

# China Highlights

Science News from Chinese Media during the period of May 2005  
collected and compiled by the Helmholtz Beijing Office

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## Overview

The weather of May in China is getting warm, and so is also the same with the atmosphere of China's science and technology. There were a lot of exciting events that brought enthusiasm into our minds.

[The 2005 National S&T Week](#) was unfolded all over the country from May 14 to 20. The theme of this S&T Week is "Building a Well-off Society with People as Priority for S&T". As one of the most famous S&T weeks in China, not only the government but also the public put great interest into it. It is seen as an opportunity to demonstrate the development of science and technology in China and around the world. It was then followed by [the 8th China Beijing International High-tech Expo](#) from May 23 to 27 in Beijing. This expo provided a good opportunity for different high-tech enterprises to promote their products to the public, and to change ideas on potential cooperation. [Helmholtz Beijing Office](#) was invited to present in the exhibition hall 6, and we took the expo as a good chance to get in touch with Chinese organizations and researchers. Flyers and booklets about Helmholtz, its research centers, and some selected products ready for technology transfer were delivered and gained much interest in visitors, especially for those who conduct health research.

As for the [science news](#), one of the most outstanding happenings is the measurement of height of the world's highest mountain [Qomolangma](#). Some new technology was applied and the some spectacular results about that region were procured, which can be useful for the analysis of the forthcoming development of the climate of the earth and the environment.

In the field of [health research](#), Chinese scientists achieved a lot in the infectious diseases, for example, [AIDS vaccine](#) and [bird flu vaccines](#). China also proceeded a great deal in the field of [space](#) area, mainly in astronautics.

The [scientific international cooperation of China](#), it is to mention a big convention with [EU](#). Both sides vowed to reinforce the official connections and try to work on more concrete projects.

In July, there will be [some international workshops](#) to be held in China. The related information is listed in the end.

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## 1 Science News

### 1.1 Energy

#### **First Chinese LNG power plant in operation**

(China News, 2005-05-11)

Shenzhen Meishi Power launched commercial operations of its liquefied natural gas (LNG) power unit on May 5. The unit boasts an installed capacity of 250 thousand kilowatts and is the first power unit to use LNG as its primary energy source in China.

Its operation not only has significance in reducing the burden on Shenzhen's electricity supply system, but also plays an important role in the promotion and application of LNG technology in the domestic market.

The power unit is still in the experimental phase, with gas consumption at about 200 tons a day, said a spokesman of Meishi Power. The company will not develop to its full capacity until late this month. By then, the units will be able to work 16 hours a day with a maximum power output of 205 thousand kilowatts. Daily gas consumption would reach about 600 thousand cubic meters, while daily power generation would top 3.5 million kilowatt-hours.

Because LNG consists mainly of methane (CH<sub>4</sub>), it produces no sulfides or other particulate matter after combustion, just carbon dioxide (CO<sub>2</sub>) and water (H<sub>2</sub>O). This will greatly help reduce smog and improve the city's air quality. In other words, the new LNG installment has significant environmental benefits.

#### **China to build wind farms offshore**

(China Daily, 2005-05-17)

China has unveiled plans to make offshore wind farms a key part of its renewable energy program within two or three decades.

The wind turbines, which would be built 50 kilometers (30 miles) out to sea, would be ideally situated to supply clean power to the populous and booming east coast area.

"Offshore wind sites are close to the main electricity load centers in eastern China, so offer great potential for future energy supply," Shi Pengfei, vice-chairman of the Chinese Wind Energy Association, told a conference this month.

"I am confident that in 20 to 30 years a very significant proportion of the wind power in China will be off-shore."

China's top state planner, Ma Kai, said in April the country was looking for more varied energy supplies to reduce its reliance on coal such as nuclear, wind and hydro power.

Coal accounted for about 67 percent of energy consumption and 76 percent of energy production in the world's fastest-growing major economy, he said.

Sea winds could be harnessed to generate an estimated 750 gigawatts, although few projects were under way now, Shi said.

This would be around 70 percent higher than the country's total installed generating capacity at the end of 2004 and maybe three times the potential of onshore sites.

China aimed to have 20 gigawatts of wind-generating capacity installed by 2020, equivalent to

around 1.0 percent of annual electricity consumption at that time, Shi said.

At present the industry is limited by its high costs, with the price of power generated by a 100 megawatt wind project over two times higher than the equivalent from a coal generator.

The majority of equipment -- around four-fifths -- is imported and few Chinese firms make larger turbines.

However the government has set up wind power concessions to lure investment and know-how, guaranteeing a fixed price for power, as well as help with infrastructure like access roads.

Shi said he expected the cost of wind-generated power to move closer to that from coal-burning plants when there is around 3000 MW of market demand, and the country has set a generating target of 4000 MW by 2010.

Unlike European wind power leaders like Germany and Spain, China is not obliged under the Kyoto treaty to cut its emissions of greenhouse gases like carbon dioxide.

But the government is concerned by the effects of air pollution, much of it from coal-burning power plants, on health and is keen to boost clean energy.

A senior government adviser said recently that acid rain affected around one third of the country.

## 1.2 Earth and Environment

### **Notable effect in the technical integration model for the ecotone of agriculture and animal husbandry**

**(MOST, 2005-05-01)**

In light of the key problems affecting the enthusiasm of dairy farmers for animal husbandry, the model of major technology study and industrialized technology integration for state key S&T project of the dairy industry in the "Tenth Five-Year Plan" has produced the new model for developing milk source, which is the "Pasture Park". The key problems of low unit production of milk cows, poor quality raw milk, low labor productivity and high feeding cost are prevalent in the ecotone of agriculture and animal husbandry. The new model refers to all-inclusive technical service inside the park; scale of herd quantity inside the park, normalization of feeding management, standardization of dairy production, intensification of market operation and systemization of files and information; unified planning, management and epidemic prevention in the park. The "Pasture Park" model is a breakthrough and innovation in the transition from "dispersed feeding and centralized milking" to "centralized feeding and scale operation"

Through the incubation of the "Pasture Park", the dairy farming will transition from "large community and small scale" to "large scale and small community" and take the path of scientific, intensified, scale and specialized dairy farming. The new model has overcome the shortcomings in difficult science popularization under the mode of dispersed feeding and has laid stress on the application and integration of science and technology for scientific feeding, breed improvement and epidemic prevention, which has brought about obvious improvement of milk output and quality while at the same time saving resources and reducing production cost. "Pasture Park" has changed the original petty-farmer operation, improved the overall production levels of the dairy industry, guaranteed the stability of milk source of enterprises and quality safety of raw milk, protected the interest of dairy farmers and sped up poverty eradication to ensure a well-off life for

farmers and herders.

Presently, more than 10 modern pasture parks over the size of 1,000 heads have been built. The Sixth Bingzhouhai Pasture Park of Huhehaote is a typical representative. The park covers an area of over 700 mu. There are altogether 78 unit pastures, 46 of them large and 32 of them small. The large unit pasture covers an area of 4,000m<sup>2</sup> with the main facilities of one cowhouse (660m<sup>2</sup>), one lodging (20m<sup>2</sup>), 2 silage pits (700m<sup>3</sup>/per pit), one fodder room (50m<sup>2</sup>), 3,000m<sup>2</sup> of playground and 2 septic tanks (27m<sup>3</sup>/per tank). Such a pasture can feed 100 heads of milk cow. The investment of each unit pasture is 21,7000 Yuan. At present 56 households have moved in with a total of 2,100 heads of milk cow. The average daily fresh milk production is 12t. It's predicted that the design scale can be achieved within two years, which is 5,500 ~ 6,000 heads of milk cow, annual production of fresh milk 30,000t and the annual economic benefit directly from cattle raising amounting to 40 million Yuan.

### **"Demonstrative project of ten-thousand-ton seawater circulating cooling technology" under operation**

**(MOST, 2005-05-01)**

After breakthrough has been made in the kiloton level of seawater circulating cooling technology, the topic of "Technical Study and Project Model of Ten-thousand-ton Seawater Circulating Cooling" of the State key S&T project of "Technical Study on Water Safety Control" in the Tenth Five-year Plan of MOST made further achievements. Recently the demonstrative project of 14,000m<sup>3</sup>/h seawater circulating cooling technology was built up and put into operation in Shenzhen. This is the first time for the seawater circulating cooling technology to be applied to the electric system in China in large scale. The 6-month operation demonstrated that the operating effect of the seawater circulating cooling system is satisfactory and various indices have met the design and technical requirements. As the largest variable load plant in east Shenzhen, Shenzhen Fuhuaqiang Power Co., Ltd. saves nearly 2 million tons of fresh water every year by adopting seawater circulating cooling. The benefit from water saving is notable. The integrated operation cost has decreased by 50% ~ 75% compared with fresh water circulating cooling. The economic indicator is also superior to fresh water circulating cooling and seawater direct-flow cooling system. The discharge of seawater circulating cooling has decreased by over 95% compared with direct-flow cooling, which can effectively control thermal pollution and benefit the protection of marine environment.

The successful operation of the demonstrative project for ten-thousand-ton seawater circulating cooling technical industrialization not only provides a typical model for the popularization and application of the seawater circulating cooling technology and development of industrialization, but more importantly it offers new effective approaches for the sustainable use of water resources and easing the water resources shortage in coastal areas. There are very remarkable economic, social and environmental benefits.

### **Smooth progress in China agricultural evaluation system**

**(MOST, 2005-05-02)**

Through one-year hardworking, the project team has achieved the anticipated goals for China agricultural evaluation system, State project for transforming agricultural S&T results into funds.

They have collected and sorted out the agricultural statistic data by counties from 1995 to 2002, agricultural disasters over the years, land utilization and remote sensing monitoring data of crop growing trend and have set up relevant spatial database; have completed the evaluation model design of agricultural evaluation indicators; have tentatively developed the agricultural evaluation system; and have compiled "Collection of Electronic Drawings of China Agricultural Status".

Making full use of the scientific research achievements of the Institute of Remote Sensing Application under Chinese Academy of Sciences, the China Agricultural Evaluation System is intended to serve agricultural planning, management and decision-making. It is made up of such subsystems as statistical data management, remote sensing data preparation, information inquiry and search, spatial analysis evaluation, statistical analysis evaluation, thematic map and form fabrication, and electronic map management. The system is characterized by complete functions, stable performance, friendly interface and detailed documentation. It is also easy to learn and convenient to use. It takes no more than 10 minutes to compile a thematic map from raw data access to data processing, mapping and map sheet renovation and decoration. Development of the system opens up a new channel for developing the network GIS application system efficiently under the support of GIS software tools to form a complete set of technologies for efficient and complete use of large spatial data under the network environment. It has developed the seamless connection between the evaluation model and the system and the technology of friendly interface between user and system. With the support of this system, "Collection of Electronic Drawings of China Agricultural Status" has been compiled, which includes the subjects of agricultural integrated economy, grain, cotton, oil crop, meat, agricultural natural disaster remote sensing monitoring, land utilization remote sensing monitoring, crop growing trend remote sensing monitoring and nearly 200 agricultural analysis evaluation maps. The system visualizes the agricultural development of China in the last ten years and has made contrastive analysis of the agricultural status of the last ten years and that of 1985—1994. It also analyzes the agricultural production efficiency, grain supply and demand, extent of food security, grain output fluctuation and types of rural industrial structure. In light of the latest remote sensing monitoring results such as cultivated land change, crop growing trend, agricultural disaster and agricultural ecology, it has revealed the spatial distribution law and time evolution characteristics of agricultural production in China.

China agricultural evaluation system could effectively support agricultural monitoring and evaluation. It could provide, under the network environment, the spatial information technical support means and tools that are economical and practical, convenient to use and graphic and visualized, so that all levels of government departments especially the central authorities, relevant provincial governments and ministries and commissions can use the remote sensing data and statistical data extensively, continuously and effectively for scientific planning, management and decision-making, and for carrying out comprehensive and systematic quantitative examination of the operating status of agriculture in China, monitoring trends, early warning and regulation and control of policies. The goal is to enable the agriculture in China to develop continuously, steadily and harmoniously in conformance with the objective development law. This system has made active contributions to the agriculture of China in the following aspects: providing auxiliary decision-making information for macroplanning; pushing forward the agricultural informatization construction; raising the scientific and information level of agricultural management; contributing to the strategic objective of realizing sustainable development of agriculture, integrated production

capacity in 2010 and a new step forward for the rural economy and farmers' income level. The system has given full play to the role of digital agriculture in sustainable development. Upon completion of the project, the results will be transformed and popularized with Academy of Macroeconomic Research SDPC as the base. It will create tremendous social and ecological benefits.

#### **World's highest sand peak grows by 60 cm**

**(Xinhua Net, 2005-05-06)**

Bilut, the world's highest sand peak, which is located in the Badain Jaran Desert in northern China, has risen by 60 centimeters in about 20 years.

The sand peak, located in Alxa League in China's Inner Mongolia Autonomous Region, grew from 1,609 meters to 1,609.58 meters. The data were collected by experts from Alxa League Geological Exploration and Mapping Institute early April.

Badain Jaran Desert, where Bilut Sand Peak is located, is the third largest desert in China and the fourth largest in the world. It covers an area of 4,020 square kilometers.

Since 2004, the Inner Mongolia Autonomous Region has been preparing to set up a national geological park there, involving Tengger Desert, Badain Jaran Desert and Juyanhai Oasis.

The geological park under construction will emphasize the desert and Gobi sights, to provide tourists a natural museum to get a glimpse of how deserts have changed in thousands of years.

#### **Preparation for measuring height of Mt. Qomolangma completed**

**(People's Daily, 2005-05-08)**

The surveyors' team from the State Bureau of Surveying and Mapping declared that they have got everything ready for measuring the height of Mt. Qomolangma.

The altitude of the six survey points has been precisely identified. Once surveyor's beacons are erected as scheduled on May 18, the height of Mt. Qomolangma will be clarified.

#### **Chinese scientists develop new geodetic technology**

**(People's Daily, 2005-05-12)**

Researchers led by Hu Wenbao at China's Yangtze University have successfully developed a new electromagnetic geodetic technology, a pivotal equipment for underground exploitation.

Through the technology, researchers, on the one hand, send electricity impulse underground with high-power electrical source, and receive the scattering from underground target with assembled equipment, thus to acquire relevant images. After analysis, the internal structure of the earth several meters or even dozens of kilometers can be grasped.

In March 2004, the technology was first applied in a carbonate rock area for exploration of oil and gas to collect information on the underground strata, structure, storage layer and pore belt.

#### **Reconstruct environmental change through reading oxalate records from the ice core**

**(CAS, 2005-05-13)**



CAS scientists have made progress in investigating the past atmospheric changes by retrieving oxalate records from an ice core of Tianshan glaciers. An analysis shows that the variation of the organic acid mirrors the history of the regional economic development as well as environment protection in the west China over the past 40 years.

The work was conducted by Prof. Lee Xinqing from the State Key Laboratory of Environmental Geochemistry at the CAS Institute of Geochemistry in Guiyang in collaboration with Prof. Qin Dahe from the Laboratory of Ice Core and Cold Regions Environment at the CAS Cold and Arid Regions Environmental and Engineering Research Institute.

Oxalic acid is the simplest dicarboxylate in the troposphere. Despite low concentration, it acts as cloud condensation nucleus as well as other forms of organic acids in the atmosphere. Oxalic acid exists in the air mainly in the form of aerosols, according to Prof. Lee. It can be scavenged by precipitation and accumulated year after year on ice sheets or glaciers, which, due to their low temperature, preserve the organic compound from being decomposed by microbes. Assuming the knowledge between the atmosphere and ice, changes of the organic acid in the atmosphere can be reconstructed by analyzing the ice sequences formed in hundreds of thousands of years.

The atmospheric oxalate can come directly from forest fires, automobile exhausts and soil emissions; or indirectly from the photochemical reactions of unsaturated hydrocarbons, to which human activities such as production and livelihood and the growth of vegetations are both principal contributors. These inputs leave their fingerprints in organic acids in snow and ice in high resolution.

The study on organic acid records is at the cutting-edge of ice core-related geochemistry in the world. Although the past two decades have witnessed some research efforts on the acids in ice and snow of both Antarctica and Greenland, few studies were undertaken on ice cores of mid- and low-latitude mountain glaciers.

With the support of the National Natural Science Foundation of China and CAS, Prof. Lee and colleagues made a two-year study into the chemical parameters of an ice core from Glacier 1, a mid-latitude alpine glacier at the headwater of the Urumqi River in the Tianshan Mountains in northwest China. Their analyses reveal that the general characteristic of the oxalate record of the ice core over the past 43 years features some spikes against a background value. The background is found to be about 1 ng/g and even lower than the detection limits in some cases. On the other hand, the majority of the spike values reaches or surpasses 10 ng/g. The average content of oxalate is 3.6 ± 9.2 ng/g, more than 70% of which consist of spike values. The late 1950s was a period of low values, being slightly higher than the background level, while by the 1960s and 1970s, the value reached its climax, averaging 5.0 ng/g. During the 1980s, the average value once again went down to the level of the late 1950s. By 1990s, it rebounded to the background.

A study on the economic development landscape shows that a steel mill and a cement plant were put in operation 50 km away in the valley of the Urumqi River in 1958, whereas 105 km away lies the metropolitan Urumqi, the capital city of the Xinjiang Uyger Autonomous Region. The anthropogenic atmospheric pollutants can be readily carried to the No.1 glacier under favorable wind conditions. Since the 1990s, a concerted development between the economic growth and environmental protection was seen in the vicinity, leading to reduction of the atmospheric pollutants. The general trend of the organic acids in the past 43 years turns out to be consistent with the itinerary of the dual development in the regional industrial growth and environmental protection. Also, this consistency is verified by the data from the local bureau of environmental protection.

Retrieval of oxalate records from ice cores can shed light on its biogeochemical cycles, and is helpful to understanding of past environment changes, notes Prof. Lee. Due to its proximity to the sources, the mid- and low-latitude glaciers are higher than the polar ice sheets in concentration of the organic species. The advantage attracted more and more attention from the polar ice sheets to the alpine glaciers in recent years. In the ALPCLIM program focusing on Alps glaciers and jointly funded by EU countries from 1998, for example, retrieval of organic acid records constitutes an important part in its research priorities.

**Glaciers at N. slope of Mt. Qomolangma shrinking fast, survey  
(People's Daily, 2005-05-13)**

When conducting a scientific investigation at the Rongbuk Glacier, north slope of Mt. Qomolangma (Everest), the Chinese Team for Surveying Mt. Qomolangma found that glaciers on this side have been shrinking rapidly.

Compared with 2002, the upper limit of the ablation zone of the East Rongbuk Glacier went up 50 meters, from 6350 to 6400 meters above sea level, within three years.

Kang Shichang, head of the team and a glacier scientist who once surveyed the northern slope in 1998, 2000 and 2002, told PD reporter that various signs showed that the Rongbuk Glacier is melting at a faster speed and the glacier is shrinking seriously.

We found large amounts of snow at the 6,000-meter-high East Rongbuk Glacier in 2002, but only a little remains now, Kang said. The numerous ablation pits on the surface of the glacier have left it looking completely "broken". Kang added that in 2002 they once found a 30-meter-long ice cliff, 5,500 meters above sea level, at the bottom of the glacier, as well as an ice lake below it, covering an area about hundreds of square meters, but this year both of them are found disappeared.

To study the material balance conditions there, Chinese scientists once set up more than 20 poles at the East Rongbuk Glacier in 2003, but only 4 of them remained this year. "This means our work last year was in vain", Kang worried, "the glacier is shrinking so fast that our poles all fell".

According to Kang, the overall shrinkage of High-Asia glaciers including Mt. Qomolangma will lead to over spending of glacier reserve which, although providing more supply to rivers in short term, would bring about unpredictable ecological disasters. If the global warming continues at the current speed, it is estimated that by 2100, most glaciers will extinct and some glacier-provided rivers will go dry.

