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INTERNATIONAL COOPERATION

International Gathering on Natural Medicines

An international conference on traditional Chinese medicine and natural medicines lifted up its curtain on October 10, 2008 in Shanghai. JIN Xiaoming, Director of MOST Department of International Cooperation made a keynote speech in English at the opening ceremony. JIN reported the current status, objectives, and perspectives of international cooperation in the area of traditional Chinese medicine in six parts, including challenges and opportunities before the modernization of traditional Chinese medicine, measures to speed up the modernization of traditional Chinese medicine, goals of international cooperation in the area, screening the effective elements from traditional Chinese medicinal herbs and establishing an international quality control system for the purpose, treating AIDS disease,

cancers, and major chronic diseases using traditional Chinese medicines, and problems/perspectives of international cooperation in the area of traditional Chinese medicine. JIN disclosed that MOST has financed some 90 international cooperation projects on traditional Chinese medicine in the last couple of years, with an amount of RMB 120 million.

China-Europe Membrane Center

A China-Europe membrane seminar, jointly sponsored by the MOST Department of International Cooperation, Shandong Provincial Dept. of Science and Technology, Weihai Municipal government, and EU Membrane Society, was held on October 13, 2008 at Shandong University Weihai International Academic Center. Some ten overseas experts from the UK, Germany, Italy, Belgium, Spain, and Denmark, and Chinese scientists attended 16 lecture sessions. During the meeting, a China-Europe (Weihai) Membrane R&D Center was officially inaugurated. The new center will work on a range of membrane technologies applied in the area of seawater desalination, cyclic utilization of contaminated water, and building construction. As a joint lab created by China and EU in the area of applied technologies, the center will be a stimulant to the application and development of membrane technologies and products in China.

China-UK Joint Study of Non-Linear Continuum Mechanics

Not long ago, the Chinese Academy of Sciences and Swansea University in the UK established a joint lab to study mechanics related disasters and associated prevention and control.

The Director of CAS Institute of Mechanics and the Head of Swansea University's School of Engineering jointly signed an agreement on establishing a joint lab to study non-linear continuum mechanics and associated engineering disasters. The joint lab will work on the issues relating to non-linear continuum mechanics and engineering disasters prevention and control, by taking advantage of the strength of both parties in software development, and in-situ data monitoring, improving the reliability of engineering disasters warning, and making contributions to the global disaster prevention and preparedness, and to the development of non-linear continuum mechanics.

