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IN THIS ISSUE

*Food Production Enhancement
* Industry Establish National Key Labs
*China-US Young Scientists Exchanges
*China-Canada Collaborate on Intelligent Traffic
*Conical Target Gathers High Energy Electron
*China Advanced Speech Synthesis Techniques

SPECIAL ISSUES

Food Production Enhancement

Chinese Ministry of Science and Technology (MOST), Ministry of Agriculture, Ministry of Finance, and State Food Administration will continue to support the food production enhancement efforts initiated in the 10th Five-Year period (2001-2005). A management office, jointly established by four involving government agencies, inked on July 16, 2007 an implementation accord with 12 major food producing provinces, to kick off a new round of food production enhancement campaign for the 11th Five-Year plan period.

WAN Gang, Chinese Minister of Science and Technology, points out that China will make S&T activities in the rural areas a priority of the priorities in the 11th Five-Year period, focusing on the following five major areas: 1) continue to strengthen high tech R&D and basic research activities in the area of agriculture, in an attempt to lead the development of modern farming; 2) further enhance the integration and innovation of key technologies, providing effective support for the development of agriculture and rural economy; 3) speed up the transfer of agricultural findings and associated diffusions, raising the overall level of agriculture findings applications; 4) continue to strengthen S&T activities in the rural areas, raising innovation and service capability; 5) create a fine environment for fostering innovation personnel in rural areas, taking full advantage of their roles, and striving to build a rural S&T contingent of refined structures, high quality, and innovation vitality.

MOST has made food production enhancement a major project in the 11th Five-Year period, with a planned budget of RMB 320 million, of which RMB 180 million comes from the state treasury, and RMB 140 million from local government. Aiming at restoring and enhancing China 's food production capability in a sustained manner, the project will provide an effective S&T support for sustained increase of food production and farmers ' income. With combined S&T resources at the national, departmental, and local levels, it will develop key technologies for sustained yield increase and post-production loss reduction, and work on other issues, including integration/transfer of technologies and associated extensive applications and demonstration, food production monitoring, and food security.

The implementation of the project will lead to the establishment of a core experimental area of 140,000 mu (1 mu= 0.0667 hectare), a pilot area of 13.5 million mu, and a diffusion area of 135 million mu. The effort will result in an increased food production of 30 million tons. It will create additional economic returns worth RMB 30 billion, under 30 to 35 new technical models for food production enhancement. The new campaign will noticeably raise China' s capacity of food production, further enhancing its S&T level and international competitiveness in the area. It will also provide S&T support for materializing the food production target of 540 million tons in 2010, with

materializing the food production target of 540 million tons in 2010, with improved food security, farmers' income, and farming efficiency in the future.

Industry Establish National Key Labs

In a move to foster a desirable environment for proprietary innovations, and establish a market oriented technology innovation system led by industry, with combined assets of industry, universities, and research institutes, MOST has launched at the end of 2006 a full campaign to allow research institutes that have been converted into an industrial R&D system, and industrial enterprises to establish national key labs. Based on the review results of expert panels, MOST has recently approved the applications of 36 enterprises for establishing a national key lab, including a national key lab for oil recovery.

Allowing industry to establish a national key lab is an important part of building a technology innovation system. It will gather up the combined strength of industry, universities and research institutes, and strengthen the links and cooperation between industry and research institutes/universities. It will be good for industry sticking to the marketplace in the course of technological innovation, allowing it to play a key role and increase its input in R&D. The efforts will also help industry work out proprietary technologies, establishing core technologies, and enhancing core competitiveness.

INTERNATIONAL COOPERATION

China-US Young Scientists Exchanges

A China-US young scientists exchange program was officially staged in the morning of June 18, 2007, at the premises of MOST. ZHANG Chaoying, Deputy Director of China S&T Exchange Center, chaired the opening ceremony. MA Linying, Deputy Director of MOST International Cooperation, William Chang, Director of NSF Beijing Office, and Deborah Seligsohn, science counselor of US Embassy in Beijing, spoke at the event. Other participants, including CAO Jinghua, Deputy Director of CAS International Cooperation, CHEN Huai, Chief of NNSF International Cooperation, and American students and their Chinese tutors where also present.

