

N0.438

CHINA SCIENCE AND TECHNOLOGY
NEWSLETTER

The Ministry of Science and Technology
People's Republic of China

N0.438

May 10,2006

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SPECIAL ISSUES

A Practical S&T Fair

China Beijing International S&T Industrial Fair, to be opened on May 23, 2006, will host 10 forums, 9 S&T

trade talks and launches, and 3 dedicated exchange events. The meetings are arranged in such a manner that they are in line with the industrial development directions defined by China's 11th Five-year plan(2006-2010), and with the trends of guiding industrial development with S&T advancement. The Fair sets up a number of new sections with S&T and culture related industries and cyclic economy as the main themes, though the state-of-the-art computer network and electronic telecommunication remain the major players. Some of the major S&T findings achieved during the 10th five-year period will make their debut at the Fair. Banking, stock exchange, insurance, and fund institutions will also make their appearances at the Fair.

More world top tech products and China's own proprietary brandname products will make their debut at the Fair. Renowned Chinese businesses, including Hai'er, Hisense, and Legend will display a line of new products in front of their overseas counterparts. An Expo technology exhibition, organized by the Chinese Ministry of Science and Technology, will display high and new technologies to be used at the Shanghai Expo in 2010. Zhongguancun S&T Finding Section, the largest of its kind since the start of the S&T Fair, will be teemed with proprietary innovative products made by Chinese manufacturers, demonstrating China's industrial level and competitive proprietary products in electronics and information, biopharmaceutical, environmental protection, and new energy. In the section of auto technology, Beijing Auto Ltd. will display a line of Chinese made proprietary auto products, including heavy duty trucks, passenger cars, and pick-ups.

New Building for China S&T Museum

A ground breaking ceremony for the new building of China S&T Museum was recently held at the Beijing National Olympic Park. The large national popular science building, financed by the government, will open to the public in 2009, with a compound integrated

with internationally advanced modern equipment and facilities.

The new building will be erected on the territories of the National Olympic Park, with its west part facing the water system designed for Olympic water sports, overlooking the main stadium for the Olympic event in south, and a forest park in north. Occupying an area of 48,000 m², the new building is designed with a floor space amounting to 102,000 m². With a budget of RMB 1.13 billion, the facility makes part of the supporting structures built for the Beijing Olympic Game in 2008, in line with the promise for an environment friendly, humanistic and S&T game.

The new building will be completed of its construction before the opening of the Beijing Olympic Game in 2008. As an important cultural facility at the National Olympic Park, some parts of the new building will be made the venues for Olympic games and sports related shows and exhibitions, and for demonstrating China's harvests in high tech development, in an attempt to build an agreeable S&T and cultural atmosphere for the game.

According to a briefing, while working on the physical construction of the new building, people are also busy working on the interior planning. The new building will seek help from all walks of life for its interior planning, under a philosophy of focusing on people, diffusing scientific knowledge, teaching people in an amusing environment, raising people's scientific literacy, and serving the society. Hopefully, it will attract numerous innovative designs and show items.

INTERNATIONAL COOPERATION

China-Belarus S&T Meeting

Not long ago, the 7th session of China-Belarus intergovernmental S&T cooperation committee meeting lifted its curtain in Beijing. LIU Yanhua, Chinese Vice Minister of Science and Technology and

Vladimir Matiushkov, Chairman of the State Committee for Science and Technology of Belarus co-chaired the meeting.

At the meeting, both sides briefed the other side of the latest development of S&T policies and activities in their own country, and discussed issues involving international S&T cooperation and possibility of further developing and deepening the bilateral cooperation. Both sides agreed that under the firm support of both governments, S&T cooperation between the two nations has enjoyed an increasingly expanded scale and rich findings, especially in the fields of aeronautics and space, microelectronics, optics, laser technology, machinery making, information technology, biotechnology, and ecoagriculture. Numerous findings have been put into commercial applications, which enhanced the S&T and economic vitality and international competitiveness of both nations.