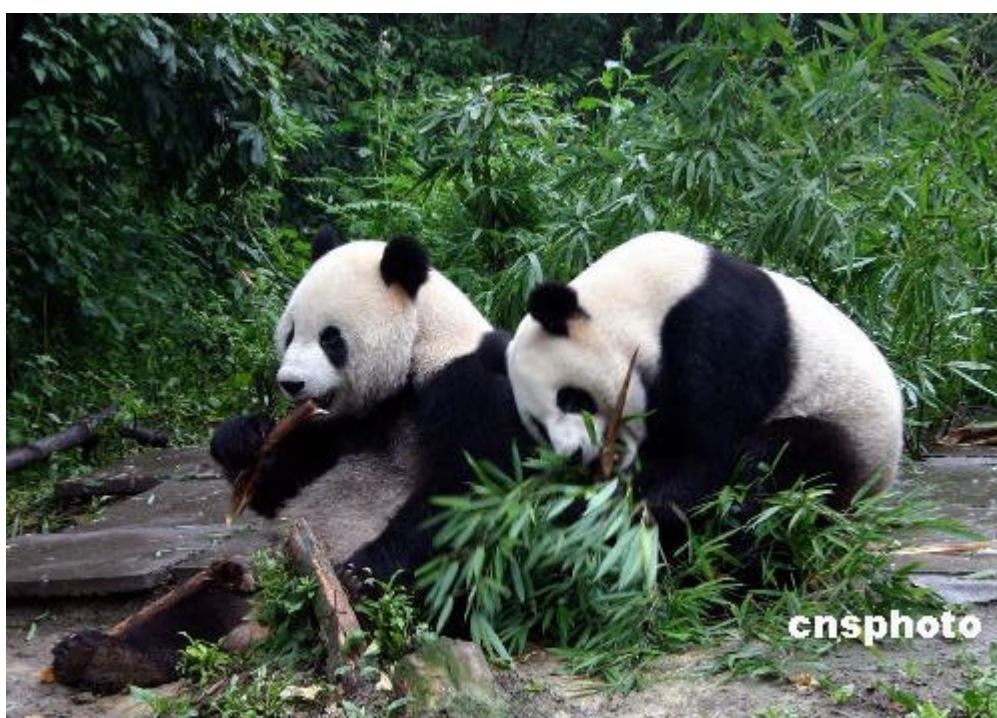
China-UK Space Seminar

The fourth China-UK forum on space science and technology opened on October 12, 2008 in Changsha. Participants discussed a range of important issues concerning probe payload, satellite networking, microsatellite, and scientific research in space, based on the past exchanges and cooperation between the two sides. Both sides also discussed the mode of

future cooperation, and defined the work plan for 2009, in an attempt to work out an innovative mode of international cooperation. As a stimulant to the exchanges between the two countries in the area of space science and technology, the seminar creates new development opportunity for space cooperation activities in both countries.

RESEARCH AND DEVELOPMENT

Panda Genome Sequence Completed



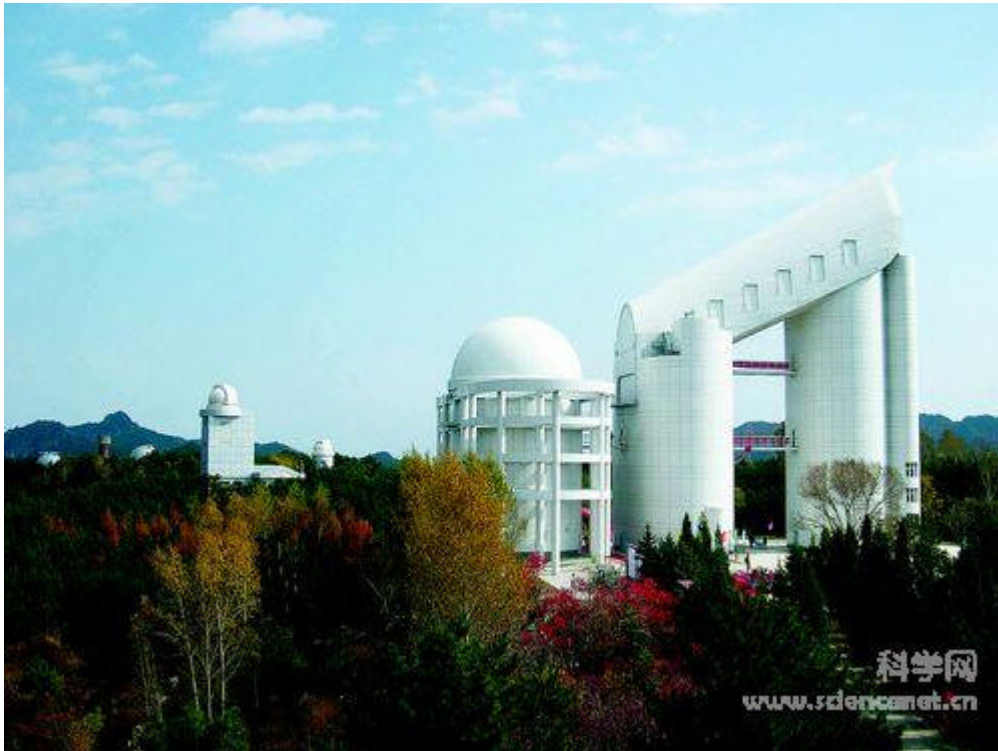
Beijing Genomics Institute (Shenzhen) announced that it has completed the sequencing of panda genome, at a high tech fair held on October 11, 2008 in Shenzhen. The genome map, derived from panda Jingjing, is the first largest genome map sequenced using the short-sequencing and assembly techniques in the world.