**Notable results from joint investment and sharing of SHRIMPBJ****(MOST, 2005-05-13)**

SHRIMPBJ is a large state scientific instrument center established by the method of joint investment and shared use of instruments. The joint investors, Ministry of Science and Technology (MOST), Ministry of State Land and Resources and Chinese Academy of Sciences, jointly invested 26 million Yuan in SHRIMPBJ and share the machine-hours according to their proportion of investment. The core instrument of SHRIMPBJ is the ninth SHRIMP II quadric ion probe in the world. For three years since its establishment, SHRIMPBJ has been unflinchingly taking the path of joint investment in and sharing of large instruments. Both the operating efficiency of the instrument and the scientific research result output rate stand in the advanced international rank. The geological community of China at large feel that the introduction of SHRIMP II and the establishment of SHRIMPBJ have made great contributions to China's development in geoscience. SHRIMPBJ has already become a typical model for efficient sharing of basic facility platforms by the society.

1. Basic guiding principle of operation -- opening SHRIMPBJ to the geoscience communities both home and abroad

In light of the State general requirement for opening large scientific instrument centers to the society at large, SHRIMPBJ set opening-up and sharing as its basic guiding principle of operation. In order to obtain optimum scientific results, scientific personnel, after professional training, are allowed to access the instrument for analyzing samples and obtaining data. In the three years after establishment, SHRIMPBJ has provided high-quality service to the geoscience communities both home and abroad by allocating the machine-hours every year as follows: 40% for the Ministry of State Land and Resources, 20% for the Chinese Academy of Sciences, 20% for universities, 8% for Hong Kong and Chinese Taipei and 12% for foreign countries. Altogether, 107 scientific research personnel of over 30 organizations from the Ministry of State Land and Resources, Chinese Academy of Sciences, universities, Hong Kong and Chinese Taipei have used SHRIMP II to analyze and study their own samples. Besides, a large number of scholars from the US, England, France, Italy, Germany, Australia, the Republic of Korea, Brazil and Cuba have operated on the instrument. Among them, there are some internationally first-class geologists, such as professor Cordani, the former chairman of International Union of Geological Sciences and chairman of the 31st International Geological Congress and professor Boriani, chairman of the 32nd International Geological Congress.

2. Sufficient sharing leads to high occupation rate of instrument and equipment

Since its establishment, SHRIMPBJ has persisted in the efficient operating mechanism of 24-hour uninterrupted analysis every day. In the last three years, the net analytical machine time (referring to the time when the instrument is analyzing samples or reference samples) each year exceeds the original target of 200 days of 24-hour uninterrupted operation. The annual net analytical machine time of 2004 amounted to 301 days and nights. The capacity of the equipment has been brought into full play. If calculated according to the statistical method for the occupation rate of universal large scientific instruments, the occupation rate reaches 100% after daily running of 8 hours for 200 days. In this case, the occupation rate of SHRIMP II is as high as 450%. The high occupation rate has resulted in high profit from investment in the equipment and has provided as many opportunities as possible to the geoscientists.

3. Efficient sharing has produced a large number of high-level results.

The chronological outcome of zircon measured by SHRIMP has direct geological significance. Domestic and foreign scholars have obtained a great deal of data by using SHRIMP and have published many articles by applying such data to their own field of research. In 2003, 33 dissertations have been published on domestic and foreign SCI and 73 articles in 2004 including one on Nature.

Among the numerous results, some are internationally first rate. For instance, SHRIMPBJ, in cooperation with the US and Australia, measured and discovered the oldest zircon, the first in the world as old as 43 hundred million years and with a metamorphic multiplication shell of 37 hundred million years, which has broken an international testing record--41 hundred million years. Although this is the third zircon discovered so far that is as old as 43 hundred million years, neither of the other two previously discovered by Australian scientists have metamorphic multiplication shells. This result has made a breakthrough in the study of the early history of the earth.

By accurate measurement of years, SHRIMP has measured the three stages of metamorphic evolution of ultrahigh pressure rock in Dabieshan Mountains of China and accurately obtains the time while calculating the "turning back speed" of ultrahigh pressure rock returning to the earth's surface from the depth of the earth. This is a breakthrough progress.

In the study of pre-Cambrian Period, SHRIMP ascertained the age of khondalite series of pre-Cambrian Period, which is a major step in the study on structural evolution. On many sites of Yangtze plate, residual zircon as old as 33 hundred million has been discovered. This is something that geologists have never thought of before. It will bring about new interpretations on structure and further improve the study on the evolution of Archeozoic Era of Anshan, China.

4. The sharing mechanism has turned SHRIMPBJ into an academic exchange center of the geoscience communities both home and abroad.

Through opening-up of the SHRIMP instrument, SHRIMPBJ has attracted a large number of domestic and foreign scholars that contribute to frequent academic exchanges. The research personnel of SHRIMPBJ are able to acquire new information and new data from scholars of all countries frequently. Every year, a lot of people participated in the "Beijing SHRIMP Result Report Conference" organized by SHRIMPBJ. Every time, more than 40 latest results are exchanged at the conference.

5. Sufficient sharing has sped up the internationalization of SHRIMPBJ

Since it is open to the world, SHRIMPBJ is soon known to its counterparts all over the world and naturally merges into the international geoscience community and has gained wide recognition. Foreign scholars have also turned from simple use of the instrument to cooperation and joint study with SHRIMPBJ in internationally pioneering research subjects. Over the past year, SHRIMPBJ has signed agreements respectively with three universities of Italy for study on the Alps, with the Institute of Geology, Academy of Sciences of Mongolia for study on ophiolite inside Mongolia, with Russia for study on ophiolite inside Russia and with Australia for study on the geology of Greenland.

The practice of Beijing Quadric Ion Probe Center demonstrates that, under the current condition of low input into scientific research and division of scientific institutions, the method of joint investment and sharing is an effective approach for China to increase the scientific research equipment level, improve the use efficiency of scientific research resources and facilitate the exchange and coordination among the scientific institutions and scientific personnel.

**Largest-ever oceanic survey in high gear  
(China Net, 2005-05-15)**

A comprehensive survey on China's vast areas of inland waters, and marine belts has gone in high gear in an attempt to sort and count the country's marine resources, said the State Oceanic Administration (SOA) in Beijing on Saturday.

The survey, or "908 Project," is a mammoth effort to check some 676,000 square kilometers of water, collect accurate information and appropriately position resources contained in these waters in the national development plan, says a written SOA news release on Saturday.

The project, approved by the State Council in September 2003 and scheduled to be carried out from 2004 to the end of 2009, includes investigations in the physical, chemical, meteorologic, geologic, biologic and optical complexions of the targeted waters.

It will also probe the coastline and islands, track ocean disasters and observe the social and economic development of the country's coastal regions.

"We are trying to count China's oceanic properties," said SOA Vice Director Chen Lianzeng on Saturday while defining the aims of the project, the largest of its kind since 1949.

In addition, scientists will also evaluate and use their findings to help formulate the national oceanic development strategies and make decisions concerning social and economic development of the country's coastal regions.

The project is considered as a rudimentary endeavor in an even-larger framework of the so-called "Digital Oceans" scheme, featuring a comprehensive computerized three-dimensional simulation of the oceans.

According to Qu Qiang, vice director of SOA technological department, preliminary work on the "908 Project" was finished last year and core research and studies will continue through the next two years.

It is estimated that the central government will invest nearly two billion yuan (US\$242 million) in the program in addition to an unspecified amount from local governments.

"The specific amount of money spent will be subject to change in accordance with the annual central and local budgets," said SOA spokesman Li Chunxian here.

China has conducted two large-scale oceanic surveys in the 1950s and 1980s, but results of the two surveys, done with limited financial and technical supports, have failed to serve the country's fast-developing oceanic and marine economies.

To date, only 20,000 of China's total 380,000 square kilometers of usable waters have been tapped due to the lack of correct information on these waters.

As the world's largest seafood and sea-salt producer and the third largest marine transporter, China witnessed a dramatic growth in its annual oceanic industry output, which increased from 22.7 billion yuan (US\$2.74 billion) early 1980s to last year's 1.3 trillion yuan (US\$155 billion).

Some 20 million Chinese people work in sea-related industries.

The "908 Project" will mobilize nationwide research resources and resort to the most advanced technologies and equipment.

"As a fast-developing oceanic power, China is capable of implementing the project successfully all by ourselves," said Chen Lianzeng.

### **Global warming speeds up glaciers melting in Mount Qomolangma**

**(Xinhua Net, 2005-05-18)**

Global warming has resulted in glaciers melting fast at the Mount Qomolangma area of southwest China's Tibet Autonomous Region, threatening the balance of global water resources.

A team of Chinese scientists has been carrying out comprehensive research on Mount Qomolangma. They have spotted evidence of the glaciers' shrinkage in the world's highest area.

The melting area of Dongyongbu glacier rises to 6,400 meters this year, about 50 meters higher than the figure two years ago, said Kang Shichang, head of the scientific expedition. "This indicates a drastic change of glaciers. Usually, the melting area only grows by less than ten meters each year."

Glaciers maintain a balance between ice accumulation and melting. Growing melting area means less fresh water reserves for the world in the future.

Scientists also elaborated on other evidence of the shrinkage.

The expedition team in 2002 observed a 30-meter ice cliff at an altitude of 5,600 meters, but they could not find it this year.

The expedition team in 2004 set more than 20 poles for scientific purposes at altitudes from 6,300 to 6,500 meters, but they only can find four left this year, showing the melting glaciers have taken them away.

Scientists attributed the glaciers' shrinkage to global warming, and said the effects of snowfall changes or human activities could almost be ignored in such natural changes.

Glaciers are critical to the world's water resources. If they all melted, the global sea level would grow by about 60 meters, according to scientists.

### **Making clear of precipitation pattern over the past five decades**

**(CAS, 2005-05-18)**



By examining China's meteorological and hydrological data over 50 years, a research team led by Prof. Ye Baisheng from the CAS Cold & Arid Regions Environmental & Engineering Research Institute has made it clear the regional trends of precipitation throughout the country.

The researchers have found that the country's precipitation presents a considerably remarkable regional trend in its variation through an analysis of the monthly precipitation from 678 meteorological stations across the country and the runoff from the hydrological stations along the mainstreams of the Yangtze River, the Yellow River and the Songhuajiang River from 1951 to 1998.

Their studies indicate that precipitation in most part of east China tends to decrease from August

to December while precipitation in the southern region of the Yangtze River tends to increase from January to March. Although the rainfall in the lower and middle reaches of the River presents a marked drop in May, a drastic rise is featured in July. The situation is just opposite in north China. The precipitation is increased in most months on in west China. The annual precipitation days (precipitation frequency) show increase in west China while decrease in East China, the precipitation intensity is increased in nearly whole country along with various precipitation changes.

They have also discovered that seasonal changes of the runoff are remarkable in the Yangtze River, the Yellow River and the Songhuajiang River due to uneven distribution of seasonal precipitation change and the impact imposed by irrigation networks and reservoirs. The runoff tends to increase from January to April, whereas it trends to decrease in most hydrological station from June to November. The lowest runoff always occurs fall and winter, so the tension in water supply becomes aggravated because of long-time decrease trend in local rainfall in East China.

The experts believe that the current trend will lead to a significant increase in the total runoff volume of rivers in northwest China, which is in favor of the arid landmass in the region. As the global warming predates the thawing process of snowmelt in the upper reaches of the Yangtze and Yellow rivers originating from the fringe of the Qinghai-Tibet Plateau, the discharge in snowmelt period is increased in upper Yellow and Yangtze Rivers. Preparation should be made for the possible damages caused by the floods led by the precipitation intensity increase, warns Prof. Ye.

#### **State lab on environmental chemistry to be established at CAS (CAS, 2005-05-19)**

The CAS Research Center for Eco-Environmental Sciences recently got the go-ahead from the Ministry of Science and Technology to establish the State Key Laboratory of Environmental Chemistry and Ecological Toxicology.

The lab will direct its main research on the environmental analysis methods, environmental chemical behaviors and ecological toxicological effects of the persistent toxic substances (PTSs).

In the field of the environmental analytical chemistry, the scientists will research on the new theories, technologies and methods of the pre-processing, isolation and purification and testing of the environmental samples by taking in and improving the conventional methods. They will also investigate the environmental processes, involving the current pollution situation, the degradation and accumulation mechanisms, the transport-transformation rule, and the pollution control principles over the PTSs from the angle of environmental chemistry. Meanwhile, in the biological toxicology area, research will be carried out on the improvement of the biological marker technique, the animal models design, the toxicity filtration and evaluation as well as the study of the influence imposed by the PTS on the animals and human beings.

In the future, the lab strives to keep abreast with the advanced domestic level and achieve original and prominent research fruits to make contribution to the China's environmental security and provide technological support to the Stockholm Convention on Persistent Organic Pollutants.

#### **State Key Lab of Lithospheric Evolution to be set up at CAS (2005-05-19)**



On the basis of feasibility studies by a panel of experts, the Ministry of Science and Technology has given the nod to a proposal to establish the State Key Laboratory of Lithospheric Evolution at the CAS Institute of Geology and Geophysics.

According to its blueprint, the new lab will be formed by adding researchers in deep geophysics to the former CAS Lab of Lithospheric Tectonic Evolution. Headed by Prof. Ding Zhongli, it strives to make original contributions to the theoretical development of the solid earth system by focusing on research into the lithospheric material composition, structure and texture in China and neighboring continents, dynamic process of the lithosphere in the integrated behavior of the solid earth system, and mechanism for the interactions among inner layers of the earth.

The current research interest of the lab is to probe the formation and evolution of the continental lithosphere in light of cutting-edge issues of global lithospheric evolution and in combination with typical geological phenomenon in this country. The studies on typical orogenic belts and craton of China will also be carried out against the background of global structure and dynamic process of deep earth.

### **Global Carbon Project sets up its regional office in Beijing (CAS, 2005-05-20)**

Upon the approval of the Executive Committee of the Global Carbon Project (GCP), an affiliated office of GCP will be established in Beijing.

Housed at the CAS Institute of Geographical Sciences and Natural Resources Research, the office will have a supporting and coordinating role nationally, and provide initiation, coordination and capacity building for a carbon study partnership in the larger region of Asia as well.

Offering a common, mutually agreed knowledge base to support policy debate and action, GCP serves as a platform for cooperation and exchange over the carbon cycle research in an effort to respond to the challenge posed by the global climate change. With an extensive network in Asia, the organization is on the lookout for promoting scientific activities and exchange of visits in this regard.

The Beijing office will perform as an activator to boost an integrated regional carbon research within Asia, in particular to provide scientific information on regional carbon cycling, and its relevance to global climate change, says Prof. Liu Jian, deputy director-general of the CAS Bureau of Science and Technology for Resources and Environment and an active initiator of the office. Moreover, as the Kyoto Protocol takes effect and the talks on the climate change of the post-Kyoto period kick off, the establishment of the office will significantly increase the capacity of scientists from developing countries to contribute to concerned policy settings.

Prof. Cao Mingkui from the CAS institute is to serve as the director of the new office. According

to Cao, the office will collaborate with other two affiliated offices in Canberra and Tsukuba respectively to coordinate a regional and global strategy consistent with the GCP Science and Implementation Framework (GCP 2003).

### **World Roof still young in geological age**

**(China.org.cn, 2005-05-21)**

A Chinese scientist said Friday that the Qinghai-Tibet Plateau is still very young compared to other geological formations.

Fang Xiaomin, a researcher at the Chinese Academy of Sciences (CAS) Institute of Tibetan Plateau Research, said in an interview with Xinhua that the world's highest plateau rose to its height roughly eight million years ago.

A collision between the Indian Plate and the Eurasian Continent Plate 40 million years ago shaped the plateau and its surrounding geological features, Fang said.

Studies of ancient Asian monsoons and highland loess have proven the plateau's age, the professor said.

The Himalayas continue to rise by an average of 10 millimeters annually, Fang said. Mount Qomolangma, whose current official height is 8,848 meters, is higher than its peers on the same plateau.

Fang also said that the two plates of the Earth's crust are still colliding. This means that the Qinghai-Tibet Plateau moves north by more than 20 millimeters and upwards by several millimeters each year.

Chinese scientists are now measuring the height of Mount Qomolangma. They have prepared for the final summit ascent and precise measurement for two months.

Some members of the climbing team and scientists from the State Bureau of Surveying and Mapping are scheduled to climb Friday from 7,790-meter-high base camp at the foot of Mount Qomolangma, said Zhang Jiangyuan, chief coordinator for the expedition.

### **China opens first wetland to public**

**(CCTV, 2005-05-21)**

May 22nd is International Biodiversity Day. And wetlands, along with forests and oceans, are one of the three most important ecosystems on the planet. China has around 66 million hectares of wetlands, putting it first in Asia and fourth in the world.

It's a jungle in many of China's big cities, with endless concrete buildings and people. But in the western outskirts of Hangzhou, the capital of east China's Zhejiang province, there's something quite different.

This is the Xixi wetland and the first wetland park to be opened to the Chinese public for their enjoyment.

What you see is just one-sixth of the 60-square-kilometer wetland, which has been increasingly encroached by human activities. Shen Qingyang was relocated last year, along with more than 600 other residents, to make way for a reclamation project.

Returning to his former home is always an emotion experience for the 52 year old.

A local resident Shen Qingyang said: "The environment is much better than before. The government did the right thing. Although I was reluctant to move out when I did, it's great to see the changes that have occurred."

The Xixi wetland was a famous scenic spot in ancient times. It boasts great bio-diversity, providing habitats to many unique plant and animal species -- including 89 bird varieties.

Such areas are regarded as gene pools for species and a type of climatic regulator. They not only provide humans with rich resources for their life, but also serve as a defender against natural disasters.

Guo Liying, from Hangzhou of Zhejiang Province, said: "While various species are enjoying a safe and favorable habitat here at Xixi park, sixty percent of the country's nature wetlands are still unprotected. That means some species still face human threat and might suffer the same fate as Xixi wetland has experienced before. "

The livestock and people who live here are major threats to the invaluable natural resource, which is in danger of being lost forever.

Last year, local government announced plans to invest an equivalent of about 500-million-US-dollars to save what had already been lost or destroyed and attempt to return some aspects of the fragile ecosystem to their previous state.

Liang Jin, deputy director of Xixi Wetland Project Command Center, said: "We built a drainage system in the wetland and all livestock farms that previously discharged excrement and sewage into the wetland waters have been closed. We also introduced more than 270 biological species to heal the damaged natural systems."

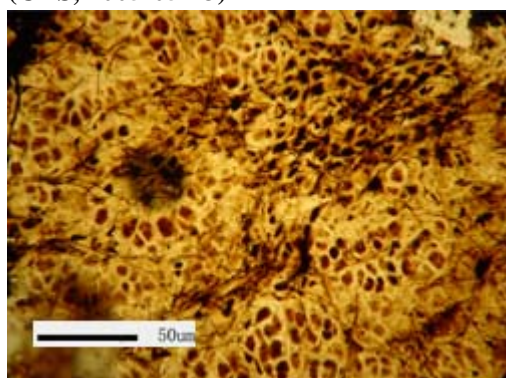
The daily number of visitors to the site is being limited to 3,000, to better protect the area. Opening the wetland does have an economical value, but there's something more important to be gained than just money.

A visitor said: "I had little idea of what wetlands were before coming here. Being here makes me realize more about the importance of wetlands."

Despite the emotional strain, Shen Qingyang often returns to the area to do what he can for his former home and the environment as a whole.

