hemoglobin capsules, through regulating the polymer structure. In addition, the novel polymer enjoys an intensity that is better than phospholipid membrane, which means the reduced consumption of polymer membrane materials under the same condition. The novel blood substitute brings up new hope for addressing blood shortage.

NEWS BRIEFS

Chinasat-10 Successfully Launched

At 00:13, June 21, 2011, China successfully blasted off a new satellite named Chinasat-10 aboard a CZIIIB launch vehicle, from the Xi'chang Satellite Launch Center. 26 minutes after lifting off, the Xi'an ground control center received the data showing that the satellite was separated from the carrier rocket, and entered a geosynchronous orbit with a perigee altitude of 207 km, an apogee altitude of 42225km, and an orbit inclination angle at 26.3 degrees. Chinasat-10 will be employed as a substitute to Chinasat-5B, providing communication and broadcasting services to Chinese and Asia-Pacific users.

Enjoying numerous merits, including enhanced capacity, wider coverage, higher reliability,

and longer work life over the older models, the new satellite will provide communication, radio/television broadcasting, data transmission, digital broadband multimedia applications to the users in China and in the Asia-Pacific region. Launched in July, 1998, Chinasat-5B will soon come to an end of its in-orbit life.

3000m Deep Water Pipe Laying Crane Vessel

Offshore Oil 201, a deep water (3000m) pipe laying crane vessel developed by Rongsheng Heavy Duty with DP3-class full-electric propulsion, dynamic positioning, and 4,000-ton heavy-duty lifting capabilities, passed the approval check on June 16, 2011.

Equipped with an array of state-of-the-art technologies and equipment, including full-electric propulsion, all-electric variable frequency drive, DP3 dynamic positioning, S-type deep-water two-node pipe laying system, 4,000-ton heavy duty crane, and a VMS system, the new vessel can be employed to work on sea floor pipe laying operations across all the oceans but the Arctic Ocean.

Engineers improved the layout of mingled equipment pieces onboard, which greatly enhanced the movement and operation capability under a wavy environment. The optimized S-type deep-water two-node pipe laying system raised the efficiency, while DP3+DP2 dynamic positioning capability makes the operation under different conditions possible. Engineers have also for the first time developed the technology for large retractable propulsion dock installation, filled up a blank in the area. The improved fostering and precision control techniques have met the high-precision requirements for making a main crane barrel section and a tail section stinger hinge seat.

Novel Rice Planting Techniques

A team, led by Prof. WANG Chun at Heilongjiang Bayi Agriculture University, has developed a mechanized technique to grow rice using straw as the medium tray. The innovative technique makes higher rice yield for a large area possible.

With straw as the medium, researchers turned the conventional seedling planter into a novel rice seedling planter using biodegradable seedling trays, rather than non-degradable plastic trays, with a reduced cost by 1/10. The new seedling tray can also save soil by 60%, desirable for soil resources protection. Meanwhile, researchers developed an array of planting techniques that makes a significant yield increase possible. Using the novel techniques, researchers have grown rice over 50,000 mu (1 mu= 0.0667 hectare), registered an averaged yield of 750 kg a mu, with an increase of 150 kg.

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