According to a briefing, panda has 21 pairs of chromosome, with the size of genome similar to that of humans, or 3 billion base pairs containing 20,000-30,000 genes. The sequencing result shows that panda has a genome closest to that of the dog. Data analysis also confirms the view that panda is a sub-species of bear, supporting the classification theory of the bear family.

Panda genome sequence is a part of international efforts to study panda's genome. Beijing

Genomics Institute (Shenzhen) will refine the map within the year, and will kick off in the near future the study of panda's functional genes and associated structures, in collaboration with Nankai University.

LAMOST in Operation



China's LAMOST was put into operation on October 16, 2008 at the CAS National Astronomic Observatory in Xinglong. LAMOST, built with the state treasury money worth RMB 235 million, is a proprietary reflection Schmidt telescope with a 5-degree view field, facing the south-north direction. LAMOST, the largest astronomic telescope in the country, is also a telescope with a large view field and the largest caliber able to pick up most spectra of celestial bodies in a single session in the world.

Applied with active optic technologies, the new telescope is designed with an innovative concept to combine the functions of both thin lens and sub-lens, allowing the duel effects of large view field and large caliber.

LAMOST made its first test observation during the night of September 27, 2008, and picked up the spectra of some 1,000 celestial bodies. Further test has generated a capacity for observing the spectra of more than 3,000 celestial bodies in a single session. Comparing with the telescope system that is able to pick up the spectra of more than 600 celestial

bodies in a single session, LAMOST has become the one able to observe the most spectra in a single session in the world.

Anti-Thrombin Protein from Mammary Glands

Preparation of medicinal proteins from goat mammary gland reactors, a key project under the National 863 Program, has recently claimed major progresses at Qingdao. The purified anti-thrombin III protein, jointly developed by Qingdao Samuels Industrial and Commercial and Qingdao Samuels Institute of Biotechnology since 2001, is the first of its kind produced from the goat mammary gland reactor in the country. So far a development platform has been established to produce more goat mammary gland reactors for medicinal proteins. The anti-thrombin III protein, derived from goat milk, shows a structure identical to that of humans, making China a country able to work on the commercial applications of mammary gland reactors.

Deep Cancer Treatment Using Heavy Ions

Thanks to scientists' tireless efforts, the HIRFL-CSR has successfully extracted the energy needed for treating deeply rooted cancers. According to a briefing, the HIRFL-CSR extracted the needed energy on October 15, 2008, after a 10-day test. The slowly extracted energy can be automatically shifted between a number of energies. The event indicates that technical solutions have been found to address another key issue, following the successful slow extraction realized on January 2008, allowing an enhanced energy for treating deeply rooted cancers.

Heavy ion beams constitute an internationally acknowledged therapeutic technique applied in treating malignant tumors. China has become one of the countries able to treat deeply rooted cancers, including the United States, Germany, and Japan.

China's First Solar Powered Building

A new building able to operate using the electricity generated from the solar energy collected by the building itself was put into operation on October 18, 2008 in the Baoding High Tech Development Zone. The 26-floor five-star hotel looks like a circuit, with some 30,000 square meters of space, including exterior walls, ceilings, and platforms, being installed with the proprietary solar energy absorbing glass panels developed by Yingli Solar.

The new building has applied a range of innovative technologies that have not ever been used either domestically or internationally. The "breathing solar panel", in particular, is able to turn solar energy into electric power. The electric power produced by the building,

as by a small hydro-power station, will be connected to the local grid, in addition to its own use. It is estimated that the building will generate 260,000 kilowatt hours of electricity in a year, saving 104 tons of coal equivalent, or cutting down 75.5 tons of CO₂ emission. Additionally, the contaminated water handling system installed in the building enjoys an improved cyclic use of water for heating, cooling, and washing.