### **Oldest known lichen fossils found in South China**

**(CAS, 2005-05-23)**



Lichens are believed to play a pioneering role in transforming the earth surface when they appeared on land hundreds of million years ago, paving the way for the evolution of terrestrial plants and animals. But most habitats where lichens dominate, such as tundra, mountains, and deserts, have a very low chance of preserving fossils. Until recently the earliest known lichen fossils were discovered in 1995 by Thomas N. Taylor, a University of Kansas researcher, from 400 million-year old deposits in Scotland.

A recent study conducted by researchers from China and the United States suggests that lichens

may have existed on Earth 200 million years earlier than previously believed, and their work was reported in the May 13 issue of the magazine *Science*.

The find was made by Prof. Yuan Xunlai from the CAS Nanjing Institute of Geology and Palaeontology, together with two US coworkers, in the Doushantuo Formation of Weng'an County in southwest China's Guizhou Province; the Doushantuo is well known for phosphatized marine algae and animals living in shallow seas about 600 million years ago. The Doushantuo fossils are exquisitely preserved at cellular level and in three dimensions.

The discovery adds to the scarce fossil records of fungi and throws new light on lichen evolution, according to Prof. Yuan, the lead author of the article.

Most people think of a lichen as a single organism. But it is actually a consortium of two organisms, or symbionts that work together to survive in a harsh environment. One of the symbionts, typically a cyanobacterium (also known as blue-green alga) or a green alga, produces food from carbon dioxide for the teamwork. The other organism is a fungus that provides nutrients, moisture and protection in the cooperation.

The Doushantuo lichens differ from their Scottish cousins not just in age, according to Thomas Taylor, one of the co-authors of the article. "They also occupied different environmental niches. The Scottish lichens were land dwellers", Taylor says, "while the Chinese fossils came from the sea."

The new discovery furnishes evidence that the fungi-algae collaboration was forged 600 million years ago or earlier, but new question arises, according experts. Was the collaboration carried over to land, or did each organism invaded land independently, then began to interact - independent of the previous relationship? The researchers believe that land-based lichenization probably evolved independently.

"The ability to form a symbiotic relationship between fungi and algae may have evolved long before the colonization of land by land-based lichens and green plants, which also form symbiotic relationships with various fungi," says Xiao Shuhai, another co-author of the article.

"The Doushantuo Formation opens a window into ancient marine life. There is a lot more remains to be learned from these rocks," Yuan notes.

### **Ocean study to look at sea resources**

**(China Daily, 2005-05-23)**

China will give more support to researching and studying its marine resources, marine officials said.

Highlighting development and scientific exploration without harming the environment, China has expanded research on cultivation of marine resources, the utilization of sea water and energy, and the monitoring and surveying of ocean pollution, Chen Lianzeng, deputy director of the State Oceanic Administration, said last weekend.

"The core research work of a comprehensive offshore survey will begin later this year to make better account of China's oceanic properties," Chen said.

The survey, dubbed "The 908 Project" because it was approved by the State Council on September 8, 2003, is a mammoth effort to check the country's 676,000 square kilometres of offshore waters and nearby inland waters.

The preliminary work of the survey was finished recently, and investigations will begin soon covering the physical, chemical, meteorological, geological and biological areas.

"Through oceanic research, many of the ocean's mysteries will be discovered to promote scientific development and resources exploitation, which is of great importance to national economic and scientific development," Chen said.

With the government spending more than 2 billion yuan (US\$240 million), the entire investigation is scheduled for completion by the end of 2009.

A major goal of the survey is a digital oceanic information system expected to be built by 2009 to collect accurate information and locate resources in the offshore waters.

"The 21st century is a digital era in which technology has become the leading source of productivity," said Lin Shaohua, director of the National Marine Data and Information Service Centre.

Lin's centre probes the coastline and islands, tracks ocean disasters and observes the social and economic development of the country's coastal regions.

"Inadequate knowledge often results in marine resources' being over-exploited or even destroyed in some areas while in other areas huge resources have been untouched," Lin said.

For example, fishery resources in Shantou of South China's Guangdong Province were over-exploited and sea water was polluted because too many fishery plants concentrated in a limited beach area in the early 1990s.

Varieties of fish there have been greatly reduced in the past two decades, and the ecosystem was ruined. High-value fish have become very rare, and the fish that remain are small.

The local government has controlled the number of fishing boats since 1997.

Artificial reefs have been introduced to provide habitat places for fish and reef inhabitants, which have helped improve the ecosystem.

Fishery areas in East China's Shandong and Zhejiang provinces have also been faced with problems of over-exploitation, Lin said.

To better protect the marine environment and supervise resources, an oceanic observation system with marine satellites as the core technology, also under "the 908 Project," has been introduced, Lin said.

China conducted two large-scale oceanic surveys in the late 1950s and the early 1980s, but results of the two surveys, done with limited financial and technical supports, have failed to serve the country's fast-developing marine-related economy.

To date, only 20,000 of China's total 380,000 square kilometres of usable waters have been tapped because of the lack of correct information on these waters.

### **China establish world's first international institute on creeping environmental problems (Xinhua Net, 2005-05-24)**

The world's first international institute designed specifically to address creeping environmental problems was set up Monday in Lanzhou, capital of northwest China's Gansu Province.

The major purpose of the institute is to provide comprehensive assessment on environment for policy and decision makers, giving them the information needed to address the problems, said Michael H. Glantz, a meteorologist from the National Center for Atmospheric Research of the United States, who brought forward the concept of creeping environmental problems in 1999.

"People seldom pay attention to the slow changes taking place under our feet or above our head until they become hazardous one day," said Dr. Glantz, who came to attend the international symposium on arid climate change and sustainable development that opened Monday in Lanzhou.

"Our study helps the government to make preparations and early warnings to reduce or avoid losses brought by environmental crisis or natural disasters," said Dr. Glantz, who is also the director of the capacity building center under the institute.

Besides Dr. Glantz, the institute also will gather more than 20 other scientists on hydrology, geography, social science and economics to study slow-developing environmental problems, said Ye Qian, assistant president of the Chinese Meteorological Sciences Academy, also one of the initiators of the institute.

The institute will also submit its study result to different governments, said Ye.

"China suffers a lot from creeping environmental problems and the establishment of the institute shows the great concern of the Chinese government," said Ye.

"After all, to enhance research and take decisive actions are the basic way for governments of different nations, especially in the developing countries, to tackle the creeping environmental problems," he said.

### **Measurement of Mt. Qomolangma: answers to three riddles (People's Daily, 2005-05-24)**

The important reason that the measurement of Mount Qomolangma has attracted worldwide concerns this year is that there have been three unsolved and long-disputed mysteries in the world, which will probably find a clue to the answers in this measurement action.

- First, how high is "the roof of the world"?

In 1954, an Indian survey known as Gulatee fixed the height at 8,847.6 meters; in 1975, a Chinese expedition and mapping team found the peak was growing, standing at 8,848.13 meters; in 1992 an Italian expedition re-measured the height of the mount was 8846.50 meters; in 1999 a US expedition using GPS technology re-measured the elevation and found it to be 8,850 meters. What on earth is the height of Mount Qomolangma? It has been the subject of controversy.

China has adopted an advanced and perfect measurement scheme, namely the traditional classical measurement method and the modern GPS technology. These two kinds of methods will supplement and confirm each other, which will find a clue to the height mystery of Mount Qomolangma.

- Second, how thick are the ice and snow at the summit?

Correctly measuring the thickness of the accumulated ice and snow at the summit of Mount Qomolangma peak is of important scientific significance for assessing the height changes of Mount Qomolangma as well as its impact on the change of the whole world. However there has been controversy about the thickness of the accumulated ice and snow on top Mount Qomolangma.

In 1975, a Chinese expedition and mapping team found the peak stood at 8,849.05 including the thickness of the ice and snow layers when it reached the peak and measured Mount Qomolangma. The depth of the ice and snow layers on top of the mount measured by a women team member was 0.92 meters by the way of inserting drill rod at that time. So the actual high of the peak was 8848.13 meters; in 1992, an Italian reached the peak the scientist measured the thickness of the ice and snow to be 2.55 meters by the same way. So there was 1.63-meter difference between the two measuring results made in 1975 and in 1992 respectively.

Some researchers also do not think the method by working a drill rod into the ice and snow can measure the true thickness of the ice and snow. The thickness of the ice and snow on top of Mount

Qomolangma is far greater than 2.5 meters or perhaps even more than 10 meters.

This year's measurement of Mount Qomolangma is more attractive since the mountaineers carried an advanced radar detector specially made for measuring ice and snow while climbing the mount so they could more accurately survey the thickness of the floating snow and the permanent ice sheet on the peak of Mount Qomolangma by following the different responses of frequency according to the different materials there.

- Third, how the earth's crust of Mount Qomolangma area and the Qinghai-Tibet Plateau changes?

Researches prove that probably 200 million years ago, the Himalayas area was a vast expanse of water. Because the Indian plate was pushed to the plate of Asia, the Himalayas and Qinghai-Tibet Plateau began to take shape, and are rising constantly. So far, Qinghai-Tibet Plateau has still been the strongest area of crustal movements on the earth.

But how the "crustal movements of Qinghai-Tibet Plateau are on" has been the focus that the scientific circles in the world are concerned about. Thirty special points were chosen respectively in the Qinghai-Tibet Plateau and the surrounding area of Mount Qomolangma for the re-measurement this time with GPS satellite navigation for on-line observation. The observation will play an important role in studying the crustal movement details in the area of Mount Qomolangma and Qinghai-Tibet Plateau.

### **Shanghai-made orbiter to improve forecasts**

**(Shanghai Daily, 2005-05-26)**

Errors in short-term weather forecasting will be greatly reduced when a new Shanghai-made meteorological satellite is put into formal use next month, a senior engineer said yesterday.

The Fengyun-2C was launched last October as the country's first international-quality satellite. The weather monitor has been in orbiting on a trial basis over Malaysia since its launch.

"The new satellite will greatly increase the accuracy of short-term weather reporting for Shanghai and other Chinese cities," Zhou Hongmei, a senior engineer at Shanghai Meteorological Bureau, said yesterday.

Scientists explained that some erroneous short-term weather forecasts are caused when satellite-produced cloud maps lack the requisite clarity.

The 1.38-ton satellite, developed by the Shanghai Institute of Space Flight Technology, has an observation range covering one-third of the Earth's surface. It is equipped with five monitoring channels - two more than its predecessor.

"With two new channels added to its scanning array, the new satellite is capable of capturing more detailed environmental changes," Zhou said, noting that it will send back better meteorological maps to improve weather forecasting, especially for the next day.

The newly added infrared observation and visible-light channels will enable the FY2C to calculate the size of water drops atop cloud layers and better monitor the surface temperature of sea water, experts said.

It can also monitor changes in solar and space particle radiation.

China will launch the Fengyun-2D, a more advanced orbiter, in the fall of next year, according to Chen Guilin, a researcher at the Shanghai Institute of Technical Physics who participated in the satellite project.

"By that time, the city's weather report will become much more accurate," he said.

In addition to the Fengyun-2D, several other weather satellites will be launched in the coming years.

### **Scientists draw China distribution map for 39 elements**

**(China.org.cn, 2005-05-29)**

Chinese scientists have successfully drawn a national geochemistry map showing the distribution of 39 naturally-occurring chemical elements and oxides including gold, silver, copper and lead. The map, which took three years to complete, indicates the natural distribution of these chemical elements in China. On May 23, the map was appraised by the China Geological Survey (CGS).

In 1978, China started on a nation-wide geochemistry survey. Over the course of 30 years, the survey, covering a total area of 6.5 million square kilometers in 28 provinces, regions and municipalities, analyzed 1.42 million chemical samples and tested 39 chemical elements, retrieving 55.4 million pieces of original data. In 2001, the Research and Development Center of the CGS compiled the data collected and set up a database to support regional geochemistry surveys.

The survey found 2,900 natural mines and over 700 metalliferous deposits including gold, silver, copper, lead, zinc, stannum, tungsten and molybdenum. Among them, over 70 are middle-sized to large deposits, providing abundant resources for economic construction.

According to Meng Xianlai, director of the CGS, the geochemistry map displays features and rules of geochemistry reflected in different geological backgrounds, and indicates the distribution features and rules of China's hydrographic deposits and the geochemistry figure of elements of earth's crust. The map provides important information that can be used for research on the structure of stratum and magmatic rock.

The map also reveals that these elements do not occur in isolation. The distribution of nitrogen, phosphor, kalium, boron and manganese, and harmful elements such as cadmium, mercury, lead and arsenic is also indicated on the map. This is of great significance to environmental protection efforts.

### **Breakthrough in China's rare earth application engineering**

**(MOST, 2005-05-31)**

Recently, breakthrough has been made in the project of "NdFeB Fast-cooling Thick Tape Industrialization Technology and Key Equipment Nationalization" and the core technology for efficient NdFeB fast-cooling thick tape technique has been acquired. Undertaken by the National Engineering Research Center for Rare Earth Materials, General Research Institute for Nonferrous Metals (GRINM), it is a key research project of "Rare Earth Application Engineering"- a part in the National Program for Tackling Key Problems

In 2004, the 300kg fast cooling thick tape furnace independently designed and developed by the project team reached world advanced standard in comprehensive performance after much modification and improvement. On the basis of this result, a pilot production line of NdFeB fast-cooling thick tape with an annual production capacity of 300t has been built. The fast-cooling thick tape produced on this production line has obtained good feedbacks from both domestic and overseas users. The sum of MGOe and kOe exceeds 60, which has achieved the desired index. At the same time, 4 patents have been applied for with regard to this result. Presently the patents are in a stage of evaluation.

The project team will continue to carry out design and research in NdFeB fast-cooling thick tape ingredient standardization and development of large equipment for the purpose of popularizing and applying fast-cooling thick tape technique in the rare earth permanent magnet industry in our country, thereby upgrading the overall level, technical added value of the product and China's competitiveness in the market of sintered NdFeB magnet.

Fruitful progress has been achieved in the research project of "Application and Demonstration of the New Materials and New Technologies of Rare Earth Applied in Agricultural Production in the Western Area", one of the key projects of "Rare Earth Application Engineering", a major State S&T project during the "Tenth Five-year Plan". The unit undertaking this research has built up two application and demonstration bases of over 5,000 mu respectively in Xinjiang and Gansu and has acquired satisfactory results by applying to the demonstration bases the new material and new technology of rare earth for use in agricultural production and various combined technologies. The specific indicators are: 35.1% increase at the most in yield through application of rare earth phosphate fertilizer to potato in comparison with traditional manure while at the same time the ratio of first-class potato has been increased and the ratio of diseased plant decreased. Results of multiple-point experiment including large area experiment show that: in respect of the important quality index of grape sugar content, the sugar increase effect is obvious for rare earth phosphate fertilizer, ordinary manure synergist, amino acid rare earth micro-fertilizer and all-element rare earth micro-fertilizer, the maximum increase may be as high as 3.6%. Experiment with rice demonstrated that the increase in yield with the adoption of rare earth phosphate fertilizer may be as much as 10% higher than the production in traditional planting. Use of any kind of leaf face fertilizer on high quality violet alfalfa forage grass can increase the production yield by over 20%. The project was undertaken by Grirem Advanced Materials Co., Ltd.

Through the base's demonstration effect, the accumulative total of popularization area in 2004 amounted to 4.985 million mu, more than double the assignment of 2 million mu. The newly increased agricultural revenue is 2.5 hundred million Yuan and newly increased profit and tax 1.5 hundred million Yuan. The popularization and application of the new material and new technology of rare earth for use in agricultural production in large areas will facilitate the high efficient development of agriculture in our country and the improvement of ecological environment in the West.

## 1.3 Health

### **Brain surgery for eliminating drug addiction strictly controlled**

(Xinhua Net, 2005-5-07)

Chinese health official on Friday re-stressed that the brain surgery for eliminating drug addiction is strictly controlled because its effectiveness and safety have not been proved and its side effects are still unclear.

Qi Guoming, chief of the Science and Education Department under the Health Ministry, said the surgery is still under clinical studies but not for clinical use.

"It is irresponsible and immoral to conduct the operation before an experimental conclusion is reached. Therefore, we are not resuming it," he said.

Brain surgery for curing drug addicts is a key research field and the ministry is thinking about applying for national fund for scientific studies given by the Ministry of Science and Technology, said Qi.

Health Ministry's spokesman Mao Qun said last month that brain surgery to curb drug cravings is a special medical practice. Those hospitals and doctors who perform the operation, as well as the equipment, environment and post-surgery observation, must be qualified and standardized.

Qi also stressed at the same day that before the ministry carries out a scheme and regulation for the clinical studies of brain surgery, any medical unit cannot perform the surgery in the name of clinical study or service.

Brain surgery was suspended on Nov. 2 last year by the ministry because of disputes over its unidentified side effects among medical experts. Evaluation and argument of the operation have been lasting ever since.

The ministry in March held a special meeting on this topic in Shaanxi Province, at which experts and officials agreed that the brain surgery is still in the phase of clinical studies and cannot be used in clinical service.

The current materials show the short-term effects of the brain surgery are comparatively good, but long-term effects are still unclear, which need further scientific studies, they said.

Meanwhile, the studies must be done in those hospitals that have a relatively good capability; that the ministry is going to set up a supervising team to verify materials and formulate a qualification standard, according to the meeting.

The experts and officials also agreed to work out strict plans and regulations for the clinical studies of the brain surgery, and clarify ethical principles that are involved in the practice. A stricter criterion of selecting the patients and observing side-effects were also urged.

Brain surgery to cure drug addiction was banned in Russia in 2002 after a patient claimed he had suffered headaches as a result of the operation, which also failed to cure him of his addiction, according to a report by AFP.

By Nov. 2 when the operation was suspended, about 500 patients had received the surgery throughout China. Most of them reported positive results, but some of them appeared abnormal symptoms, like the loss of sex drive.

### **New yews offer hope in cancer fight**

**(China Daily, 2005-05-12)**

Researchers have bred a new variety of yew tree, famous for its cancer fighting properties, in an effort to stave off the extinction of the endangered plant.

The new breed, developed by a team from Beijing Taxus Co Ltd, contains more taxol, regarded as the most effective natural remedy in fighting cancer, than the wild yew tree.

The wild yew, with its scarlet cup-shaped seeds and flat needles that are dark green above and yellowish below, can only be found in Sichuan and Yunnan provinces.

"From China's west to east, southern island to northern grassland, we planted the newly-cultivated tree and found it grows well," Xie Zhiyuan, CEO of the company said.

He said the predecessor to the new variety, named Zike No 1, was imported from the United States in 1995.

With support from the Ministry of Science and Technology, Xie's team conducted experiments nationwide planting the imported natural hybrid variety, named media yew, in different kinds of

soil.

"By using scientific methods, we produced this excellent variety," said Xie.

"Benefits of the achievement are manifold," said Xie during a three-day conference held by the US-based Native Yew Conservation Council in Beijing.

He said the plant, which is rare the world over, can now be protected by the potential wide planting of the new variety.

The yew currently stands endangered due to the massive felling of the tree for the extraction of taxol. But the new breed will produce more taxol three years after planting than the wild variety could after 30 years, the research team found.

Xie said the planting of the new yew could help farmers in poor mountainous regions shake off poverty. "It's also of decorative value," said Xie, who has suggested Beijing use the ever-green plant to spruce up the capital.

### **Sino-US project to combat HIV/AIDS**

**(Xinhua Net, 2005-05-12)**

The Chinese Ministry of Health on Wednesday launched an HIV/AIDS prevention and treatment project with US-based Merck Sharp & Dohme in Beijing, the largest Chinese government and private company partnership to fight the disease.

The company will spend 30 million US dollars on the project in the next five years, starting in Liangshan Autonomous Prefecture of Sichuan Province, southwest China, in autumn of this year, according to Judy Lewent, executive vice president of the company.

