Content

Science News from Chinese Media During the Period of July 2005
Collected and Compiled by the Helmholtz Beijing Office

Overview

The hot summer comes several weeks earlier in China than usual. The electricity and water consumption soars record high in many Chinese cities, including Beijing and Shanghai. Not only many firms are requested working in the night shift, even the office workers are asked not to take ties, but to raise up the room temperature and to switch off their computers in the spare time. It is understandable that some of our German colleagues could not find their partners, as their laboratories are closed down for energy saving and they could now really take time to enjoy long time holidays.

In this month, thanks for our coordination, FZJ signed a MoU with the Three Gorges Dam Office in the Three Gorges Dam Construction Committee. This office would take the responsibility for organizing the Chinese partners for the environment projects in this region and provide the most research funding. The National Institute for Radiation Protection and Nuclear Safety has asked us to help them establish a good link to our Helmholtz research institutes. We find GSF, FZK and FZJ all have relevant groups. A dedicated visit would be arranged for Sept. Prof. R. Meissner and Dr. G.Ollesch from UFZ have also come for one week in Beijing (with IB's money) to discuss in technical details with their partners for a possible bilateral governmental project.

A remarkable issue in the Chinese society is the uprising of RMB against US dollar. Under the political pressure of USA and the rapid increase of "hot money", the Chinese government has given up fix exchange rate to dollar, and let its RMB to increase 2%. The consequence would be very complex. Concerning science and technology, the biggest news is the final agreement on the thermo-nuclear site. China has vowed for ITER in Europe rather than Japan. With 4 Billion Euro input from Chinese side, ITER will be the largest international cooperation project for China. The Chinese government has already remarkably increased its funding for the relevant researches.

Concerning health, an unexpected infectious disease broke out in Sichuan Province. It has cost over 30 lives from the 170 infected people. Scientists had identified that it is a kind of deadly pig bacteria. The condition is under control and things are getting better.

China announced that its first China-made chips has come to a success, however, this chip is involve into an intellectual property infringe debate at its very birth. The scientists of CAS stated that the chip is a totally different story. Experts pointed out as more and more consumer-electronics embedded with Chinese-made microprocessors are exported, more intellectual property disputes are likely to occur.

There is news of our Helmholtz special interest, MPG has set another partner group in China. Besides, in order to promote Sino-European cooperation, the CTIBO project-launching meeting held in Beijing.

We sincerely hope you find useful information from this edition of China Highlights.

Helmholtz Association of German National Research Centres
Beijing Office
Tel: +86-(0) 10-6590-7866
Fax: +86-(0) 10-65907867
E-mail: info@helmholtz.cn, www.helmholtz.cn

1 Science News

1.1 Energy

China applauds agreement on thermo-nuclear site
(CAS, 2005-07-04)

China hails as a "milestone" an international deal to pick France as the host of the world's first large-scale nuclear fusion plant.

Chinese Minister of Science and Technology Xu Guanhua, who was here attending a meeting to decide on the site of the project, said the decision is an important result of talks marking a milestone in the process of thermo-nuclear study.

The agreement to choose Cadarache, in the southern French region of Provence, as site of the International Thermo-nuclear Experimental Reactor (ITER), was reached after lengthy discussions among officials from China, Japan, Russia, South Korea, the United States, and the European Union.

The ITER project is set to demonstrate the potential of fusion power as an alternative to fossil fuels such as oil. Fusion power produces no greenhouse gas emissions and only low levels of radioactive waste. It runs on hydrogen, an abundant source of fuel.

Xu said the ITER project is of strategic significance for China, which is not rich in energy resources and needs sustained development. By involving in the project, China expects to raise its level of science and technology, enhance international cooperation and make contributions to mankind.

China invests $6 million into thermonuclear reaction study
(CAS, 2005-07-04)

China's Ministry of Science and Technology announced on July 1 in Beijing to invest 50 million yuan (6 million US dollars) more to the country's ongoing research on thermonuclear experimental reactors.

The basic study on fusion reactions, which would be coordinated by Huo Yuping, professor at Zhengzhou University in central China, obtained the largest sum of funds of the National Basic Research Program in fiscal year 2005-2006.

Scientists with the Chinese Academy of Sciences (CAS) Institute of Plasma Physics have already

developed an Experimental Advanced Super conducting Tokamak, one prototype of the International Thermonuclear Experimental Reactor (ITER), which costs 10 billion euros and gathers researchers from the European Union, the United States, Japan, Russia, the Republic of Korea and China.

The National Basic Research Program, which was written in March 1997 and coded as the 973 Program, is designed to finance the country's most strategic basic research frontiers.