The program is designed with an adaptation training for American students, allowing them to be familiarized with China' s S&T policies, political and economic systems, history, culture, education, and social customs. They will also be invited to visit the Chinese Academy of Sciences, National Natural Science Foundation, Tsinghua University and its high tech park. After that, American students will work on joint research projects under their Chinese tutors at universities or research institutes.

China-Canada Collaborate on Intelligent Traffic

ZHANG Zhihong, Deputy Director of MOST High Technology met on July 5, 2007 with Perre Pyun, counsellor, Allen Chong, senior S&T policy councilor, and Jin Yi of the Canadian Embassy in Beijing. Both parities discussed the development of intelligent traffic system in China and Canada, and shared the information on the 14th world conference on intelligent traffic to be held in October 2007.

ZHANG briefed the other side of China' s R&D efforts in establishing an intelligent traffic system, and preparing for the 14th world conference on intelligent traffic. ZHANG said both the Beijing Olympic Game in 2008 and the Shanghai Expo in 2010 are the real platforms for displaying a better intelligent traffic system. Canada has its strength in the area, and both sides are looking for collaboration partners.

Pyun introduced the development of intelligent traffic systems in Canada. He said Canadian companies have established a cooperative tie with traffic authorities in Guangdong, Beijing, and Luoyang. Canada ITS Association and Ministry of Transport will send their delegations to attend the world intelligent traffic conference. Pyun expressed his wish for strengthening cooperation and exchanges between the two countries in the area, in an attempt to explore the possibility of collaborative R&D under the existing framework of S&T accord.

Earlier Infructescence Hyrcantha Decussata Discovered

SUN Ge, a research fellow with the Research Center of Paleontology, Jilin University in Changchun, and David L. Dilcher, a scientist from Florida Museum of Natural History, University of Florida in Gainesville published their joint findings on Hyrcantha in a recent online issue of the *Proceedings of the National Academy of Sciences* (PNAS). Hyrcantha is a fossilized earlier angiosperm genus that no longer exists. Authors have for the first time confirmed the past existence of the genus in the Yixian Formation (125 Ma) of northeastern China covering both the west part of Liaoning and the east part of Inner Mongolia. Thanks to their 7-year efforts, SUN Ge and David Dilcher have unearthed a relatively intact fossilized earlier angiosperm, including roots, stems, and branches terminating in fruits. The discovery resulted in some 20 specimens. Authors compared their findings with the specimens collected from the Caspian Sea in Russia, and made a detailed description of the general and aquatic features of the earlier flowering plant. Scientists named the plant Sinocarpus, based on the earlier discoveries made in the country.

The Sinocarpus, originated from China, is the second earlier angiosperm genus, or the third flower, before the known Liaoning and Chinese ancient fruits. The finding is important to understanding the systematics and ecology of the earliest angiosperms that may be dated back to 100 million years ago.

RESEARCH AND DEVELOPMENT

Conical Target Gathers High Energy Electron

A study team led by ZHANG Jie, with the Institute of Physics, part of the Chinese Academy of Sciences, and a research team headed by ZHAO Wei, under the Xian Institute of Optics, Fine Mechanics, and Physics, have collaboratively achieved a major breakthrough in strong field physics. Researchers have for the first time directly observed high energy electron beams emitted along the surface of conical targets, which constitutes a direct evidence for the role of conical targets in gathering high energy electrons.

In the experiment, researchers raised the output of neutrons threefold, by sending t super strong laser beams to the conical targets. Researchers assumed that there can be two possible physical processes in the experiment: 1) conical target plays a role of gathering strong laser beams, allowing laser beams sending their energy to the top of the conical target, which would greatly raise the effective coupling between laser beams and plasma bodies; 2) strong laser beams emitted from a large angle may produce high energy electrons inside the target, which would also gather at the tip of conical target, allowing all the energy they carries to rest in the compressed target pellets, which in turn greatly increase the number of neutrons in the pellets. Scientists have so far confirmed the first process through experiments. Unfortunately, they did not produce direct experimental evidences for the second process, though they promised to continue the efforts for collecting more evidences.