Turning Movie Fantasy into Reality

Not long ago, both the journal *Nature* and AIP reported the major progresses achieved by a study team headed by Prof. MA Hongru at Shanghai Jiao Tong University Department of Physics, in the area of metamaterials. The finding was reported on August 6, 2008 in *Nature China*, showing that a narrow window filled with cleverly engineered materials can let light into the room in the same way as a wide window. AIP reported on September 2, 2008 the same story as an anti-cloak device, praising that Chinese scientists have developed a way to unmask the invisibility cloak, and created a new thinking to address the communication issue of invisibility cloak. The journal *Nature* reported the finding in its September 22, 2008 issue. Researchers simulated numerically the way light is transmitted in two circumstances: light passing through a wide opening formed between two rectangular obstacles, and light passing through a narrow slit formed between two trapezoidal obstacles. They showed that if the region between the trapezoidal obstacles has the right permittivity and permeability, the narrow slit can transmit light in the same way, and form the same diffraction pattern as the wide opening. The theory produces the devices that achieve the invisibility in the Harry Potter series. With the help of the device, Potter can literally see outside if he wants to.

NEWS BRIEFS

China's New Generation Turbo-Prop Regional Aircraft



China's new generation turbo-prop regional aircraft, Xinzhou-600, proprietarily designed and developed by China Xi'an Aircraft, made its successful maiden flight on October 9, 2008 in Xi'an. The event indicates that the new aircraft has entered a trial operation phase. Xinzhou-600 is a new generation turbo-prop regional aircraft, built on a previous model Xinzhou-60, in line with the requirements of marketplaces and users. The re-designed aircraft has reached an internationally advanced level, in terms of its maintenance, control, utility, and comfortableness.

According to a briefing, the new aircraft, developed since 2005, rolled off the assembly line on June 29, 2008. Comparing with the older model (Xinzhou-60), the new aircraft is designed with a more comfortable passenger compartment, an enhanced maintenance capability and reliability, and a comprehensive failure diagnosis system, allowing cross-sea operations in the Southeast Asia and the South Pacific Ocean.

Large Computation Center for Strategic Bioresources

The Chinese Academy of Sciences plans to establish a large computation center in Kunming to assist a range of strategic bioresources related studies, including genomics, germplasm resources data storage, and new drug development. The new center will be equipped with a common high performance computer system enjoying 10Tflops floating-point operations per second and associated application software, creating a powerful computation environment for the conservation, development, and utilization of strategic bioresources in the southwest part of the country. The center will eventually lead to the establishment of nationwide scientific data grids for wild germplasm resources. The center will work on a range of topics, including genomics, germplasm resources, new drugs, lepidopteran's neuro electrical physiology and brain functions, and barcode of life, along with the development of China southwest wild germplasm bank, and associated national key labs.

Healthy Piglets from Handmade Cloning

Chinese scientists announced on October 11, 2008 that eight healthy piglets were born on August 30, 2008 from handmade cloning in Shenzhen. Handmade cloning is a novel technique invented in recent years for its low cost and efficient breeding, especially desirable for the developing countries with rich species resources but limited R&D budget. The world's first piglets derived from handmade cloning were born in Denmark in 2006. The technique was introduced into the country by Beijing Genomics Institute (Shenzhen) at the end of 2007, and found applications in Shenzhen, under the financing of the so-called "double hundred program". It takes only one year for researchers to build the lab, and to work out the results. The number of the piglets born from handmade cloning also reached an internationally advanced level.

New Weather Satellite

FY-II 06 is the third operational satellite after FY-II C and D in the FY-II series weather satellites, to be launched in the late December this year. It will work in the place of FY-II C, an in-orbit satellite that has exceeded its work life, ensuring the dual-satellite based observation, and being the backup to one another.

The new satellite enjoys 32 technical enhancements, allowing improved cloud images, reliable operation, and safe products. The satellite will be launched by the CZ-III A launch vehicle, and positioned at 123.5 degree of east longitude in space.

Comments or inquiries on editorial matters or Newsletter content should be directed to:

[Mr. XU Chaoqian, Department of International Cooperation, MOST 15B, Fuxing Road , Beijing 100862, PR China](mailto:Mr.XU.Chaoqian@MOST.gov.cn) Tel: (8610)58881360 Fax: (8610) 58881364

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