The state has poured the largest sum of money, worth 1.46 billion yuan, into the 54 projects this fiscal year.

Cheng Jinpei, vice minister of Science and Technology, said after the announcement, "The 973 Program is aimed at combining scientists' pioneering spirit with the nation's strategic scientific research planning."

From 1998 to the end of 2004, the state sponsored a total of 188 projects within the 973 Program framework.

MOST minister stressed the significance of fixing the site for ITER
(2005-07-06)

XU Guanhua, Minister of Science and Technology, said in Moscow on the 28th that final determination of the site for ITER is of great significance and an important step towards the earlier start-up of this Program.

The six parties involved in ITER reached consensus in Moscow on the 28th, choosing France as the site for the first thermonuclear experimental reactor in the world.

Talking of the significance of China's participation in ITER, XU Guanhua indicated that China is a country lacking in energy resources, so participation in this Program in search for future energy production modes is of great strategic significance to China's sustainable development. In addition to facilitating international cooperation of all countries in the world in the development of fusion energy, this Program itself also involves important S&T issues. China's participation in this international cooperation project is helpful to the improvement of China's S&T and will contribute to the S&T progress of China and mankind.

China masters technique for shallow geothermal energy collection
(People’s Daily, 2005-06-20)

China has mastered the technique for the collection of shallow geothermal energy and developed facilities that integrate the supply of heat, cool and hot water.

Sources say, since 2000, such facilities had been used in some areas in Beijing, realizing zero pollution and saving 50-75 percent of energy.

Shallow geothermal energy is the low-temperature heat in the soil and water nearly 100 meters underground. It mainly stems from solar radiation and is another form of solar energy.

The low-temperature energy collectable from the soil nearly one hundred meters underground is 3,750 times that of China's 400 million-kwh power generating capacity and the low-temperature energy collectable from underground water within one hundred meters under the ground is as much as 200 million kw.

Compared to that at deeper level, shallow geothermal energy is widely stored, huge in amount, rapidly renewable, easy to collect and valuable in development.

Expert says, shallow geothermal energy is a top alternative energy source for air conditioning in buildings.

Chinese scientists upgrade first experimental wave power station

(Xinhua Net, 2005-07-22)

Chinese scientists have developed typhoon-resistant and more efficient technologies for the world's first experimental wave power station.

You Yage, chief scientist for the Ocean Energy Division at the Chinese Academy of Sciences (CAS) Guangzhou Institute of Energy Conversion, led his team to introduce vibrating technologies into a newly-invented electricity generator, the Economic Daily reported Thursday.

"The new kind of generator is more efficient, lower-cost and typhoon-resistant," You was quoted as saying by the newspaper on Thursday. He said that the six-kw generator worked well after more than 20 typhoons.

The testing equipment can be used for electricity for light, computers, air conditioners and sea water desalination, the scientist said.

You and his team early this year developed the world's first experimental wave power station at sea near Shanwei City, in south China's Guangdong Province.

British and Portuguese scientists have researched wave power stations, but they have failed to reach technical expectations.

"Although ubiquitous at sea," You said, "wave power is one of the most unstable forms we can find on the earth."

You's team devised an energy-storage manostat, a device that can effectively transfer wave power to energy resulting from hydraulic pressure.

Chinese scientists have also invented a device monitoring energy storage in the experimental power station. Controllers could clearly know, with such a device, how much electricity remains in the generator.

After the oil crisis in the 1970s, many countries started paying attention to oceanic energy, rather than simply focusing on fossil energy.

An international postgraduate program on drylands kicks off at CAS
(CAS, 2005-07-29)

An international master's program on integrated dryland management has been launched recently at the Cold and Arid Regions Environmental & Engineering Research Institute (CAREERI) of CAS. Five students from Tunisia, Egypt, Sudan, India and China are now studying in the program at CAREERI in Lanzhou, capital of northwest China's Gansu Province.

Under the joint sponsorship of the United Nations University, the Institut des Regions Arides in Tunisia, CAREERI, and the Institut National Agronomique de Tunisie in Tunisia, the objective of the program to enhance the capacity of developing countries to manage their dryland resources. It is intended to provide young professionals and scientists an international perspective on resource management approaches in drylands. Students enrolled in the program will attend courses for one semester each in Tunisia and China, and complete a research project in their home country. The program is jointly offered by the four partner institutions as an internationally accepted degree.

New air conditioner to put electricity demand on ice
(People's Daily, 2005-07-30)

A new air conditioning system that makes ice overnight using cheap-rate electricity may be key to cutting strain on China's creaking power grid.