Researchers made an in-depth and thorough investigation into the confirmed physical process, and found that a strong laser beam can produce a MeV electron beam along the surface of target, when it is emitted from a large angle. This proves for the first time the role of conical target in gathering high energy electrons. The finding is important for people to understand the role of a conical target in fast laser nuclear fusion process. It also creates an easy and simple approach to produce stable high-energy electron beams with small divergence angle and fine directionality. The high-energy electron beam produced from the process is of importance to the genesis of super fast electron diffraction and super short X ray pulse, and electron injection in the tall wave acceleration.

Strongest Welded Pipe

Baogang Steel announced on July 6, 2007 that its directly welded X 120 pipe has passed a technical check. A study report shows that the directly welded pipe has met required standards, both in chemical properties and dynamic performance, with some of its indicators reaching an internationally advanced level. X120 pipeline steel boasts of a top strength among its peers.

Baogang started to develop X120 pipeline steel from 2005, and rolled out an X120 pipeline steel plate in the following year, which made it first in the country, or fourth in the world possessing the capability of manufacturing X120 pipeline steel. In the following half a year, it screened out a best welding solution through some 30 matching experiments in three rounds of trial operations at the Hebei Julong Pipeline Corp. Researchers welded out a 914mmX16mm X120 pipeline in April 2007. A test report shows that the welded pipeline has met all required indicators, with a better AK, and DWTT performance, compared with the same products made by other renowned steel makers.

NEWS BRIEFS

China Advanced Speech Synthesis Techniques

Anhui USTC iFLYTECH has scored top in all three test indicators for its speech synthesis systems presented at Blizzard Challenge 2007 which dropped its curtain not long ago. The event marks another top ranking for iFLYTECH product, following the last year competition in the same context. The project was financed by China ‘s National 863 Program.

In the competition, iFLYTECH ‘s unique wave patching system, a probability based model, and TTS have passed three core tests, including Sim, Mos, and Wer. The jury, made up of 10 speech specialists, university students from the UK and the United States, and online volunteers, gave iFLYTECH ‘s two systems top scores, which secured iFLYTECH ‘s first place for its comprehensive performance.

First GDI Engine

China ‘s first gasoline direct injection engine was recently put into operation at the Changchun No. 1 Auto. JB8, the proprietary GDI engine, is designed with a range of internationally advanced technologies, including gasoline direct injection, four valves, all-aluminum light structure, a unique combustion system shared by both gasoline direct injection and air injection, and a proprietary electronically controlled gasoline direct injection system. The efforts has created a solid ground for the development of gasoline direct injection engine of different fuel applications.

According to a briefing, No. 1 Auto will develop a range of high end sedan engine, based on the JB8 model, including line and V series engines, with an exhaust volume ranging from 1.8 to 6 liters, in an attempt to meet the needs of middle and high end sedan cars.

Hisense Create National Digital Multimedia Lab

Not long ago, the Chinese Ministry of Science and Technology (MOST) publicized the list of the first group of enterprises allowed to establish a national key lab, among which Hisense is approved to be the first domestic business to run a national key lab for digital multimedia. Hisense national key lab will mainly work on cutting-edge multimedia technologies, including multimedia computation, digital video processing and multimedia chips, online multimedia, and high definition multimedia display and terminals, in an effort to support China ‘s digital multimedia industry to develop in a sustainable and sound manner. The lab will create China ‘s proprietary intellectual properties for digital multimedia, narrowing down China ‘s gaps with developed countries in core technologies, providing evidences for formulating proprietary industrial standards, and promoting the sustainable and sound development of China ‘s digital multimedia industry.

Hisense key lab has entered a full-fledged research schedule, with a team made up of some 100 people, including permanent and visiting researchers from both domestic and overseas sources. Hisense will gradually increase the portion of top notch experts, allowing the lab to be a real national team for multimedia technology development.

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