The ministry will provide medical staff and equipment for the project. "The program sets a good example for cooperation between the government and companies, which will leave positive effect in mobilizing the whole society to fight against HIV/AIDS," said Wang Longde, vice minister of health.

Liangshan is a high prevalence area of HIV/AIDS, where sharing needles among drug addicts is the main cause of HIV/AIDS transmission, he said.

The goals of the project are to effectively prevent and treat HIV/AIDS, to care for AIDS victims and to improve the HIV/AIDS situation in China, they said.

The project involves a series of supplement measures for fighting HIV/AIDS, including promotion of education and publicity, training health workers, teaching living skills to HIV carriers and AIDS patients and providing condoms and clean drug injectors to high-risk groups.

In a meeting with Judy Lewent here Wednesday, Chinese Vice Premier Wu Yi said besides the government's endeavors, China also encourages social efforts and resources to pool in the HIV/AIDS prevention.

According to official government estimates, China now has about 840,000 HIV carriers, including 80,000 AIDS patients. It is estimated that China will have had 10 million HIV carriers by 2010.

Merck Sharp & Dohme has been cooperating with several AIDS-affected countries such as Botswana and Romania to fight HIV/AIDS, and has developed drugs for treating the disease, which have been provided to about 180,000 patients in 68 developing countries, according to the company.

### **New Drug Gives Heart to Patients**

**(CAS, 2005-05-13)**

Cardiovascular patients now have a greater chance of surviving heart attacks after Chinese scientists developed a new drug which quickly dissolves blood clots and returns circulation to normal.

Clinical trials have found that more than 80 percent of patients recover if they are injected with 10 milligrams of the drug within six hours of suffering a heart attack, according to Wang Jiaxun, a professor with the Shanghai Institute of Plant Physiology of the Chinese Academy of Sciences.

The new drug was one of the achievements made during the 10th Five-Year Plan (2001-05), the Ministry of Science and Technology announced at a news conference yesterday in Beijing.

Over the past five years, the ministry has mobilized scientists to develop new drugs with independent patents and technology, in order to gradually phase out the imitation of foreign drugs.

The drug (Recombination Staphylokinase for Injection) has been given the green light for mass production by the State Food and Drug Administration (SFDA). Similar drugs in the United States, Japan and Belgium are still undergoing clinical studies, said Wang, adding that cardiovascular disease was one of the world's biggest killers.

Statistics show that China has 30 million heart disease patients, of which 2 million die every year.

Wang said his team will make further studies into the use of the drug as a preventative measure.

Wang Xiaofang, an official from the Ministry of Science and Technology, said scientists had also developed other new drugs for the treatment of cancer and AIDS.

A new anti-cancer drug, developed by Biotech Pharmaceutical Co Ltd, a Sino-Cuban joint venture, has been approved by the SFDA. The drug could improve cancer's curative rate by 30 percent, said Wang.

### **China AIDS vaccine begins human tests**

**(China Daily, 2005-05-15)**

The vaccinations launched the second phase of clinical testing for AIDS DNA vaccine in southwestern China's Guangxi Zhuang Autonomous Region.

The AIDS vaccine consists of two gene vaccines, one containing DNA of the AIDS virus and the other carrying poxvirus.

The volunteers will receive the poxvirus vaccine in three months, said Wang Youchun, director of the cell laboratory under the Institute for the Control of Drugs and Biological Products.

The AIDS DNA vaccine is aimed at helping the body's antibodies and cells to form immunity to HIV, the AIDS virus, and the poxvirus vaccine is aimed at strengthening the immunity, the developers said.

The safety of the two gene vaccines was tested in the first phase of trials. The second phase is to examine their combined safety, which means vaccinating volunteers twice with each vaccine, Wang said.

China is estimated to have 840,000 HIV carriers, including 80,000 AIDS patients.

### **Test begins to compare Chinese, Western medicine in treating drug addiction**

**(Xinhua Net, 2005-05-16)**

Scientists began comparative tests on the effects of a newly-developed traditional Chinese medicine and a Western medicine in treating drug addiction Sunday in Guangzhou, capital of south China's Guangdong Province.

The new medicine, Xuanxia capsules and adanon (or diamionon), was developed by ten universities

and research institutes in China including the Xuanxia Pharmaceutical Company Limited, Beijing Medical University and Central-South China University in Hunan Province.

Scientists will compare the effects of the new medicine and adanon (or diaminon), a Western medicine widely used to treat drug addiction.

The tests were designed by a research center under the World Health Organization (WHO).

One hundred and twenty volunteers from across the world will participate in the tests at the Baiyun volunteer drug addiction treatment center, the largest one in Guangdong.

The clinical tests will last for one month.

### **Significant results from State Key S&T Project of "Innovative Drug and Modernization of TCM"**

**(MOST, 2005-05-20)**

I. Major Progress in State Key S&T Project of "Innovative Drug and Modernization of Traditional Chinese Medicine"

In light of the health demand of the people and the actual need of the development of the drug industry, MOST has strengthened its support for new drug innovation and manufacturing during the Tenth Five-year Plan and initiated the implementation of the major S&T project of "Innovative Drug and Modernization of Traditional Chinese Medicine".

With the vigorous support and assistance of relevant departments and local governments and through four years' hard work and concerted efforts of the research institutes and enterprises, this major project has already made significant headway.

On the one hand, the ability and level of new drug innovation and manufacturing has been obviously advanced. On the basis of the S&T work on new drugs during the Ninth Five-year Plan, the major S&T project of innovative drug during the Tenth Five-year Plan was oriented towards the key technologies in new drug R&D and placed stress on the building of independent R&D and innovation abilities. With a view to setting up a new drug innovation platform and R&D system in compliance with the characteristics of China, the project set up 9 categories of technological platforms, such as new drug screening, pre-clinical safety evaluation (GLP), clinical experimental research (GCP), drug metabolic dynamics. The research work for part of the platforms has already adopted international practice and an innovative drug R&D system and technical platform have already taken shape.

On the other hand, a series of innovative drugs have been successfully developed. A group of innovative drugs with independent intellectual property have been developed for treating major diseases that threaten people's health, such as d1-3-n-butylphthalide, NBP for treating heart and brain blood vessel diseases, P53 injection for malignant tumor and Tang Cao Pian for AIDS. Up to the present, 22 varieties of this project have obtained new drug certificates and production approvals, 27 varieties have completed all research work and applied for new drug certificates, 115 varieties are in the stage of clinical experiment and a number of others are in the stage of pre-clinical research.

According to preliminary statistics, 12 innovative drugs were approved in 2002, of which 3 were under the major S&T project, accounting for 25%; 21 innovative drugs were approved in 2003, of which 9 were under the major S&T project, accounting for approximately 43%; and in 2004, 18 innovative drugs were approved, of which 10 were under the major S&T project, accounting for approximately 56%.

## II. Two key new drugs

### 1. Haemolysis suppository for acute myocardial infarction---Recombinant Staphylokinase for Injection

On the basis of the support from 1035 Program, major State S&T program in the Ninth Five-year Plan of MOST, Recombinant Staphylokinase also obtained the strong support of State major S&T project of "Innovative Drug and Modernization of Traditional Chinese Medicine" in 2002. Through the concerted efforts of Chengdu Jinpeng Biotechnology Co., Ltd. and Shanghai Institute of Plant Physiology, Chinese Academy of Sciences and over 150 scientific research personnel from over 30 research institutes, universities and hospitals all over the country, Recombinant Staphylokinase obtained the new drug certificate in 2003. In February this year, Tonghua Yujin Pharmaceutical Co., Ltd. passed GMP certification so that Recombinant Staphylokinase for Injection became the first to enter the stage of large-scale production and also the first Staphylokinase Thrombolytic drug in the world to have obtained registration and approval for production. The successful development of Recombinant Staphylokinase put China in a leading position in this biological drug research area in the world. At present, products of the same type are still in the stage of clinical research in other countries (US, Japan and Belgium).

Result of clinical experimental research showed that, in comparison with Recombinant Streptokinase presently used inside China, Recombinant Staphylokinase is characterized by fast speed, low toxic side reaction and high blood vessel recanalization rate, which is as high as 82.35 %, notably higher than that of Recombinant Streptokinase whose recanalization rate is 65.08%. In addition, Recombinant Staphylokinase for Injection is stable in structure and has a long half-life. Its production technology is simple and production cost is low, which will greatly reduce the expenses for thrombolytic treatment. Therefore it possesses the double advantage of good curative effect and low cost. This research project has already obtained two patents of China. Its research findings possess complete independent intellectual property. Presently it is applying for international patent of invention.

### 2 . Cancer treatment drug -- Taixinsheng

Taixinsheng is a cancer treatment new drug developed by Beijing Baitai Biological Drug Co., Ltd., a high-tech joint venture between China and Cuba under the support of State key S&T project of "Innovative Drug and Modernization of Traditional Chinese Medicine" in the Tenth Five-year Plan. The drug obtained the new drug certificate from State Food and Drug Administration on April 11 this year. This is the first human mono-clone antibody drug approved by China and also a major breakthrough in the field of target treatment and human antibody drug in China.

As a target anticancer drug developed and manufactured by comprehensive utilization of such modern biotechnologies as gene engineering, antibody engineering and cell engineering, Taixinsheng can block the tumor cell cycle progress, speed up death of tumor cell, suppress the generation of tumor blood vessels and tumor infiltration and transfer and enhance the effect of radiotherapy and chemotherapy. It is also characterized by strong treatment idiosyncrasy, high biologic utilization and low side reaction. It can notably increase the cancer cure rate and the

patient survival rate. Result of clinical experiment on terminal nasopharyngeal carcinoma patient showed that Taixinsheng in combination with radiotherapy could increase the complete remission rate of nasopharyngeal carcinoma patients by over 30 % in comparison with single radiotherapy. Satisfactory in terms of safety, it has produced no serious harmful reaction in clinical experiment.

III. Several revelations for the advancement of new drug innovation and manufacturing in China

Firstly, new drug R&D must base itself on the national conditions of China and should be combined with clinical demand and the need of the patients and satisfy clinical requirements. This is an important precondition for new drug R&D. Secondly, the close combination of production with research. New drug R&D and industrialization are closely linked processes. The intimate cooperation between enterprises and scientific research institutions, between research and production are the important guarantee for making major breakthrough in new drug R&D. Thirdly, active State guidance and support. Since the strength of pharmaceutical enterprises in China is relatively weak and their capability for standing risks is low, the State guiding support through S&T projects gives impetus to the development of innovative drugs. Fourthly, the vigorous cooperation of relevant departments and joint efforts of local governments. The development of Recombinant Staphylokinase was vigorously supported by MOST, National Development and Reform Commission, State Food and Drug Administration, National Natural Science Foundation of China and Chinese Academy of Sciences as well as local governments. Practice demonstrated that cooperation and promotion by relevant departments and local governments could greatly speed up the new drug R&D progress. Fifthly, emphasis on international cooperation. Another important approach for speeding up new drug innovation is to take the initiative in introducing advanced foreign technology and research result and making innovations on the basis of digestion and absorption. Taixinsheng is such a drug developed by China in cooperation with Cuba for cancer treatment.

#### **China ratifies protocol on biosafety**

**(CRI, 2005-05-20)**

China has ratified the Cartagena Protocol on Biosafety, which regulates international trade of genetically modified organisms (GMO), the State Environmental Protection Administration (SEPA) announced Thursday.

The Cartagena protocol obliges exporters to give greater information to recipient nations about GMO products. It also gives importers the power to reject GMO imports or donations -- even without scientific proof -- if they might pose a danger to traditional crops and indigenous societies. Cartagena Protocol on Biosafety, a part of the Convention on Biological Diversity, became effective in September 2003 and has been ratified by 120 countries.

"The ratification of the protocol demonstrates China's commitment to enhancing management on biosafety in line with international law," said Wan Bentai, director of SEPA's Natural Ecosystem Department.

He said the ratification will also promote the country's legislation on the topic, strengthen its management of GMO cross-border movement, improve GMO labeling system and promote public involvement in biosafety.

"China is drafting a law on GMO safety in order to better implement the protocol," Wan said.

Despite that there has been much progress in GMO research since 1980s, China still has many loopholes in its biosafety management, including ineffective supervision in the face of growing import of GMO products.

Biotechnology broadly relates to the transfer of genes from one organism to another, giving the recipient favorable characteristics. For instance, biotechnology can be used to protect crops from pests and diseases or to make them grow faster.

Some types of tomatoes and strawberries have been modified by a gene from a cold water fish to protect the plants from frost. Opponents say such practices risk damaging the environment and increasing the risks of species loss.

Wan said that the ratification of the protocol is also part of the country's efforts to conserve biodiversity which is under serious threat. He pledged that the SEPA will take more concrete steps in the regard.

### **China orders emergency measures against Bird Flu**

**(CRI, 2005-05-22)**

China has ordered emergency measures to stop the spread of bird flu, following the deaths of some migratory birds from the deadly H5N1 virus.

The area in Qinghai province hit by the latest case has been quarantined.

The Ministry of Agriculture has asked local governments to prohibit people from entering the infected areas and prevent contact with migratory birds and poultry.

Veterinary institutions across China have also been asked to determine the species and territory of migratory birds in their regions and to take precautionary measures.

The ministry has urged early notification of any more cases of the disease.

### **Biotechnology could sustain economy**

**(China Daily, 2005-05-24)**

Biotechnology-related industry is being hailed as a new engine to sustain China's economic miracle in the years to come, a high-profile research team has told the government.

Claiming Chinese scientists at home and abroad are taking the lead in the world's "sunrise" industry, the team is confident that China can become a powerhouse of international biotechnology within 15 years.

The team, headed by staff from the National Development and Reform Commission, suggested in its final report that the government should increase its support for the research and application of biotechnology, mainly in agriculture and health.

Labelling the suggestions a "new national development strategy," the team intends to include them in the 11th (2006-10) National Economic and Social Development Plan and the National Medium- and Long-term Science and Technology Blueprint.

Hundreds of researchers and officials have already been involved in mapping out the two national plans.

The team's leading adviser Zhai Huqu said the government should encourage scientists and researchers to attempt to make breakthroughs with their own patents.

"We have a solid foundation from which to work towards realizing the goals," said Zhai, president of the Chinese Academy of Agricultural Sciences.

He said China was one of the world's heavyweights in biotechnology. "We are only behind the

United States by five to 10 years in terms of overall research and development capacity."

China has almost 200 major biotechnology laboratories funded by governments at various levels, with more than 40,000 technological and research personnel. It also has some of the richest and most diverse biological resources in the world, with about 260,000 varieties of animals, plants and microbes.

"By using the resources, we have already made breakthroughs in some fields in the past two decades," said Zhang Xiaoqiang, vice-minister of the National Development and Reform Commission.

China has contributed in the international human genome project and independently completed the sequence for gene groups of a hybrid rice.

It was also the first country to locate and clone a gene causing high-frequency nerve deafness and some genes responsible for hereditary diseases. And research into anti-pest cotton has reached international levels.

To continue the momentum, Zhang said China would focus its research workforce and input on biotechnology-based agricultural and health industries, which are essential to the 1.3 billion people in China.

But there are still problems in research and development input and the industrialization of research results.

Chen Zhu, vice-president of the Chinese Academy of Sciences, said the government's total investment in R&D accounted for 1.3 per cent of gross domestic production in 2004.

### **Rare twin embryos found inside baby boy**

**(Xinhua Net, 2005-05-25)**

Chinese doctors took out twin parasitic embryos from the abdomen of a baby boy Tuesday, a case that is rare in medical practices.

The nine-month-old baby, born in central China's Hunan Province, has been suffering from swollen abdomen.

Doctors in Changsha, capital of Hunan, examined the boy two days ago and took out two egg-sized embryos from his body after two hours of operation.

Liu Chaoyang, chief doctor of the operation in Hunan Provincial Children's Hospital, said the most likely cause is that the baby's mother had been pregnant with triplets but had inadequate nutrition.

The boy is still in a coma and his life is in a critical condition, said Dr. Liu, adding that the rate of twin parasitic embryos is millionth.

### **New vaccines developed to stop bird flu spread**

**(Xinhua Net, 2005-05-26)**

Chinese scientists announced Wednesday two newly developed vaccines are fully capable of stopping the spread of the deadly H5N1 strain of the bird flu virus to fowl, water birds, mammals or humans.

They also said they are willing to provide technical support in epidemic prevention to other countries and regions and contribute to the breeding industry and public health security worldwide.

Chen Hualan, director of the China National Bird Flu Reference Laboratory, based in Harbin,

capital of Heilongjiang Province, said the two new vaccines developed by her lab had proved to be a success: having passed a state-level appraisal, plus a permit granted by the Chinese Ministry of Agriculture for sale on the market.

"Experiments show the efficiency rate of the newly developed vaccines in preventing infection by the H5N1 virus is 100 percent," said Chen.

In the meantime, China has developed three new technologies with which it takes less than 10 hours to confirm a bird flu epidemic, comparing 72 hours in the past, with more time being gained for prevention measures or for taking action.

Dr. Bernard Vallat, Director General of World Organization for Animal Health (OIE), said China leads the world in research on bird flu and relevant technologies for prevention.

More of the two new vaccines have been sent to Gangcha County, where dead migratory birds, confirmed by Chen's lab to be caused by the deadly H5N1 virus, were found on May 4, in a bid to prevent the deadly avian disease from further spreading.

The Chinese Ministry of Agriculture also made an announcement about the incident last Saturday. It is the first reported bird flu case on the Chinese mainland since last year when China successfully wiped out the primarily avian-borne epidemic disease.

Sources said some of the dead migratory birds discovered in Gangcha County, northwest China's Qinghai Province, migrated from Southeast Asia. Migration is blamed as an important for spreading of bird flu virus, and China is on the route of migratory birds in Asia.

There is a higher risk for waterfowl to be infected with the deadly bird flu virus after mingling with migratory birds already carrying the killer disease. The bird flu virus can easily spread to domestic fowl and even humans via the water birds infected with the H5N1 virus.

There were no reports in the world of vaccines being tested on water birds before China began its research. The latest experimental results show that the newly developed vaccines of Chen's lab are equally effective in water fowl, and ducks and geese, which when inoculated with the vaccines did not develop bird flu symptoms.

"With the vaccines, one activated and the other inactivated, the important way for spreading of bird flu virus can be cut off," said Chen.

Compared with conventional ones, the inactivated bird flu vaccine can provide stronger protection against infection in waterbirds such as ducks and geese upon inoculation, while the term of effectiveness on chickens will be prolonged by four months. The bird flu activated vaccine can produce a protection shield against assault of the H5N1 virus in fowls within nine months after inoculation.

"Both the activated and inactivated vaccines are safe to food security, as the meat of fowls being inoculated with the vaccines have been shown not to be affected," said Chen.

An estimate made in February 2004 by UN Food and Agricultural Organization (FAO) said about 100 million domestic fowl died of the H5N1 virus or were culled because of the infection between late 2003 and 2004. Direct economic losses were placed at 500 million US dollars.

At least 52 people in Vietnam, Thailand and Cambodia were diagnosed as being infected with the bird flu virus and died.

World Health Organization (WHO) warned over one million more people could die if the H5N1 virus were spread from human to human. The human deaths caused by the common flu each year are between 250,000 and 500,000, but scientists believe mortality caused by the bird flu among human beings would be much higher.

According to Chen, some chicken farms in Vietnam have been conducting experiments with the new bird flu vaccines developed by Chen's lab over safety and effectiveness.

Agricultural officials in Vietnam said they would inoculate all their domestic fowl with the new bird flu vaccines once the experiments prove positive.

"We will spare no effort in offering support to other countries if necessary," the Chinese scientist promised.

### **China, Germany set up computational biology institute**

**(Xinhua Net, 2005-05-27)**

The Chinese Academy of Sciences and The Max Planck Society in Germany have set up a partnership research institute on computational biology in Shanghai.