The unit, to go on trial in Guangzhou, Guandong Province, uses ice it makes during the night to cool the air during the day.

Called an Ice Storage Air Conditioner (ISAC), the device will be introduced throughout the province next year if it performs as well in Guangzhou as it has elsewhere.

The office building of the provincial Economic and Trade Commission will serve as a test site for the air conditioner, according to Chen Jian, director of the commission's energy department.
Guangzhou-based Zhuoyue Energy Co Ltd is now working to refurbish and add an ice storage unit to two central air conditioners.
The basic concept of ISAC is an air-conditioning unit that makes ice during off-peak hours, when electricity costs only 27.8 per cent of the rate charged during the day.
During the day, instead of using a power-hungry 5-kilowatt compressor, the unit pumps air cooled by the ice using a motor that needs only about 2 per cent of the electricity the compressor would use.
Compared with a traditional air conditioner, electricity consumption could be cut by as much as 90 per cent, Chen said.
He estimated that using this system in the commission's building could cut their yearly electricity bill by about 290,000 yuan (US$35,758).
"If the experiment goes smoothly, almost all office buildings and superstores will implement this new energy-saving device from next year," Chen said.
Eight official buildings and superstores in Shenzhen, a coastal city in Guangdong, have been using the new air conditioner at the 20 per cent off-peak rate.
The Shenzhen Electronic and Science and Technology Building began using ISAC in May 2001.
"We have benefited from the ice-making air conditioner since its implementation, with more than 1.6 million yuan (US$197,280) saved annually through reduced electricity consumption," said Sun Mingguo, director of the building's property management office.
Chen said one of the other potential benefits of ISAC, if enough buildings use it, is that it would reduce the need to build more power plants.
According to figures provided by the commission, air conditioners in Guangdong currently use 10 million kwh each day, representing more than 35 per cent of total electricity usage.
ISAC has also been implemented in Southwest China's Chongqing Municipality.

1.2 Earth and Environment

CAS researcher to lead a 28-million-yuan project on farmland ecosystem
(CAS, 2005-07-06)
A research team led by Prof. Zhang Jiabao from the CAS Nanjing Institute of Soil Science (ISSAS) has just received 28 million yuan (or US$ 3.37 million) from the national Basic Research Program to carry out studies into major processes and regulation measures for the agro-ecological system in China.
The farmland ecosystem is a primary cornerstone for securing food security and farm produce supply in China, says Prof. Zhang, who has carried out studies in the areas of soil water, soil ecology and soil environmental quality, and soil degradation control for many years.
"It is also the material basis for the majority of farmers' livelihood. Under the heavy pressure of the environment, resources and population, it is of strategic significance for China to improve the sustainable production capacity of its farmland ecosystem." Prof. Zhang notes.
With the support from the Chinese government, Prof. Zhang and colleagues will carry out research

on basic issues concerning critical process of agro-ecosystem and their impact mechanism on the productivity, resource and environment effect of the farmlands. Based on labs and field stations affiliated to CAS and the Chinese Academy of Agriculture, the studies will be implemented at fixed points, typical regions and across a precipitation and elevation gradient. The objectives of the project are to address such issues as the productivity, stability and ecological and environmental safety, and sustainable development of resources in the modern farmland ecosystem featuring high input and output.

Apart experts from ISSAS, the research team will also include scientists from the Chinese Academy of Agriculture, Zhejiang University, the CAS Institute of Geographic Sciences and Natural Resources Research and the CAS Research Center for Eco-Environmental Sciences.

The National Basic Research Program (also called 973 Program) is China's on-going national keystone basic research program, which is to organize and implement basic research to meet the nation's major strategic needs. It is the third time for ISSAS to preside over a 973 project.

Scientists measure how trees absorb carbon
(China News, 2005-07-07)

One hectare of forest can absorb 500 kg of carbon dioxide per year, according to the result of a long-term research by Chinese scientists.

This might be the first accurate data on this issue around the world, which was released by Zhou Guoyi, a researcher with the South China Botanic Garden.

At the international symposium on carbon balance and circulation in ecosystem recently held by the South China Botanic Garden of the Chinese Academy of Sciences and the Association of Science and Technology of Guangzhou, Zhou pointed out that the long-term follow-up research in the South China Botanic Garden manifests significant effects of afforestation on the control of greenhouse effect.

Based on the 30-year observance and research at the forests of Dinghu Mountain, scientists found monsoon evergreen broad-leaved forest, mixed coniferous broad leaved forest and pine forest rank downtrend in term of carbon carbon dioxide absorption capacity, which vary in different seasons.