In addition to intergovernmental exchanges and cooperation, recent years also witnessed substantive progresses made in the regional cooperation between the two nations. For example, China-Belarus High Tech Park in Jinan, Shandong, a typical example of such cooperation, has produced encouraging results. Belarus also established S&T cooperation centers in collaboration with Henan and Jilin provinces, and put them into operation. The regional cooperation mechanism built on individual projects constitutes a new model for high tech collaboration between the two nations.

To further develop S&T cooperation between the two nations under a new situation, both sides agreed to further strengthen, on the existing basis of collaborating efforts, cooperation in the fields of basic research and cutting-edge applications, strengthen interactive collaborations in the priority S&T development fields defined by each nation, and enhance exchanges in the fields of S&T policies and management. In this context, both sides will start to study and prepare a medium and long term S&T

cooperation plan for both nations, proposing major collaborating projects in the context of S&T priorities important to both nations.

In addition, to facilitate mutual understanding between S&T personnel and industries in both nations, and to spur up S&T cooperation between the two nations, both sides agreed to launch a China S&T Day in Minsk, Belarus in 2007, following the successful Belarus S&T Day held in Changchun, Jilin Province in June 2005.

Popular Science Exchanges for Chinese and Russian Teenagers

Popular science exchanges for Chinese and Russian teenagers, an important component of the Russian Year 2006 in China, is jointly sponsored by the Chinese Ministry of Science and Technology, China Association for Science and Technology, the Chinese People's Association for Friendship with Foreign Countries, and the Russian International Center for Scientific and Cultural Cooperation, in an attempt to enhance understanding and friendship between the two peoples, especially teenagers. The event has attracted the participation of 63 Russian teenagers, with well scheduled exchanges and visits, including visits to famous scenic and cultural spots, and art performance in Beijing, Zhengzhou, Dengfeng, Luoyang, Xi'an and Shanghai.

HU Qiheng, Vice Chairman of China Association for Science and Technology, said at the opening ceremony that exchanges and understanding makes a foundation for long lasting and deepened friendship between teenagers of the two nations. Yuri A Metelev, Culture and Education Counsellor of the Russian Embassy in China told audiences that the Russian side has prepared more than 200 events for the Russian Year, including the visit of famous Russian dancing stars and cultural and arts groups, shows and exhibitions, launching events, and cooperation forums.

RESEARCH AND

DEVELOPMENT

Conductive Plastics in Commercial Application

Not long ago, study of polyaniline conductive materials, a project undertaken by the Institute of Applied Chemistry affiliated to the Chinese Academy of Sciences, under a joint initiative of the National 863 Program and Jilin Provincial Key S&T Development Projects, passed an acceptance check.

Jilin Zhengji S&T Development Co. Ltd., a joint venture created by the Institute of Applied Chemistry and Jinlin University, has established a pilot production line, the only of its kind in the country, able to produce 100 tons of soluble conductive polyaniline raw materials a year, a production line with an annual capacity 1000 tons of polyaniline conductive coating, and associated coating quality test system. The project also resulted in a range of high value added proprietary products, including corrosion proof polyaniline coating, corrosion proof grease, corrosion proof sealing wax, polyaniline based anti-freezing and anti-corrosion additives, and anti-static electricity printing ink.

Thanks to many-year proprietary innovation efforts, the study team has worked out a chain of expansion technologies for conductive polyaniline, and found successful solutions for conductive polyaniline processing in organic and water environments. The expansion technologies have produced some ten corrosion proof polyaniline coatings, including polyaniline epoxy primer, polyaniline polyurethane surface coating, solution free polyaniline corrosion coating, polyaniline chloridized rubber corrosion coating, and water soluble polyaniline corrosion coating. Among them, the solution free polyaniline corrosion coating has reached an internationally advanced level in terms of performance, with a national patent application.