The institute is aimed at advancing computational biology research and cultivating young scientists in China by introducing the research, administrative style and operational mechanism of the Max Planck Institute. Chen Zhu, vice president of The Chinese Academy of Sciences, was quoted as saying by Guangming Daily Wednesday.

Professor Andreas Dress from Germany has been appointed the first director of the institute, the paper said.

### **AIDS prevention network in Beijing**

**(CRI, 2005-05-29)**

Beijing's Vice Mayor says the capital will build an AIDS prevention and control network that covers the entire municipality.

Speaking at the 2005 municipal health work conference over the weekend, Niu Youcheng said the three-grade network includes municipal and district disease prevention and control mechanisms, community health service centers and sanitation stations in townships and villages.

Municipal Health Bureau Director Jin Dapeng says Beijing will prioritize the building and reconstruction of 1,486 sanitation stations in the rural areas while intensifying AIDS-related education in eleven districts and counties, together with 20 communities this year.

The official said all second and top level hospitals in Beijing are required to establish HIV check centers.

The government will also continue to put condom vending machines in public places as well as increase methadone treatments and needle exchange services.

### **China's success in breeding mini lotus root seedling through clone technology**

**(MOST, 2005-05-31)**

Taking off a little tip from a lotus root and in two years you can breed 200 mini lotus root seedlings with clone technology. The "Pilot Test for Factory Production Technology for Mini Seedlings of Lotus Root" — a state project supported by Agricultural S&T Results Transforming Fund of MOST has gained success. The project is organized and implemented by the aquatic vegetable research office of Wuhan Vegetable Research Institute.

After a mini lotus root seedling is planted, 10 lotus roots will be harvested. In traditional way, lotus roots for every mu of planting are 200 kg, but by the clone method, only 50kg is needed. It is also easy to be taken anywhere without virus.

Wuhan Vegetable Research Institute took the leading position in the world to have bred test tube

lotus roots and has been continuously developing and perfecting the lotus clone technology. Through the implementation of the project supported by Agricultural S&T Results Transforming Fund, this technology has already been applied to producing mini lotus root in factories and spread to all parts of the country.

## 1.4 Key Technologies

### **HK establishes laboratory to develop human-centric technology**

**(Xinhua Net, 2005-05-05)**

An inauguration ceremony of the Microsoft-CUHK Joint Laboratory for Human-Centric Computing and Interface Technologies was held on Wednesday at the Chinese University of Hong Kong.

Jointly established by the Chinese University of Hong Kong and Microsoft Research Asia, the laboratory will further unite research strengths of both sides to develop innovative human-centric computing and interface technologies that improve quality of life.

It will also strive to promote collaboration between the academia and the information technology (IT) industry, provide leading research infrastructure and nurture talents.

According to Helen Meng, a professor of the university's systems engineering and engineering management department, the essence of human-centric computing and interface technologies is to enhance user-computer interaction by imitating the natural modalities of human communication.

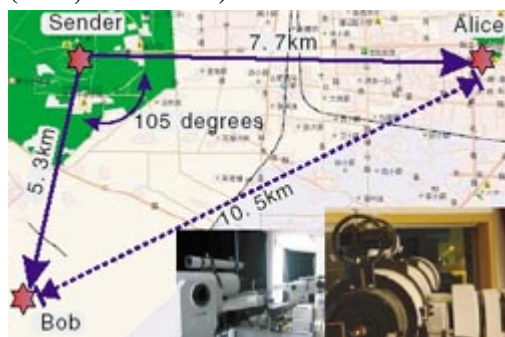
The novel technologies endow the computer with perceptual abilities to "see" the user, "hear" his or her speeches, and "sense" his or her gestures and touch, explained Meng.

"Computers will become more user-friendly, more accessible, and more applicable to our daily lives," added she.

Vice-Chancellor of the university Professor Lawrence J. Lau said at the ceremony that he looked forward a creative, innovative and rewarding research journey between the university's Faculty of Engineering and Microsoft Research Asia.

### **CAS researchers make advance in global secure quantum communication**

**(CAS, 2005-05-17)**



In today's Information Age, the protection of information is of critical importance for national security, business firms, and private individuals. The common long-distance communication technology is poor in keeping private as it is vulnerable to eavesdropping. Quantum cryptography, a new approach to communications based on certain phenomena of quantum physics, is

considered the absolute secure method in this regard.

Recently CAS scientists have made progress in secure communication based on quantum cryptography. In their experiment, Pan Jianwei, Yang Tao, Peng Chengzhi and colleagues from CAS-affiliated University of Science and Technology of China (USTC) are successful in the free-space distribution of entangled photon pairs in a noisy city environment with a distance beyond the effective thickness of the aerosphere, marking a significant step towards the satellite-based global quantum communications.

Although so far some encouraging progresses have been achieved in the fiber-based quantum cryptography in recent years, the exponential loss of photon with the length of optical fibers leads to the maximum expected distance of effective communication limited to about 100km.

Fortunately, recent research shows a promising way to achieve the quantum communication for a longer distance or even an around the globe through satellite-based free-space distribution of entangled photons.

In the scheme, the photonic quantum states are first sent through the aerosphere, then reflected from one satellite to another, and finally transmitted back to the earth. Since the whole aerosphere is equivalent to 5-10 km ground atmosphere and in the outer space the photon loss and decoherence can be negligible, one can achieve global free-space quantum communication, with the help of satellites, as long as the quantum states can still survive after penetrating the aerosphere.

As reported in the April 22 issue of *Physical Review Letters*, the CAS researchers demonstrate that the desired entanglement can still survive and be used in secure quantum communications after entangled photon pairs have been distributed through the noisy ground atmosphere of 13 km, which is longest yet and well beyond the effective thickness of the aerosphere.

Prof. Pan and colleagues started probing the issue of free-space quantum communication in 2003. In their experiment, the site for the source of entangled photons is located at the a TV tower at the Dashu Mountain with an elevation of 281meters in the western suburb of Hefei City, where entangled photon pairs were generated. Then the beam diameter was expanded by telescopes developed by the researchers and sent to two receivers located on the west campus of USTC and at the Taohua Town of the Feixi County of Hefei, respectively. At each receiver, a similar telescope is used to collect the entangled photons. The distances from the sender to the two receivers are 7.7 and 5.3 km, respectively, and photons from the sender to the receivers could experience a noisy city environment.

The environment at the sender site is wild and causes many difficulties, such as perennial strong winds, hot summer, air pollution and background lights, which could greatly affect the experiment. Prof. Pan and colleagues made tremendous efforts to overcome the difficulties and developed sets of telescope systems. Finally they confirm that the desired entanglement can still survive after both entangled photons have passed through the noisy ground atmosphere with a distance beyond the effective thickness of the aerosphere.

Although many entangled quantum pairs were scattered during the transmission between the sender and receivers, a fairly large amount of them still survived. The subsequent check-up by the highly-sensitive single-photon detector showed that the entanglement of pairs could still exist even if they are far apart, and both the quantity and quality of the information carried by the pairs could meet the requirement for the satellite-based global communication. Based on this, the research team succeeded in carrying out the quantum communication with absolute security by distribution

of the entangled pairs. So far, the distance of 13km is the longest yet record ever made for effective prevention from eavesdropping.

Although compared to the previous experiments this experimental results might seem to be only a modest step forward, the researchers say, the implication is profound, presenting a significant step towards satellite-based global quantum communication. Other physicists in the field are impressed. "I congratulate the Chinese group on their success," applauds John Rarity, a researcher in quantum communications systems at the University of Bristol, UK. It shows space-based quantum key distribution is technically possible, he is quoted as saying.

The next target set for the research team is to increase the transmission distance to hundreds of kilometers, breaking out the limits for the optical fiber transmission.

### **Eight-way dual-core server developed**

**(China Net, 2005-05-20)**

Dawning Information Industry Corp Ltd., a domestic server manufacturer, has succeeded in developing eight-way dual-core servers independently.

This indicates that China's server manufacturer is able to produce two-way, four-way and eight-way dual-core products, making domestic servers enter the historic transition from single-core platform to dual-core platform. It also signifies that China's server industry is heading for the leading role in the international market.

An eight-way server refers to eight CPUs operating simultaneously in one computer. China had always been drawing a blank in terms of eight-way servers as high-end servers.

On the other hand, "dual-core" means one chip contains two CPU cores, which will visibly enhance functions of the operating system and increase the operation frequency as well as the performance to power ratio.

"A computer with eight CPUs and each chip with two cores, namely, one computer can provide operation capacity of 16 CPUs," said Li Jun, president of Dawning Information Industry Corp Ltd.

After US's AMD's dual-core processors were introduced in April, Dawning simultaneously launched 10 types of dual-core servers ranging from two-way to eight-way for different needs into the global market.

As a famous domestic server brand, Dawning has gradually familiarized itself in recent years. Following its cooperation with AMD to take the lead to introduce 64-bit servers compatible to the 32-bit ones in 2003, it successfully developed and applied Dawning 4000A supercomputer cluster in 2004, which is currently the fastest in China.

### **Sino-Germany Nano-biotechnology Seminar convened in Changsha**

**(MOST, 2005-05-27)**

The "Sino-Germany Nano-biotechnology Seminar" jointly organized by Ministry of Science and Technology (MOST) and Federal Ministry of Education and Research of Germany convened in Changsha a couple of days ago. Deep-going, far-reaching and fruitful discussions were conducted at the Seminar by experts from China and Germany, who also witnessed the official opening of Sino-Germany Nano-biotechnology Society. The Seminar received more than 60 Chinese experts from the Ministry of Science and Technology, the Ministry of Education and the Ministry of Health and a number of German experts from well-known research institutes such as the Max

Planck Society and the Fraunhofer-Gesellschaft.

Nano-biotechnology, a school of nanotechnology studying in vital phenomena, is one of the key points commanding the science and technology development in the 21st Century and a dominating technology in the New Industrial Revolution. Experts from China and Germany are going to conduct a deep-going, far-reaching and fruitful seminar on six technological fields including new nano-materials applicable to medical research and applications, finishing and smart mounting technologies for nano-materials for medical purposes, nanobiosensors, nano-detection and nano-diagnosis technologies, nano-drug and nano-gene carriers and early auto fluorescence diagnosis in the early stage of large intestine carcinoma. Experts from both countries agreed that complete conquer of some malignant tumors would be likely if the nano-biotechnology research achievements can be successfully applied in the medical treatment of malignant tumors. The research and application of nano-biomaterials will overcome many shortcomings and flaws existing in the clinical applications of conventional materials and significantly improve the medical quality, bringing happiness to the mass of cancer sufferers. Cancer cells can be accurately killed by introducing, via the magnetic field, the magnetic nano-particles loaded with (drugs) antibodies to the location of the cancers, thus decreasing the toxic and secondary actions and increasing the medical effect of the drugs. Although this technology has been successfully applied in clinical applications, further improvements to some key processes, e.g. the integration of nano and carriers and preparation of nano-particles, are still required before the massive clinical application of nano-biotechnology is realized. Therefore, it becomes essential for China and Germany to develop technological cooperation in this regard to further promote the technological level of the related fields.

The Sino-Germany Nano-biotechnology Seminar, the first Sino-Germany bilateral cooperative conference held in China in this frontier area of nanobioscience, was jointly sponsored by the National Key Laboratory of Nano-biotechnology under Ministry of Health, China National Center for Nanoscience and Technology, Hunan Provincial Department of Science and Technology and Central South University.

### **Walking robot learns new trick: dancing (Xinhua Net, 2005-05-27)**

Somewhat comically, a walking, talking robot manages to twist its hip and extend its arms, as it imitates human dancing.

A handful of infrared sensors and five joints were designed into each of the robot's arms, making it China's first robot dancer.

The child-sized robot, nicknamed Feifei, which is a take on the Chinese word for "flying", is able to execute three programmed dances.

When perceiving encouragement from a person, such as applause, though cameras built in its eyes, Feifei salutes or returns applause.

"It's much more difficult to have it dance than walk or talk," Li Chengrong, a leading robot scientist at the Chinese Academy of Sciences (CAS) Institute of Automation, said.

The robot has many advantages over its predecessor, Pangpang, especially in voice and movement control as well as interaction technologies, Li said.

Feifei's bubble head has a total of 12 joints, which makes it easier to mimic more than 40 human facial expressions, representing happiness, anger, sadness, fear, surprise and others.

Feifei is even able to turn cockeyed and wry-mouthed, which are uncommon human "expressions" for a robot.

"We've tried to make its facial expressions and body movement more coordinated, or in another word, make it more 'human'," Li said.

When it shows joyous movement, Feifei changes its expressions more rapidly. And when it is supposed to be in sadness, it moves slower.

Like many other robots, Feifei can say "ni hao", or hello, in both Chinese and English. It can also answer simple questions in standard mandarin Chinese.

It is not for sale any time soon, Li said, "But it's not merely for sale."

Robots that look less human serve in manufacturing while those with pretty appearances can be used for entertainment.

"We'd like to upgrade our robots to the level of people's home companions just like the Japanese Asimo and Aibo," Li said.

Japan is the world leader in robotics. Honda has sleek-looking robot Asimo and Sony sells its Aibo dogs at high prices.

The CAS institute is developing more technologies for entertainment use.

Last month, the institute warranted biometrics verification and interactive technologies for games to Shanda Networking, a NASDAQ-listed online game provider, at a licensing fee worth two million yuan (240,000 US dollars).

"We should be more market-oriented," Li said.

### **China to host an international conference on nanoscience in Beijing (CAS, 2005-05-31)**

Sponsored by the National Nanoscience Instruction and Coordination Commission and organized by the National Center for Nanoscience and Technology of China (NCNST), the China International Conference on Nanoscience and Technology 2005 (ChinaNANO2005) will take place during 9-11, June in Beijing. Prof. Bai Chunli, CAS Executive Vice President & the Director of NCNST, will chair the conference.

The conference is an important international event in the field of nano-science and nano-technology, which is expected to convene about 600 to 800 participants from over 40 countries, including leading scientists in the field. Up to now, the meeting has received more than 1,000 abstracts, and according to the preliminary conference program, 90 or so distinguished speakers will give plenary presentations.

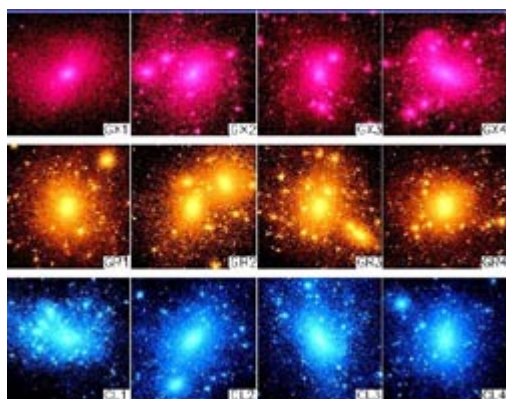
There will be five specially invited lectures during the conference, respectively given by Bai Chunli, CAS; S.Iijima, Research Center for Advanced Carbon Materials, National Institute for Advanced Industrial Science and Technology (Japan); Charles M. Lieber, Department of Chemistry, Harvard University (USA); Mark Welland, Director of Nanoscience Centre, University of Cambridge (UK); Lars Samuelson, Head of the Nanometer Structure Consortium, Lund University (Sweden). In addition, 400 oral presentations will be made on a wide range of themes from nanomaterials and preparation to consumer nanotechnologies and applications.

The China Nano international conference will be held as a series conference with the support of Ministry of Science and Technology of China, Ministry of Education of China, National Natural Science Foundation of China, Chinese Academy of Sciences, Chinese Academy of Engineering,

China Association for Science and Technology, China National Accreditation Board for Laboratories. It's expected to create more effective networking among scientists, institutions and companies and to promote the international and interdisciplinary collaborations in this fast evolving field.

## 1.5 Structure of Matter

**Draw up a precise "picture" of the universe**  
(CAS, 2005-05-20)



CAS Astronomers have been successful in drawing up a high resolution "image" of the Universe with a large set of state-of-the-art cosmological N-body simulations, which is noted for its high preciseness when revealing the formation of the dark matter halos, according to experts.

The origin of life is inseparable with the cosmic formation and evolution. Scientists believe that the ultimate answer to the question why animal blood contains iron, zinc and other metallic ions may be found in the astronomic research. In line with the current cosmological theories, any galaxy is born in the dark matter halos. To understand cosmogony, the first step is to explore such halos.

The density of dark matter halos, which is usually nonspherical symmetry, is hundreds of times higher than the mean density of the Universe. It is difficult to uncover the physical properties of the halos with the aid of conventional analytic methods. Furthermore, because the cosmic matter is in a net-shaped structure, neither linear nor planar, no simple mathematics model is available for describing a structure in a mega-scale. In order to overcome these theoretical obstacles, scientists opt for an approach of computerized simulation by drawing "pictures" for the Universe.

By using a large set of state-of-the-art cosmological N-body and unitary celestial body simulations—the MPS/CAS Group on Cosmology headed by Prof. Jing Yipeng from the CAS Shanghai Observatory (SHAO) finally developed a simulation sample with 5123 particles. Based on this high-resolution image, the researchers have developed a precise formula for depicting the clustering of the dark matter halos and in this way, the formative laws of the halos are revealed.

The formula can expose some clustering of galaxies or the dark matter.

The large scale and high resolution of the computations yield a unique data set leading to new insights on the building up of density condensations in the universe which eventually develop into galaxies.

The work of CAS astronomers wins international recognition. "In the fields of numerical simulation and theoretical exploration, it seems to me, Chinese astronomers have been qualified to take part in the international competition," says Prof. Simon White, president of the EU Astronomic Committee, who came to China recently to participate the annual meeting of the International Association of Astronomers.

## 1.6 Transport and Space

### **14 astronauts being trained for Shenzhou VI mission**

**(CCTV, 2005-05-01)**

China is preparing to send two astronauts into space later this year. 14 potential astronauts have been training for the mission.

During a five-day round-the-clock test measuring the astronauts' physiological adaptability under micro-gravity conditions, all 14 trainees behaved well and passed the test.

At present, they have increased their training in weightless conditions and in fault repairs. China plans to send the Shenzhou-VI spacecraft into orbit in the second half of this year.

It will carry two astronauts and will stay in space for several days. The two astronauts on the mission will conduct scientific experiments in the orbit capsule of the spacecraft during the space flight, but there are no plans for space walks or other activities outside the spacecraft.

China's first, and to date, only, man in space, Yang Liwei, is also among the trainees.

### **China enhances international cooperation on spacecraft tracking**

**(CRI, 2005-05-12)**

China is cooperating with other countries, including France and Sweden, to develop sophisticated spacecraft tracking technology.

Experts say this will increase the coverage of China's spacecraft tracking network in those countries and further improve its telecommunication capabilities.

This cooperation will allow China to establish monitoring stations in those countries, share tracking resources and provide technical support for satellites launched by foreign countries.

### **Astronauts in zero-gravity tests for mission**

**(China Daily, 2005-05-16)**

The 14 candidates for China's next manned space mission have undergone testing for the zero-gravity conditions they will experience in orbit, state media said.

Competition is heating up as just two of the 14 astronauts will have a chance to be on the next space flight, expected to take place this autumn.

Despite the severe physical strain that a zero-gravity environment imposes on humans, none of the 14 gave up during the five days of meticulous testing.

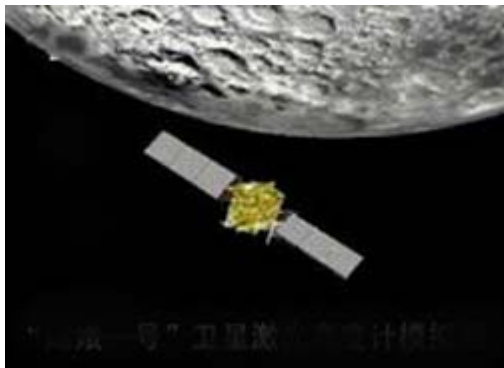
"Not a single astronaut ever hesitated or dropped out during the extremely hard training," said Yang Liwei, who became China's first man in space in late 2003 and who is also among the 14 vying for this autumn's flight.

Reflecting the strict secrecy surrounding China's space program, Xinhua reported no details on where or how the zero-gravity tests were performed.

Previously in China's space program, zero-gravity experiments are reported to have been conducted in Russia, which, after decades of space travel, has the equipment and experience.

### **Laser altimeter developed for China**

**(CAS, 2005-05-26)**



After two years' research, the CAS Shanghai Institute of Technical Physics (SITP) has succeeded in developing the prototype of a laser altimeter for Chang'e 1, China's first lunar orbiter, due for its virgin launch in 2007.

The device will measure the distance between the satellite and the lunar surface through remote sensing technology, said Wang Jianyu, SITP director during an interview with mass media. It can function over a range of about 200 kilometers, featuring a five-meter error and one-meter resolution.

According to Prof. Wang, the data collected, as soon as processed by land based systems, will provide information for analyzing the moon's surface features and detecting the thickness of lunar soil.

Assuming everything goes to the plan, it will be the first success that China has sent a laser instrument into space.

Prof. Wang also said that while developing the laser altimeter, his institute also produced four key optical remote sensing instruments for a new generation of China-made weather satellites, the Fengyun 3, and a prototype of infrared cameras of the Environment 1B satellite.

The Fengyun 3 instruments have been developed to international standards with independent property rights. The infrared camera uses four wavebands that can be used to accurately and rapidly detect and forecast storms, forest fires, typhoons and earthquakes as well as ecological damages and environmental accidents.

### **China to launch first plant satellite**

**(CRI, 2005-05-30)**

China plans to launch its first satellite to grow plants in space.

The Commission of Science and Technology and Industry for National Defense says the project, which has been in the pipeline for some years, is now ready to be implemented.

Since 1987, China has conducted nine experiments to optimize plants by sending them into space on satellites for short periods. This has yielded good results for China in making plants more resilient and increasing output.

But this is the first Chinese satellite designed specially to breed plants in space. Seeds and microorganisms will be carried to a distance of two to four hundred kilometers above ground to

observe the effect of microgravity on their growth pattern.

The first plant to be grown in space was a type of wheat, in an experiment by researchers in Wisconsin in 1997.

### **China's 1st recoverable experiment satellite to be launched next year**

**(People's Daily, 2005-05-31)**

China's first recoverable experiment satellite, specially designed for scientific experiment, will be launched in the fall next year, it is learned by reporter Wu Weizheng from China Academy of Sciences on May 29. It is named as "2006 Recoverable Scientific Experiment Satellite'. With the exception of the re-entry module for the experiment of agricultural breeding the orbital module will be used as an experiment platform for nine microgravity experiments. It is the first time for China to use the orbital module as "space laboratory'.

The design project has been completed and started to put into practice.

In the past Chinese recoverable satellite was mainly applied for ground observation and the "2006 Recoverable Scientific Experiment Satellite' will be used mainly for scientific experiment, according to Hu Wenrui, chief architect of the sub-system of the satellite carrier system and academician with CAS. The re-entry module of the satellite will bring a batch of selected plant seeds to the space for receiving high-energy radiation and ion irradiation. After the seeds recovered research will be made on them in order to prove if there are any mutations and values for development and utility.

According to the introduction, the re-entry module of the "2006 Recoverable Scientific Experiment Satellite' will be recovered after two-week stay in orbit. And the orbital module will continue to orbit the earth for experimental task until the drain of its electric sources. All the experimental data will be recorded by computers, which will be brought back to the ground by the re-entry module and transmitted directly to the ground from the space.

## 2 Innovation Management

### **Nation maps out science, technology development plan**

**(Xinhua Net, 2005-05-11)**

Chinese Premier Wen Jiabao presided over a meeting in Beijing Tuesday to study and discuss a draft plan for medium and long-term national scientific and technological development.

The plan makes an analysis of China's status quo in science and technology, articulates development guidelines, strategic goals and the overall deployment of the country's science and technology for the coming 15 years.

It points out the major tasks in these fields, working out policies and measures for scientific and technological reform, establishing an innovation system and protecting science and technology.

The draft work started in June 2003, with more than 2,000 experts from several departments, including the Ministry of Science and Technology, the Chinese Academy of Sciences, Chinese Academy of Engineering, involved.

Tuesday's meeting basically approved the draft plan, but decided to collect ideas and suggestions from various sectors for its further improvement.

### **China maps out S&T plan for the next 15 years**

**(CAS, 2005-05-12)**

Chinese Premier Wen Jiabao presided over a meeting on April 11 to study and discuss a draft plan for medium and long-term national scientific and technological development.

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Tuesday's meeting basically approved the draft plan, but decided to collect ideas and suggestions from various sectors for its further improvement.

### **State councilor calls for better innovation environment**

**(China Net, 2005-05-15)**

Chinese State Councilor Chen Zhili on Saturday called for a better environment and atmosphere for scientific innovation in Chinese society and for the fostering of more highly qualified laborers and innovative talents.

"Improving capacities for independent scientific and technological innovation is the key link in pushing economic restructuring and improving national competitiveness, and the top task of the country's scientific and technological progress," said Chen at the opening ceremony of the "2005 science and technology week" in Beijing

Chen stressed the importance of activities such as the science and technology week to guide the general public to cherish resources, protect the environment, admire science and pursue innovative ideas.

**Seminar on "Development Planning for the Scientific Data Sharing Project" held in Beijing (MOST, 2005-05-18)**

On April 20, 2005, the Seminar on "Development Planning for the Scientific Data Sharing Project" was held in Beijing. Present at the seminar were persons concerned from the Department of Basic Research, office of scientific data sharing project and Academician SUN Jiulin, person in charge of the planning project team.

At the seminar, Academician SUN Jiulin made a briefing on the contents and modification of the "Development Planning for the Scientific Data Sharing Project". The conference fully affirmed the planning team's work and their precise and earnest attitude toward work and conducted sufficient communication and discussion on the contents of the plan and some issues. The conference requested that the planning team should work in accordance with the "Outline for the Construction of State S&T Basic Condition Platform in 2004-2010" disseminated by the General Office of the State Council and the requirements and spirit of Minister XU Guanhua's speech delivered at the 2005 National S&T Conference. In light of the progress of the data sharing project and the reality of data resources of China in every field, the planning team shall fulfill a high-quality task of plan formulation by working out highly operable development objective, key tasks and implementation steps.

**State Laboratory Strategic Research Team conducted inspection and research (MOST, 2005-05-19)**

Entrusted by MOST, the expert and advisor teams of 973 Program set up a State Laboratory Strategic Research Team, with MA Junru as the leader and LIN Quan as the deputy leader. The members of the team include LIN Qishui, CHENG Gengdong, YANG Guozhen, MA Zongjin, ZUO Tiejong, JI Fusheng, CHEN Yi, WANG Yumin, CHENG Guodong, LI Peigen and LIU Niancai. The State Laboratory Strategic Research Team will conduct intensive speculation and research into the existing and potential deep-seated problems in the construction and development of state laboratories and provide consultative advice to MOST for final decision-making.

On May 9 and 10, the strategic research team went to Shenyang State (joint) Laboratory of Material Science for field inspection and research. The strategic research team listened to the report delivered by research fellow LU Ke, Director of the laboratory, on the setting-up of state laboratory in the last 5 years and inspected the 8 research sections and 1 public technical service section of the laboratory. The team also conducted intensive and open discussion with the laboratory's board of directors, management committee and relevant staff. They also exchanged views on the experiences, problems and suggestions during the process of state laboratory building, operation and development. Through Q&A, exchange, discussion and argument, all the participants were inspired. Both the strategic research team and the Shenyang State (joint) Laboratory of Material Science felt that they had achieved a lot.

In the next stage, the strategic research team will select some other pilot state laboratories for inspection and research according to needs and make a strategic study over deeper issues about state laboratory on the basis of analysis of specific cases.

**State program for basic research in the 11th Five-year Plan to be compiled (MOST, 2005-05-18)**

On 21 April, preparatory meeting for compilation of the State Basic Research Development Program in the Eleventh Five -year Plan (hereinafter referred to as "the Program") was held in Beijing. The meeting was chaired by ZHANG Xian'en, Director-General of Department of Basic Research. Leaders from the relevant departments and bureaus of the 6 ministries and organizations including MOST, Ministry of Education, Ministry of Finance, Chinese Academy of Sciences, Chinese Academy of Engineering and National Natural Science Foundation of China and related persons from the Department of Basic Research, MOST attended the meeting.

First of all, Director-General ZHANG Xian'en made a briefing on the background and requirements for compilation of the "Program". MA Yanhe, Deputy Director-General of the Department of Basic Research, explained the arrangement for the compilation work. The participants believed that this work is of such great significance that all departments should give their full support. Earnest discussion was also conducted on the work principles, overall objective and work mechanism for the compilation work. It was suggested that a ministerial coordination leadership team, expert consultative panel and work group be established to ensure the efficient and smooth progress of the compilation.

### 3 China's International Science Cooperation

#### **MOST Vice Minister LIU Yanhua chaired the first meeting of Sino-France new infectious disease group**

**(MOST, 2005-05-10)**

In accordance with the "Memorandum of Understanding on Cooperation in Prevention and Control of New Infectious Diseases" and the "Cooperative Agreement on Prevention and Control of New Infectious Diseases" signed between the governments of China and France respectively on January 28, 2004 in Paris and on October 9, 2004 in Beijing, the two sides decided to set up the Sino-France new infectious disease group and steering committee.

On April 26, 2005, Vice Minister of science and technology LIU Yanhua co-chaired the first group meeting with KOURILSKY, president of Pasteur Institute.

Chairmen of both sides first reviewed the history of Sino-French cooperation in new infectious diseases and spoke highly of the cooperation and exchange between the scientific research personnel of the two countries in this field and believed that this cooperation rests in the common interest of the two countries and hoped to give better play to the advantage of integrating scientific research of the two countries through cooperation so as to bring benefit to the two peoples and contribute to the health and safety of the two peoples.

The two sides discussed the cooperation proposal in technical standards and scientific research. It was agreed to list training as the main content of mutual cooperation. The meeting also passed the internal regulations of Sino-France new infectious disease group and steering committee. Chairmen of the two sides signed the regulations for validation.

Apart from officials and experts from MOST, representatives on the Chinese side include those from the Ministry of Foreign Affairs, Ministry of Public Health, Ministry of Agriculture, Chinese Academy of Sciences, Chinese academy of Medical Sciences and Chinese Center for Disease Control and Prevention. The French delegation was made up of representatives from the Office of French Premier, Ministry of Foreign Affairs, Ministry of Research, Ministry of Public Health, Ministry of Agriculture, Pasteur Institute, French National Center for Scientific Research, National Health and Medical Institute, CEA and French Embassy in China.

#### **EU and China to reinforce sci-tech cooperation**

**(China Net, 2005-05-13)**

Janez Potocnik, EU Commissioner for Science and Research, visited Beijing from May 11-13 to co-chair the China-EU High Level Forum on S&T Strategy with Chinese Minister Xu Guanhua of Science and Technology. It is expected that the commissioner will meet with State Councilor Chen Zhili, Minister Xu Guanhua, and CAS President Lu Rongxiang.

Commissioner Potocnik chose China for one of his first international visits because "we have seen an unprecedented growth of our S&T relations." He feels that "China is becoming an important partner for the European Union's Framework Program for Research (FP6) and projects like Galileo and ITER (the next big international science project for producing electricity from nuclear fusion). EU member states, European industry, academic institutions, universities, and researchers from Europe and China are creating impressive collaborations. We should discuss how S&T relations will underpin our relations that are dominated by investment and trade," he said. Potocnik sees this discussion timely also to reflect on the EU's Lisbon Strategy, –now in

preparation- the Seventh Framework Program (FP7) and also on the new Chinese S&T strategy, the so called “2020 plan,” which will be released in the coming weeks.

The forum will be attended by over 400 representatives from Science, national ministries, academies and industry; about one third of the participants come from Europe. Poland’s Minister for Science and Information Society Technologies, Mr. Michal Kleiber, will emphasize at the forum the role of the largest newcomer to the EU by sharing his views on national development strategies.

The forum will take place in parallel to the celebrations of 30 years diplomatic relations between the EU and China. It is intended to adopt a declaration to outlining the policy initiatives for building a knowledge-based strategic partnership between Europe and China in the coming years.

### **Foreigners encouraged to seek S&T partners**

**(China Daily, 2005-05-13)**

Foreign research institutes are being encouraged to operate in China by linking up with local partners for new technology and project developments, Minister of Science and Technology Xu Guanhua urged yesterday.

Xu was speaking at China-EU forum on science and technology strategy, which opened yesterday in Beijing.

Xu suggested China and EU (the European Union) further propel co-operation in the fields of hydrogen energy and nuclear fusion resources, space and aviation, environment, biological and information sciences.

"To deepen mutual understanding of scientific progress, the two sides should also make it possible that China's Technology Year Exposition are regularly held in the Europe, while EU can sponsor similar activities in China," said Xu.

He called on medium and small firms from the two sides to closely co-operate with each other in order to upgrade the development of high-tech industries.

"The Chinese authorities are trying to improve the environment for foreign research institutes to enter the country," said Zhang Zhiqin, an official of the ministry's Department for International Co-operation.

Incomplete statistics indicate that the country has seen more than 300 branches of foreign research institutions established over the recent two years.

French Pasteur Institute, for example, set up a branch in Shanghai last year.

However, "conditions need to be further improved for foreign institutes to better perform in China," said Zhang.

"We are planning to work out tax and other preferential policies for foreign institutes," he said.

Meanwhile, the Ministry of Science and Technology encouraged domestic universities and research institutes to compete in overseas markets. Huawei and Hai'er companies have set up their branches in Europe.

At yesterday's opening ceremony of the forum, Janez Potocnik, EU commissioner for science and research, said the EU is willing to co-operate with China in environment, climate change, sustainable development and other aspects.

He said the two sides should seize opportunities to forward co-operation to brave the challenges they commonly face, such as global governance and security issues.

Since EU opened its Sixth Framework Programme to China in 2002, Chinese scientists have

joined 60 EU projects, including mobile communications and food safety. Meanwhile, European scientists have also participated in China's national key basic research projects.

The EU will soon start its Seventh Framework Programme, whereas China will implement a long-term scientific blueprint.

"Thus, the two sides have more potentials of co-operation in the future," said Vice-Minister of Science and Technology Shang Yong.

### **China-EU Conference reaches high-tech consensus**

**(China Daily, 2005-05-15)**

Information technology, biotechnology and nanotechnology will beat the forefront of future scientific cooperation between China and the European Union (EU).

The plan was announced on Friday in a joint declaration, in which the two sides agreed to follow through on their strategic partnership by deepening cooperation in research and technological development.

Dubbing the agreement a "knowledge-based" strategic partnership, China's Minister of Science and Technology Xu Guanhua and EU Commissioner for Science and Technology Janez Potocnik announced the declaration at the conclusion of a two-day forum on science and technology strategy. The meeting was part of joint China-EU celebrations marking the 30th anniversary of diplomatic ties.

In the declaration, specific objectives included increasing public and private investment in cooperation projects, promoting a scientific culture and ensuring protection of Intellectual Property Rights (IPR).

The two sides agreed that further cooperation will be based on the guiding principle of ensuring mutual interest and overall balance between China and Europe.

"In a world that is global, the best way to increase innovation is for China and Europe to actively and collaboratively engage with each other," the declaration stated.

Along with the declaration, the two sides also made public a further paper, identifying joint social development difficulties China and the EU face in the coming years.

To ensure sustainable development, both are interested in technologies concerned with environmental protection, information and communication, food and agriculture, transportation, urbanization and health.

"We share many joint development and research priorities and that's the basis for deeper cooperation," said Xu.

At the forum, research circles and business representatives agreed that China and the EU share great potential for the development of third generation (3G) wireless communication technology.

Wu Hequan, vice-president of the Chinese Academy of Engineering, said the China has placed a high priority on research into 3G wireless communications.

He said partnership between EU and China research organizations and companies had already been set up.

"We want to see a wider range of international cooperation in this area," Wu added.

### **China-EU S&T cooperation heading towards a flourishing stage**

**(MOST, 2005-05-16)**

"China-EU High-level Forum on S&T Strategy" was held in the Great Hall of the People in

Beijing on 12 and 13 of May. This is an important activity jointly sponsored by Ministry of Science and Technology (MOST) of China, the Research Directorate-Generate of EU, and the Grand Duchy of Luxembourg (Presidency of the EU) to celebrate the 30th anniversary of the establishment of diplomatic relations between China and EU. The two sides passed a joint declaration titled "China-EU S&T Cooperation: Establishment of a Strategic Partnership Based on Knowledge", which marked a comprehensive China-EU S&T co-operation stage.

State Councilor CHEN Zhili attended the opening ceremony and delivered an address. XU Guanhua, Minister of Science and Technology, and Potočník, EU Research Commissioner made keynote speeches. There were altogether over 30 reports and discussions at the forum, which ended up with the round table symposium co-chaired by high-level officials from both sides.

With the main theme of "S&T Development in the New Century and China-EU S&T Cooperation", this forum covered 6 special topics: Development Strategy, Industrial R&D, Policy, Science, Talent & Institution and International Cooperation. The forum was aimed at exchanging views on the world trend of S&T development and the S&T strategy and policy of China, EU and its member states; promoting and providing help for the formulation and implementation of their S&T strategies and plans. The documents of common understanding concluded at the forum will guide and accelerate the in-depth development of China-EU S&T cooperation.

At present, EU and China are at a flourishing stage of cooperation in research unparalleled in history. 2005 is the 30th anniversary of the establishment of formal relations between China and EU. In 2006, the 6th Framework Program for research and technological development of EU will come to an end and the 7th Framework Program will be drawn up and launched while China will execute its Eleventh Five-year Plan and medium and long-term S&T development plan. Great potentials lie in the S&T cooperation between China and EU. The two sides shall maintain and develop a long-term S&T cooperation ties to carry forward the comprehensive bilateral partnership.

### **Push China-EU S&T cooperation to a new stage: an interview**

**(MOST, 2005-05-17)**

China-EU High-level Forum on S&T Policy and Strategy represents a great occasion in the China-EU cooperation in S&T. At the opening of this Forum, an interview was made with SHANG Yong, Vice Minister of S&T on issues concerning China-EU partnership in S&T.

Reporter: China-EU High-level Forum on S&T Policy and Strategy attracted the science elites and prominent governmental officials from quite a few EU member states. Could you please give a brief introduction to the goals and significance of the China-EU High-level Forum on S&T Policy and Strategy?

SHANG Yong: EU and its member countries are China's important partners in terms of international cooperation in S&T. This Forum, designed as a high-level communication and dialogue on the S&T policies and strategies between China and EU, aims to communicate on the global tendencies of S&T developments as well as the S&T policies and strategies of China and EU to promote the mutual understanding and reference and provide assistance in the preparation and implementation of the S&T policies and strategies of China, EU and its member countries. This Forum will end up with a document of common understanding to guide and drive the further development of China-EU S&T cooperation and enrich the China-EU comprehensive strategic partnership.