Jilin Zhengji also realized an industrialized production of soluble conductive polyanilines and associated

derivatives, and established a series of production lines with an annual capacity of 60 tons of eigenstate and conductive polyanilines, 200 tons of conductive polyaniline corrosion proof coating, 1,000 tons of conductive polyaniline anti-static electricity materials, 2,000 tons of conductive polyaniline corrosion proof grease and wax, 2,000 tons of anti-rust agents for auto water tank application and long-effect anti-freezing liquid, and 2,000 tons of water soluble nanocoating.

Aquatic Resources Sharing Platform

With the support of the Chinese Ministry of Science and Technology and Ministry of Agriculture, the Chinese Academy of Fishery Sciences has established a platform for sharing aquatic species resources. The platform, a database that collects nationwide aquatic species and artificial ecologic settings, has run smoothly for data searching and species improvement. It has integrated the aquatic species resources collected and preserved by some 70 organizations in different regions and sectors. With a collection of 46,100 live and dead specimens in 112 kinds, including DNA, semen, and cells, the platform has registered information corresponding to aquatic species resources and 36 original aquatic species breeding farms at the national level. The project also updated a range of standards and procedures concerning data management and quality control for fish, shrimp, crab, shellfish, algae cells, and semen.

During the 11th Five-year period, aquatic species resources standardization related house-keeping, consolidation, and sharing efforts will aim at three major objectives: 1) establishing an aquatic species genebank that is open for sharing and aquatic innovation activities; 2) establishing a public aquatic S&T information service system for popular science activities, aiming at "one web-page for each fish"; and 3) conducting relevant strategic studies, and providing evidences for government decision making process in the area.

China's Man-like Robot

Two man-like robots, developed by the Institute of Automation, a part of the Chinese Academy of Sciences, made their debut at the ground breaking ceremony for the new building of China S&T Museum on May 9, 2006. Tongtong, a robot wearing facial expressions, and Beiqi, a robot that can draw pictures demonstrated their skills.

Representing the state-of-the-art level of China's robot making, Tongtong's head is equipped with a dozen of mini motors, which moves its facial organs to required degrees, and at different speeds. Two motors can move the head in both directions of left and right, allowing the robot to shake its head and have an enhanced facial expression. Tongtong can display several dozens or even hundreds of different expressions for different dialogue situations or scenes, under the computer commands, including smiles, laughter, angers, astonishment, contemplating, and feeling sorry, comfortable, and lazy to different extents. With rich facial expressions, Tongtong also can talk to people using its build-in voice system, accompanying with limb movements, such as shaking hands and making gestures.

Beiqi, an integration of a range of high technologies, including computer aided visual function, face identification, and high accuracy movement control, has a pair of eyes made up of digital camera, highly sophisticated arms, and a brain installed with an advanced computer. Beiqi extracts features of human faces through digital camera, and make them into movement commands for guiding mechanic arms to draw a picture on the drawing board. It is also able to produce an instant drawing of diverse animals on request, including panda, monkey, kangaroo, dinosaur, and lions. It takes several minutes for Beiqi to work out a sketch portrait for an audience, who sits in front of it.

New Neuron Development Mechanism

In an article of the May 4, 2006 issue of the journal *Neuron*, DUAN Shumin, a research fellow of Shanghai

Institute for Biological Sciences, a part of the Chinese Academy of Sciences, and his students SHEN Wanhua, WU Bei and others, reported a new mechanism for presynaptic development. The event heralds the first Chinese paper published by the journal.

The study team headed by DUAN found that a brief train of presynaptic action potentials rapidly converts early nonfunctional contacts between cultured hippocampal neurons into functional synapses by enhancing presynaptic glutamate release. They also observed a marked increase in the number of depolarization-induced FM4-64 puncta in the presynaptic axon. This rapid presynaptic maturation can be abolished by treatments that interfered with presynaptic BDNF and Cdc42 signaling or actin polymerization.

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