It is noteworthy in particular that China is formulating Medium and Long-term Development Plan for Science and Technology and working on the guidelines, concepts and overall arrangement for the development of S&T in the new era. In the meanwhile, EU is committed to building itself into the most vigorous and competitive economy and implementing the “European Research Area” Strategy and has started the preparation process of the 7<sup>th</sup> Framework Program for S&T, with some EU members making adjustments to or formulating their S&T strategies. The Forum, which occurs at the right time, will facilitate both China and EU a chance to learn and draw on each other’s understanding of the strategic and perspective issues of S&T, promote the communications between both sides on the directions, goals, priorities and policies of the S&T strategies and recommend strategic directions and approaches for China-EU cooperation in S&T in the future so as to push it into a new stage.

Reporter: What does China expect to get from its partnership with EU in S&T? What is the area of priority for cooperation in your opinion?

SHANG Yong: First of all, Europe ,the cradle of modern sciences and an important pole in today’s S&T development, enjoys unique advantages and abundant resources in quite a number of fields and has made huge contributions to the development of human society. On the other hand, China, a large developing economy that has been growing rapidly since the reform and opening to the outside world, needs S&T to power its national economy and social development. In addition, China, thanks to its outstanding S&T progresses and the relatively integrated system of scientific researches and technological development in place, is among the first ranks of the developing countries in terms of the overall level of S&T development. The S&T cooperation between China and the European countries will produce complementary advantages and facilitate resource sharing and joint researches and explorations in the scientific and technological issues of common interest.

Secondly, it is unlikely for any single country to work out independently a solution to the global problems such as climatic and environmental changes. Global cooperation is a must. China-EU cooperation will promote the level of mutual reference in these fields and contribute to the final solution of the global problems.

Thirdly, S&T cooperation is a precursor to the economic and technological and trade cooperation. China needs the leading technologies and human resources from overseas. In fact, nearly 50% of the technologies introduced by China are from Europe and China-EU cooperation in S&T has promoted the technology transfer, human resource exchange and economic and trade cooperation between China and the European countries.

Fourthly, China-EU cooperation in S&T constitutes an important part of the overall China-EU relationship and has effectively reinforced the high-level communications and understanding between China and EU and promoted the development of China-EU relationship. China and EU have reached common understanding in a vast scope of the cooperation in S&T between both sides and we are confident in the huge potential for further cooperation.

For years, China-EU cooperation in S&T has been focused on agriculture, resources, environment, energy, IT and communications. China-EU S&T Agreement forms a legal basis for full cooperation between both sides on hi-tech and fundamental scientific researches. We are willing to reinforce China-EU cooperation in large projects such as the “Galileo” Global Navigation Satellite System Project and “Big Science Project” and develop chances of cooperation in the hi-tech areas,

such as energy (including hydrogen energy and nuclear fusion), space technology, biotechnology, information technology, nanotechnology and aeronautics, and with regard to global issues such as health and medical science, environment (including climatic changes) and resources. Apart from the R&D projects, new forms of cooperation, e.g. joint laboratories or test centers, should be encouraged and tried. In addition, we also encourage the Chinese and EU enterprises to participate in the S&T cooperation, in particular in those with regard to hi-tech development and industrialization.

Reporter: How significant is China-EU S&T cooperation, from a global perspective, to the reinforcement of the comprehensive cooperation relationship between both sides?

SHANG Yong: China-EU relationship is right now in a most vigorous and fruitful period of development in history, with the scope and level of cooperation under continuous expansion and promotion and the bilateral relationship entering into a new era of sound, healthy and stable development, paving a consolidated foundation for further development.

S&T cooperation is becoming an important component of the overall China-EU relationship and one of the topics at each annual Chinese and EU Summit. Closer cooperation in S&T was defined in the 1<sup>st</sup> document released by the Chinese government on relations with EU and the 5<sup>th</sup> document released by EU on relations with China in October 2003 as the key area of development of the China-EU bilateral relationship. At the 7<sup>th</sup> China-EU Summit in Hague in December 2004, further efforts were advocated from both sides to continuously enrich and expand the Comprehensive Strategic Partnership between China and EU. Premier WEN Jiabao pointed out that the China-EU Cooperation that focuses on economic and trade cooperation nowadays will move on to cooperation in S&T in the future. China-EU cooperation in S&T must be further reinforced to enrich the content and expand the scope of the Comprehensive Strategic Partnership between China and EU.

**China to reinforce “big project” cooperation with EU: MOST official (MOST, 2005-05-19)**

SHANG Yong, Vice Minister of Science and Technology revealed at the EU-China High-level Forum on S&T Policy and Strategy opened on the 12<sup>th</sup> that China was going to reinforce China-EU cooperation in large projects such as the “Galileo” Global Navigation Satellite System Project and “Big Science Projects” cooperation and develop chances of cooperation in the hi-tech areas, such as energy (including hydrogen energy and nuclear fusion), space technology, biotechnology, information technology, nanotechnology and aeronautics, and with regard to global issues such as health and medical science, environment (including climatic changes) and resources.

EU and its member states are China’s important partners in terms of international cooperation in S&T. China-EU has been making joint efforts for the continuous improvement and stable expansion of the mechanism, scope and content of such cooperation. So far, more than 400 cooperation projects have been implemented between China and EU and frequent expert visits and communications with more than 4,000 man-times have been organized, involving a total appropriation of approximately 300 million Euros.

Over the recent years, especially since 1998, Chinese scientists have been actively participating in the EU Framework Program for S&T in accordance with the EU-China S&T Agreement. The total

number of projects participated by Chinese scientists have come up to more than 130 and a large batch of large projects in conformity with the focus of both sides appeared in the areas of mobile communication, material, food quality and safety and “SARS”. China currently participates in about four percent of the EU FP projects. With the signing and implementation of the China-EU Agreements on “Galileo” Program, the China-EU cooperation in S&T has been fully promoted and is becoming an important component of the overall China-EU relationship.

“Nearly 50% of the technologies introduced by China are from Europe and China-EU cooperation in S&T has promoted the technology transfer, human resource exchange and economic and trade cooperation between China and the European countries.” said Vice Minister SHANG. Apart from the R&D projects, new forms of cooperation, e.g. joint laboratories or test centers, should be encouraged and tried. In addition, we also encourage the Chinese and EU enterprises to participate in the S&T cooperation, in particular in those with regard to hi-tech development and industrialization.

SHANG pointed out that this year marks the 30<sup>th</sup> anniversary of the establishment of formal relationship between China and EU and in 2006 the 6<sup>th</sup> EU Framework Program for Research and Technology Development is going to end and the 7<sup>th</sup> Framework Program will be formulated and launched. By that time, China is going to implement its 11<sup>th</sup> Five-year Plan and the Medium and Long-term Development Plan for S&T. The potential for China-EU S&T cooperation is there and huge.

## 4 Miscellaneous

### **China to build giant panda museum**

(Xinhua Net, 2005-05-07)

China is expected to build the world's largest giant panda museum in Chengdu, the capital of southwestern Sichuan Province, an official of the Chengdu Giant Panda Breeding and Research Base said Sunday.

The 5,000-centiare museum, named China Giant Panda Museum, will be located in the breeding and research base, the official said.

The management of the base has decided on the design of the museum after reviewing designs submitted by domestic and overseas designers.

The museum will serve as a venue for promoting awareness about giant panda protection and the relevant knowledge of giant pandas as a rare species, the official said.

A similar museum was built in the Wolong Giant Panda Nature Reserve in the province in 2002.

As one of the most ancient and endangered species, giant panda is called "national gem" in China.

The total population of wild giant pandas at large worldwide stands at about 1,500, dwelling in high mountain areas of China.

China built its first natural preserve for giant pandas and started to ban poaching in the 1950s. The pandas have been placed under state protection in the past 43 years since 1962.

### **"Discussion on Information Platform for S&T Result Popularization" held in Beijing**

(MOST, 2005-05-10)

Recently, the project group of information platform for State S&T result popularization held "Discussion on Information Platform for S&T Result Popularization" in Beijing. Over 70 representatives attended the discussion. They came from the more than 30 provincial and ministerial administrative agencies for S&T result and platform development agencies involved in this project.

Starting from 2002, the Chinese Ministry of Science and Technology (MOST) listed the project of information platform under the State key S&T result popularization plan. Development of this platform is mainly to strengthen information sharing among various places and departments, and speed up the popularization and application of S&T results while taking into account the reality of localities and departments and using their work channels and conditions. The information platform will develop and share data on the basis of ensuring the unification of core columns and grass root data structure, so as to give full play to the role of each level and realize the extension of "State S&T Result Net" to localities and departments and its development towards a national information platform for S&T popularization. As of 2005, the S&T result popularization information platform project has entered the fourth phase. Presently a total of 35 provincial and ministerial S&T result administrative agencies (3 of department level and 32 of locality level) participate in the fourth stage development. All the platform technology development for the fourth stage will be completed in the first half of this year. By that time, the national information service network for S&T result transformation will have been basically formed.

The meeting made a comprehensive summary of the progress of the S&T result popularization information platform construction project. Representatives from the five provinces (cities) of Henan, Heilongjiang, Wuhan, Tianjin and Guizhou introduced their experiences in local platform

development. Representatives at the meeting carried out discussion on the common problems of platform development such as how to enable the platform to play a bigger role in the promotion of S&T result transformation as well as resource integration and joint construction and sharing.

The Department of Development Planning, MOST indicated that the emphasis of the next-step construction of the result popularization information platform was to strengthen joint development and information sharing, and to build up a national S&T result information public service platform. The meeting also put forward specific requirements.

### **Interactive exhibition "Experiencing Science" to be held in Macao**

**(MOST, 2005-05-11)**

At the invitation of the S&T Committee of the government of Macao Special Administrative Region (SAR), the organizing committee for the National S&T Week and the S&T Committee of Macao SAR will jointly sponsor the interactive popular science exhibition "Experiencing Science" in Macao during the 2005 National S&T Week. The exhibition will cover astronomy, space flight, ancient Chinese architecture, mathematics & physics, on-site experiments and "do-it-yourself" by Macao teenagers. During the activity, the organizing committee of the National S&T Week will present popular science books and popular science film and TV works to the teenagers of Macao SAR and telecast excellent popular science films and TV series.

### **Nation to launch science publicity drive**

**(Xinhua Net, 2005-05-11)**

China's Ministry of Science and Technology announced here Tuesday that the 2005 national science week is scheduled for May 14-20.

Li Pu, an official with the ministry, said at a news briefing that most science publicity activities during the week will focus on resources saving, environmental protection, harmonious development between the human society and nature and healthy living.

Li encouraged people, both in cities and rural areas, to participate in the series activities, including an interactive exhibition for improving public scientific awareness, a lecture on China's science development strategy and an academic symposium attended by well-known French scientists at Qinghua University.

Besides activities organized by the ministry, the China Association for Science and Technology, the Chinese Academy of Sciences and other national organizations as well as local governments will organize nearly 700 related events.

The Chinese government has launched the nationwide science publicity endeavor since 2001.

### **Nobel laureates to discuss development**

**(China Daily, 2005-05-11)**

The largest gathering in Asia of Nobel Laureates winners are to attend a forum in China later this month.

Among the elite gathering will be Edward Prescott, who won the prize last year.

Previous winners over the last 12 years will also attend. Robert A. Mundell, John F. Nash, Robert W. Fogel, Joseph E. Stiglitz, James A. Mirrlees, Vernon L. Smith and Clive W. J. Granger will appear at the forum, which each will discuss the harmony and development of mankind.

"This will be the first time that as many as eight Nobel laureates -- with their work spanning

various specialities in economics -- have been invited by an Asian country for an economic policy forum," said Beijing Vice-Mayor Zhang Mao yesterday.

The May 30-June 1 Nobel Laureates Beijing Forum 2005 is sponsored by the Development Research Centre of the State Council and the Beijing municipal government.

The laureates and five other eminent economists will address and interact with Chinese officials, researchers and entrepreneurs. The Development Research Centre of the State Council is to hold a seminar with the Nobel winners on May 31.

Officials with the Beijing municipal government and local researchers will also have talks with some of the 13 well-known economists, sources said.

Discussion topics include the Olympic economy, education and economic growth, as well as urban development.

Some of the laureates know the Chinese economy intimately. Mundell published *Inflation and Growth in China* in 1996. He says the Chinese Government should keep the value of the renminbi stable.

Mirrlees has been an adviser to the Chinese Government and is a distinguished professor at the Chinese University of Hong Kong and an honorary professor at Peking University.

"However, the forum will not discuss any China-specific issue," Li Jiange, vice-minister of the Development Research Centre of the State Council said yesterday.

"The forum, which has a global vision, will focus on long-term economic strategy," he said.

Economic issues in China such as over-investment in some sectors, macro-economic controls and the exchange rate of the renminbi have been at the centre of global attention in recent years. It is likely they will be the subject of lively debate during the forum.

#### **Opening of 2005 National S&T Week and Beijing S&T Week on May 14 (MOST, 2005-05-12)**

The 2005 National S&T Week will be unfolded all over the country from May 14 to 20. The theme of this S&T Week is "Building a Well-off Society with People as Priority for S&T". Activities of this S&T Week have the 4 following features:

First, vigorous publicity will be given to the great significance of building a harmonious society, showcase the important position and the role of S&T development in building a harmonious society and carry out a wide range of popular science activities related to resource saving, environment protection, coordinated development between man and nature, and the establishment of healthy and civilized production and life styles. Combine various popular science activities with the implementation of the guidelines and policies of the central authorities, the actual work of the local governments and departments, and the actual demand and concern of the public.

Second, the activity of getting bumper harvest and enriching the farmers through S&T will be regarded as an important approach to solving the problems concerning agriculture, countryside, and farmers. Scientific and technical personnel from research institutes, universities and colleges and grass roots are encouraged to go to the countryside and the front line of agricultural production, in the forms of sending science and technology knowledge to the countryside, popular science train, popular science van, popular science volunteers and scientific and technical special commissioners, to integrate relevant projects, funds and talents, carry out S&T training, popular science promotion and S&T consultation for the farmers and actively explore new mechanisms of serving "agriculture, countryside, and farmers" through science popularization so as to do some

practical things for the vast number of farmers in a down-to-earth manner.

Third, in line with requirements of central authorities regarding publicity and education about the situation and policies, and with the leading cadres of the CPC and government at all levels as the key points, give vigorous publicity to the new situation and new task of S&T development and guide cadres and masses to full awareness of the historical mission of S&T undertaking in realizing the grand objective of building a well-off society in an all-round way. Enhance the awareness of the importance and urgency of increasing the independent innovation ability of China.

Fourth, organize and carry out various forms of popular science activities to enrich campus cultural life and improve the scientific qualifications of the adolescents. We should take science popularization as an important content for the ideological and moral development of the minors and the ideological and political education of the university students. Give full play to all kinds of adolescent S&T education bases and popular science education bases at all levels, further efforts in opening the public popular science facilities to the minors free of charge and combine popular science activities closely with the ideological and moral development.

The opening ceremony of 2005 National S&T Week and Beijing S&T Week will be held in Haidian Exhibition Hall, Beijing at 9:30AM, May 14.

The organizing committee for the National S&T Week will sponsor a series of important activities, including the interactive popular science exhibition of "Science, Sport, Health and Harmony", large S&T garden party of "Harmonious Development with People as the Priority", situation report on "S&T Development Strategy and Countermeasures of China in the New Era" and performance and recitation of classical writings on science in Beijing; S&T train trip to Jinggang in Jiangxi; lecture tours by special S&T commissioners and remote consultation in Hubei, Anhui, Jiangxi and Zhejiang; collection, selection and exhibition of excellent flash works by adolescents all over the country and awarding ceremony in Shanghai; and the interactive popular science exhibition of "Experiencing Science" in Macao.

Furthermore, every department and locality have also prepared a series of rich and colorful S&T activities, including: "Sustainable Development - Popular Science Activity Series on the Internet" by China Association for Science and Technology; "Wonder of Science - Popular Science Exhibition in Commemoration of Einstein" by Chinese Academy of Sciences; "Strolling in the Wonderful Garden of Mathematics - Chinese Teenager Forum on Mathematics" by Central Communist Youth League; "Catching up through Innovation - Film about the Technological Innovation Results by Enterprise Employees in China" recorded by All China Federation of Trade Unions; special TV program of popular science series "Frontline of Science and Technology" planned by CCTV.

Beijing will host the "First Zhongguancun Health Festival"; Shanghai will host the theme show of "Establishment of Scientific Development Perspective and Construction of a Resource-saving and Environment-friendly City"; Tianjin will host a large popular science exhibition of "Valuing Resources Starts with me"; Chongqing will host "Protection of the Mother River -- Action of Young Volunteers to Protect the Ecological Environment in the Three Gorges Reservoir Area"; Hainan Province will hold the opening ceremony for the fictitious S&T hall; Gansu Province will

hold "Hi-tech Advancement Camp - Popular Science Report"; Heilongjian Province will hold the theme exhibition of "Link up with the Future through Information Science and Technology" and Fujian Province will hold TV competition on "Science, Harmony, Development - Scientific Attainments of the Public" and so on.

### **High-tech Expo's new highlights**

**(China Net, 2005-05-15)**

The 8th China Beijing International High-tech Expo is going to be held from May 23 to 27 in Beijing. The five-day event will showcase the latest sci-tech achievements to promote huge business opportunities brought about by cooperation through a series of activities, exhibitions, forums and seminars on special topics as well as sci-tech trade talks. Currently more than 40 delegations and 2,000 enterprises have registered to take part.

According to Zhou Maofei, vice secretary of the organizing committee and head of China Council for the Promotion of International Trade Beijing Sub-council, compared with previous Expos, this year's will be more innovative.

In addition to the China Economy Summit, which has been held for two years, one of the biggest highlights will be the 1st China Recycling Economy Development Summit. A special exhibition area on the recycling economy and technologies for recycling energy will also be set up for the first time. The summit will conduct multi-level discussions on how to achieve sustainable economic development based on effective exploitation of energy and environmental protection.

The Academicians' Forum on China's Sustainable Development will also be established, inviting academicians from the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering to discussions on sustainable development and the national economy in next ten years.

A series of promotion meetings on overseas investment will also be held for the first time. Zhou said more and more domestic enterprises have an internationalizing strategy and are improving their competitiveness. Business officials from foreign embassies in China, visiting overseas delegations and domestic enterprises which have successful development experiences overseas will be invited to introduce the investment environment, market demands and preferential policies. Domestic enterprises that are capable of "going out" will have face-to-face communication with visiting delegations.

This year's Expo will also gather eight world bourses together for the first time. Among them, New York Stock Exchange, NASDAQ and Singapore Exchange, South Korea KSE and London Stock Exchange will respectively hold special seminars, introducing domestic enterprises to overseas financing channels and overseas listing.

As the key content of this year's Expo, the 2005 International Telecommunication Value-added Service Providers Promotion Meeting will be held. This is the first time for the Expo to give such a focus to telecom value-added services.

According to Zhou, China Telecom has shown great development potential in this area. In order to display new technologies and business opportunities involved, the promotion meeting aims to provide a platform for domestic and foreign service providers, and the operators of China Telecom. The meeting will include introduction to the latest application platform, business opportunities brought about by 3G and the most popular telecom value-added service both at home and abroad.

It is reported that China's major operators including China Unicom, China Railcom and China Netcom as well as SKT of South Korea have been confirmed to attend.

The Pioneering China - 2005 Chinese Pioneers Summit will also be held for the first time. It will invite China's first batch of pioneering entrepreneurs who have achieved success to exchange views on how to realize sustainable growth with a backdrop of globalization.

Compared with previous Expos, this year's will showcase more "made in China" hi-tech achievements. Zhongguancun Science Park, known as China's "Silicon Valley", will specially display their independently developed innovative achievements.

It is reported that this year's Expo has not only attracted the participation of China's coastal cities, middle and western provinces and cities but also international attention. So far, 41 overseas delegations have registered to take part. Most of them are entrepreneur delegations from 20 countries lead by their own governments or business unions. Of them, it is the first time for delegations from Greece and some Islamic countries to join and search for business opportunities.

Zhou disclosed that Xinjiang, together with 53 of the country's Development Zones, will jointly sign and set up the Middle Asia Trade Union during the period of the Expo. The Guangxi Zhuang Autonomous Region delegation will hold six cooperation and negotiation meetings as well as recruitment activities cooperating with research institutes and universities including the CAS and Beijing University of Aeronautics and Astronautics.

South Korea will organize three separate trade missions comprising nearly 50 IT companies to take part in the Expo. The US, Austria, UK, Argentina and the province of Taiwan will organize 50-100 large enterprises in delegations.

Zhou believes with the participation of so many domestic and overseas enterprises, this year's Expo will provide more cooperation opportunities for enterprises both at home and abroad.

**More paleontological achievements with fewer hands  
(CAS, 2005-05-16)**



Chinese researchers have made world-shocking discoveries in the field of paleontology although the total number of working paleontologists in this country has dropped to less than 800.

The observation is made at the Ninth General Assembly of the Palaeontological Society of China, which was convened from April 23 to 27 in Changzhou of east China's Jiangsu Province. With some 300 participants, it is the largest get-together for Chinese paleontologists over the latest 25 years.

Some of the recent achievements by Chinese paleontologists draw attention from the international community, including studies on the origin of life, its early history and evolution, Weng'an biota,

Chengjiang fauna and "Cambrian explosion," the Jehol biota, the origin of angiosperms, the origin of tetrapods, Permian-Triassic extinction, the origin of birds, evolution of primitive avian and mammalian animals, old stone age archeology and paleo-anthropology. In particular, the revelation of Chengjiang Fauna is renowned as the "most exciting scientific discovery ever made in the 20th century."

In the field of stratigraphic research, Chinese scholars succeeded in the establishment of four golden sparks and three global chronostratigraphic units, which are adopted in the International Stratigraphic Chart. Since 2000, Chinese paleontologists have to their names 32 research papers on the prestigious journals for natural sciences, including Nature and Science. In the last four years, they were honored by first-grade and second-grade prizes from the National Awards for Natural Sciences.

Scholars believe that the Second International Paleontological Congress, which will be held in 2006 in Beijing, epitomizes a world-wide affirmation of the disciplinary strength and scholarship now enjoyed by Chinese scientists in the field.

### **International optics congress to be held in China**

**(CAS, 2005-05-17)**

Hosted by the Chinese Optical Society and organized by the CAS Changchun Institute of Optics, Fine Mechanics and Physics, the 20th Congress of the International Commission for Optics (ICO20) will be held from August 21 to 26 in Changchun, capital of northeast China's Jilin Province.

With the theme of challenging optics in science and technology, the conference is expected to attract 1,000 scientists from about 50 countries to share their views on the development of optics technology, said Xuan Ming, executive president of ICO20 and director of the Changchun Institute.

Under the support from such China's institutions as CAS, Chinese Academy of Engineering, National Natural Science Foundation of China and Chinese Association of Science and Technology, the congress will be co-sponsored by several organizations from abroad like the International Society for Optical Engineering, Optical Society of America, European Optical Society, Optical Society of Russia, Optical Society of Japan and Optical Society of Korea, IEEE/LEOS and AFOSR Asia Office.

The International Commission for Optics was founded in 1947. The congress is held every three years. China, which joined the commission in 1987, is the first developing country to host the meeting.

### **Exhibition on Einstein's "miracle year" inaugurated in Beijing**

**(People's Daily, 2005-05-17)**

Einstein's World-the exhibition on the 100th anniversary of Einstein's "miracle year" and a series of activities to popularize scientific knowledge were inaugurated in Beijing May 15, 2005. Einstein's "miracle year" refers to 1905 when he published five scientific papers that fundamentally changed people's grasp of space, time, light and matter.

The exhibition is to be held across China and will last one month.

**New law to protect online copyright****(China Daily, 2005-05-18)**

Online copyright will be protected in China when an administrative rule takes effect from May 30. The regulation was jointly created by the National Copyright Administration and the Ministry of Information Industry.

The rule applies to services including uploading, storing, connecting or searching online literary, audio and video products in accordance with the instructions of the Internet content provider, without any content revision.

Under the rule, when copyright owners notify the Internet service provider (ISP) that their copyrights have been violated, the provider should take measures to remove relevant copied content.

ISPs that know about copyright violations but don't remove the violating content will face punishment. All income from the illegal act will be confiscated, and a fine of up to three times the illegal income will be assessed. If the illegal income proves difficult to calculate, the maximum fine will be 100,000 yuan (US\$12,000).

Internet services have developed at a rapid pace in China in recent years. The country has more than 1,000 ISPs, 10,000 Internet content providers and 100 million Internet users, according to Li Guobin, an official of the Ministry of Information Industry.

The rule states that serious and potentially criminal cases will be investigated by judicial departments.

"Copyright violations on the Internet have been running rampant in the past few years, causing damage to the information industry," Xu Chao, an official of the National Copyright Administration, said at a news conference on Monday in Beijing.

"Though there are no specific statistics on economic loss caused by the violations, such violations will impair relevant industries if not curbed."

Sources from the National Copyright Administration said that a higher-level legal regulation will be worked out within two years. The administration is writing a draft to be submitted to the State Council for approval late this year.

China has adopted two ways to protect intellectual property rights - through administrative and judicial departments. Therefore, administrative rules and legal regulations often work in parallel.

"This rule sounds good to our company and other counterparts," Li Bing, an editor of Sohu.com, said in a telephone interview.

In recent years, many articles produced by Sohu and published on its website have been copied by other Internet service providers.

The worst violation is that some ISPs have published plagiarized works. Sohu, which reprinted and published those works saying it did not know they were plagiarized, was involved in copyright disputes, Li said.

"Hopefully, the rule can better manage Internet services," she said.

**First international student passes his PhD dissertation defense at CAS****(CAS, 2005-05-25)**



Mr. Ghulam Rasul, the first international student formally enrolled by the Graduate University of CAS (GUCAS) successfully passed his PhD dissertation defense on May 21 at the CAS Institute of Atmospheric Physics (IAP).

Jointly supported by CAS, the Academy of Sciences for the Development World (TWAS) and Commission on Science and Technology for Sustainable Development in the South (COMSATS), Mr. Ghulam Rasul came to IAP as a Visiting Scholar in 2000. He was admitted into GSCAS as the first international PhD candidate in its history in 2001 when the school was accredited to enroll foreign students. Under the instruction of his mentors, Prof. Zeng Qingcun, a CAS Member, and Prof. Zhao Sixiong, a celebrated scientist in disastrous weather research, Mr. Rasul has studied hard on a project entitled Diagnostic Analysis and Numerical Simulation of Disastrous Weather in South Asian Summer Monsoon.

Thanks to the establishment of GSCAS Foreign Student Scholarship in 2003, Mr. Rasul received a full scholarship including tuition waiver, accommodations and stipend. Further, due to his outstanding performance in research work, he was awarded a scholarship in the pilot project of the "China Government Scholarship Program for Foreign PhD Candidates" in 2004.

"My study in China was greatly benefited from President Lu Yongxiang's kind attention and the generous financial support of GSCAS. I greatly appreciate all of these help." Ghulam Rasul said excitedly after the defense. President Lu attended the Fourth Meeting of COMSATS Coordination Committee held in Beijing in 1999 and agreed that GUCAS began to enroll foreign students from 2000 following the request of this meeting.

As the first formally enrolled foreign student at GUCAS, Mr. Ghulam Rasul's study is considered valuable experience and assistance for the work of international students at the school. And his forthcoming successful graduation also sets a good example for other foreign students in China.

Ghulam Rasul was born in 1959. Before coming to China, he served as the Associate Director of the Pakistani Meteorological Administration (Islamabad). After receiving his certificate this summer, he will be the second scientist with a PhD degree in the Pakistani meteorological community. With the 4-year study and the PhD degree to be attained in China, Mr. Ghulam Rasul will surely make greater contribution to promote the country's meteorological research and the bilateral academic exchange and cooperation between Pakistan and China.

At present, more than 70 international students from Germany, France, the Netherlands, ROK and Japan are pursuing their master's or PhD degrees at GUCAS.

**Scientists detect common intermediates in flames  
(CAS, 2005-05-30)**



Understanding fire is one of the oldest challenges in chemistry. Even after 150 years of flame chemistry research, scientists are making new findings. An international research consortium, including CAS researchers, discovered for the first time in their experiments a class of important intermediates of hydrocarbon oxidation -- enols -- that apparently is common in flames.

The discovery was made through a cooperation among researchers from the US, China and Germany. Qi Fei, Sheng Liusi and Zhang Yunwu from the CAS-affiliated University of Science and Technology of China (USTC) are key players of the team. The experiments were conducted at the Advanced Light Source facility at the Lawrence Berkeley National Laboratory and the National Synchrotron Radiation Laboratory (NSRL) at USTC. Their findings were published online by the *Science* magazine on May 12.

Hundreds of chemical species form and turn into other products when fires burn. Carbonyl compounds are well-established intermediates, but their less stable enol isomers that have a hydroxyl group attached to a doubly bonded carbon atom are not.

Enols have a structure that includes properties of both alkenes and alcohols, hence the name. The simplest alkene is ethylene ( $C_2H_4$ ), a gas that is produced in nature as a plant hormone and is also a major chemical feedstock. The primary commercial use of ethylene is the production of polyethylene, a common plastic. When a hydroxyl group (OH) replaces a hydrogen atom in ethylene, it becomes an enol called ethenol ( $CH_2CHOH$ ). Ethenol exists only as a transient or fleeting species in chemical reactions, but altered, stable forms of ethenol are main ingredients in latex paints, hair sprays, shampoos and glues.

Enols were first predicted as possibilities in 1880. One enol, i.e. ethenol, was observed in a non-flame environment in 1973 and its reaction in liquids is well known. Their presence in flames, however, had been little suspected until scientists applied a new technique that uses synchrotron radiation for photoionization mass spectrometry to reveal both its structure and its mass.

Using research facilities in the U.S. and China, researchers collected oxidation products and intermediates from the combustion of various fuels from different locations in the burner flame and collimated the samples into a molecular beam. Then they used a tunable synchrotron-generated vacuum UV beam to ionize the molecular beam, and analyzed the resulting ions with mass spectrometry. They observed a class of enols: ethenol, propenol, and butenol.

To study fire chemistry, researchers use computer models to simulate chemical reactions during combustion. Previous research has never dealt with enols. The result of the latest experiment will

correct the existing oxidation model of hydrocarbon, providing new strategies for the simulation of the incomplete oxidation in fuel cells and in supercritical water, as well as for controlling pollutants produced in combustion.

While the researchers don't know where the discovery will lead, it offers new directions in efforts to reduce soot and other pollutants in flames, improve fuel cells, and model planetary atmospheres and interstellar chemistry, according to CAS experts.

As a winner of the prestigious CAS Bairen Award, Prof. Qi Fei rejoined the NSRL in 2003 after spending two-year as a post-doc at the Advanced Light Source facility in Lawrence Berkeley National Laboratory. With the support from CAS and National Natural Science Foundation of China, Prof. Qi has set up during a very short time a facility to study of combustion and flame with synchrotron radiation photoionization molecular beam mass spectrometer. It is now considered the most sensitive research facility with widest wave-length coverage in the world.

### **Chinese media select top ten science figures**

**(People's Daily, 2005-05-31)**

15 Beijing-based media have selected the top ten figures in technological innovation in 2004. The awarding ceremony was held in the Great Hall of the People on May 29.

The top ten figures are:

**Huang Boyun**, member of Chinese Academy of Engineering who conquered world crux in new materials;

**Shi Hanxiang**, deputy of the People's Congress of Cixi city in east China's Zhejiang Province who developed core technology for recovering soil eco-system;

**Sun Ninghui**, chief scientist for "Dawn 4000A" high-performance computer;

**Li Jiayang**, vice president of the Chinese Academy of Sciences and the first winner of global Chinese bioscience award in China;

**Wu Jianping**, director of the academic committee of China Education and Research Network and pioneer in world advanced Next Generation Internet;

**Pan Jianwei**, professor at the University of Science and Technology of China who created five records in the research on quantum information;

**Wu Ximing**, chief scientist at 602 Institute that developed almost all types of China's helicopter;

**Hu Weiwu**, chief researcher for the development of Dragon I Chip;

**Yang Jie**, female scientist who greened deserts with science and technology;

**Zhong Faping**, young scientist who made several achievements in commercialization of high technology.

### **Nobel Prize winners back booming China**

**(China Daily, 2005-05-31)**

An award-winning US economist yesterday said China should ignore outside pressure and keep the yuan exchange rate stable.

1999 Nobel Laureate for Economics Robert A. Mundell kept up his consistent "no change" call at a special three-day forum--said to be Asia's biggest--in Beijing yesterday.

He was among seven other economic Nobel prize winners and five distinguished scholars who gathered to offer advice and comment on China's economic relationship with the global community.

Each gave their view of China's place in the world's economy.

If the Chinese currency were revalued, overseas direct investment will decrease and lead to more unemployment, affecting even the rest of East Asia, he said.

#### **Wen: Listening to advice**

Premier Wen Jiabao told the laureates China attaches importance to listening to global advice and opinion.

Vowing to step up efforts to solve problems facing the nation, he added: "We are confident and capable of achieving the goals set for economic and social development."

The general consensus among the economists was the booming Chinese economy is beneficial to the world-including the United States.

Robert W. Fogel, who won the Nobel Prize for Economics in 1993, told China Daily that there were two reasons why the global community gained from China's development.

"First, China is producing more and more goods that can be of a very high quality and at a much lower price," Fogel said.

"Secondly, China will need more goods and services from other places such as Europe and the United States," he said.

Citing American education as an example, Fogel said it had become an export industry, pointing out that at least two-thirds of his students are from abroad.

Vernon L. Smith, the 2002 winner, said the huge and growing trade between America and China greatly benefits both countries.

"By outsourcing to foreign countries, US businesses save money that is available to invest in new technologies, new jobs and remain competitive in world markets. We should let it happen," Smith said. However, "many American citizens will not now agree with that."

"Their job losses are very visible while jobs created by new technology are not yet visible. When American businesses outsource goods and services to China, they save money," Smith said.

#### **New 'super rice' strains**

**(China News, 2005-05-31)**

*Jinfeng* and *Shenyou I*, two new super rice strains developed by hybridization of indica rice and nonglutinous rice subtypes, breaking with the traditional method of hybridization between two subtypes of the same species, is being promoted in [Jiangsu](#), [Zhejiang](#) and Shanghai. According to specialized departments of the country, these two new strains of super rice have reached internationally advanced level with a higher yield than those of Japan, South Korea and India.

It is learned that the highest yield of *Jinfeng* ordinary nonglutinous rice reaches 732 kg per Mu (ca 9,780 pounds per acre), while the highest yield of *Shenyou I* hybrid nonglutinous rice almost reaches 770 kg per Mu (ca 10,287 pounds per acre). Even their average yield is 10% higher than those widely planted species currently.

Wan Changzhao, deputy researcher of Shanghai Academy of Agricultural Sciences who is in charge of the project, said that "these two new super rice strains are perfect integration of the advantages of indica rice and nonglutinous rice -- high-yield, high-quality and high-resistance to diseases."

To date, these two super rice strains have been planted in 1.3 million Mu (214,500 acres) of farmland in Jiangsu, Zhejiang and Shanghai and have yielded 56,100 tons of high-quality rice, a production value of 69.52 million yuan (ca US\$ 8.41 million). The plant area is expected to reach

6 million Mu (ca 990,000 acres) next year.

### **China's first FED fluorescent powder luminous testing system in normal operation**

**(MOST, 2005-05-31)**

The first FED fluorescent powder (low pressure fluorescent powder) luminous performance testing system of our country has been in operation for nearly a year with steady performance and normal condition, which forcefully push forward the development of FED fluorescent powder.

The field emission display (FED) is a very promising display technology. A number of domestic and foreign organizations are engaged in the development of its fluorescent powder. In order to advance the development process of FED fluorescent powder, Grirem Advanced Materials Co., Ltd. and Xi'an Jiaotong University jointly developed China's first FED fluorescent powder (low pressure fluorescent powder) luminous performance testing system successfully in March 2004. This system can be used for testing such luminous performances as emission spectrum, brightness and color co-ordinates and color purity of fluorescent powder. In addition, the research team has added a set of vacuum ultraviolet light source to this system so that it can also be used for testing the luminous performances of PDP fluorescent powder of plasma display.

By now, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences has already purchased a set of this testing system, and installation and debugging have already been well finished. At the same time, a number of other organizations are discussing purchase arrangements. It's expected that popularization of this testing system will further promote the development of low-pressure fluorescent powder in our country.

### **State project gained benefits**

**(MOST, 2005-05-31)**

Implementation of "Zhong YouZa No. 2 Experiment and Model", a state project supported by Agricultural S&T Results Transforming Fund of the Ministry of Science and Technology (MOST), has facilitated and sped up the trend of developing rape production towards large area popularization & application and regionalization and industrialization of high quality hybrid rape in our country.

The win-win cooperation between Wuhan Zhongyou Xiwang Seed Technology Co., Ltd and Hubei Provincial Seed Group Company greatly pushed forward the product optimization, upgrading, renewal and regeneration of rape seed which used to be considered as a industry with weak potential. After three years, "ZhongYouZa No. 2" rapidly took up the markets in the rape growing provinces of Sichuan, Hunan, Jiangxi and Anhui along the Changjiang river basin. The accumulative total of popularization area is 28.79 million mu and nearly 18 hundred million Yuan of social benefits has been created.

The fund and marketing networks of enterprises are propellers the result popularization so that scientific research personnel can focus their energy on the follow-up links of purification & rejuvenation, production guidance and technical service for the married species -new species introduced into practice. Thus the S&T advantage of science and technology can penetrate into wider, deeper and more detailed levels while the revenue from the development and transfer of results can later "feed in return" scientific research, thereby establishing the sustainable development capability of "marrying" a batch, studying a batch and storing a batch with respect to specie innovation.

## 5 Information for Coming Workshops in July

### **The 5th International Symposium on Multiphase Flow, Heat Mass Transfer and Energy Conversion**

**Date:** July 03 - July 06

**City:** Xi'an

<http://www.ismf05.xjtu.edu.cn>

### **The 12th International Congress of Protozoology**

**Date:** July 10 - July 15

**City:** Guangzhou

<http://www.congress.com.cn/icop/>

### **The 14th International Conference on Luminescence (ICL' 05)**

**Date:** July 25 - July 30

**City:** Beijing

This Conference is one in a series held every three years in different countries of the world. The scope of ICL'05 was broad to enable scientists of many disciplines to attend: physicists, chemists, biochemists, engineers and those who are interested in applications. The interdisciplinary nature of the meeting was one of its attractions. All abstracts will be published in the conference proceedings by a publishing house before conference. You are welcome to submit a full paper, the latter will be published in Journal of Luminescence (Published by Elsevier Science) subject to acceptance after reviewing by referees. Please note that you are not qualifying to submit your full paper to the journal if you are unable to attend the conference.

For more information, please contact: [ICL05@center.njtu.edu.cn](mailto:ICL05@center.njtu.edu.cn)

### **The 4th International Conference on Environmental Informatics**

**Date:** July 26 - July 28

**City:** Xiamen

<http://www.geomaticseng.ryerson.ca/iseis2005/>

### **The International Conference on Ocean Environment Change in South China Sea**

**Date:** July 30 - August 01

**City:** Guilin

For more information, please contact: [ledy@scsio.ac.cn](mailto:ledy@scsio.ac.cn)

## Abbreviations

- CAS** - Chinese Academy of Sciences  
**MOST** - Ministry of Science and Technology  
**CRI** - China Radio International  
**CCTV** - China Central Television