In October and Novvember, carbon carbon dioxide absorption capacity of forests is the highest, while from December to March, the lowest, according to the scientists.

Scientists to venture into heart of frigid Hoh Xil area
(Xinhua Net, 2005-07-13)

Chinese scientists will explore and research the center of the severely cold Hoh Xil mountain area in the Qinghai-Tibet plateau later this year, officials with the Chinese Academy of Sciences (CAS)

said here Wednesday.

This will be the first time that anyone traverses the heart of the Hoh Xil mountain area, which is an average of 5,300 meters above sea level.

Situated on the Qinghai-Tibet plateau, Hoh Xil is high and frigid, officials said.

"Although Chinese scientists have explored the Qinghai-Tibet plateau for decades, not even a single scientific exploration teamhas set foot in the 20,000-sq-km-plus central area of Hoh Xil as the plateau is too vast for our scientific exploration to cover," said Sun Honglie, an academician of the CAS and director for the exploration.

He said that although scientists have conducted research on the Qinghai-Tibet Plateau, which is more than 2.4 million square kilometers in area, there is still very little known about the area, including the Hoh Xil. He said that scientists want to find out whether Hoh Xil is one of the most arid and coldest places in the world.

According to CAS officials, the team will start out from Lhasa,capital of the Tibet Autonomous Region, and reach the destination of Golmud in Qinghai by way of several other places including the Hoh Xil Lake.

Scientists will traverse various climate zones and observe volcanoes, thermal springs, plateau karst, glaciers, frozen earth and other geomorphological structures.

1st expedition across Qinghai-Tibet Plateau

(China News, 2005-07-14)

China News, Beijing, July 14 (By Liu Yuying) - The first ever large-scale scientific expedition across Hoh Xil uninhabited land in central Qinghai-Tibet Plateau will kick off in Sept. this year. 20 senior academicians with the Chinese Academy of Sciences (CAS) will participate in this three-year expedition.

Hoh Xil has an average altitude of 5,300 meters and covers 83,000 square kilometers. Alpine coldness, lack of oxygen, and hostile natural conditions make it China's largest and the world's third largest uninhabited land. It is also China's last untouched natural land which still maintains its original state. It is therefore cited as a "forbidden zone for man."

In recent years, the mysterious and picturesque Hoh Xil has become better known to the public, and protection of Tibetan antelopes has also become a critical public service activity. This expenditure has anointed an antelope named "Keke" as its mascot.

The first phase of this expenditure will last 40 days. About 20 senior CAS academicians, experts and scholars specialized in a comprehensive range of disciplines will participate in the expenditure, which will help solve many abstruse riddles of nature and sciences.

New method to desalinate brackish water

(Xinhua Net, 2005-07-14)

China has recently developed a new method to desalinate brackish water at a lower cost, in its latest bid to ease shortage of fresh water.

The new technology will be commercialized soon as the developer, the Hangzhou Research and Development Center of Water Treatment Technology under the State Oceanic Administration, has recently inked a contract with a paper-making mill in south China's Guangdong Province on jointly building a brackish water treatment facility at the estuary of the Pearl River in the province.

According to an official with the R&D center based in this capital of east China's Zhejiang

Province, the brackish water treatment facility will have a daily processing capacity of 100,000 tons.

Adopting the new technology the center developed, Zhu Shufei from the center said, the facility's desalination cost will be roughly the same as price of daily-used running water and much lower than that of sea water desalination.

The facility will adopt reverse-osmosis-based filtration technology in the whole process of desalination, Zhu said.

Currently, there are approximately 1 million people in western part of China and in the coastal regions have to drink brackish water. Commercialization of the new brackish water desalination technology will help provide more quality fresh water for water-thirsty areas in the country.

CAS botanists make fruitful progress in fern studies in Vietnam
(CAS, 2005-07-18)

With the support from the US National Geographic Society, a research group headed by Prof. Wu Sugong from the CAS Kunming Institute of Botany has made rich achievements in their two-year fern studies in northern and central Vietnam.

Of the Vietnamese specimens that have been studied, the CAS botanists have found a new genus and quite a number of new species. Among them, the discovery of the new genus of *Kontumia heterophylla* S.K. Wu et Pha Ke Loc and a new species of *Cytomium elongata* have been published in this year's *NOVON*, an international journal of botany.

Kontumia is distinguished from any known genus in the fern plants in appearance, says Prof. Wu, and its taxonomic niche in the floral phylogeny is to be further studied.

The studies also lead to some new recordings. The first batch of the recordings involves eight fern species and has published by the latest issue of *ACTA BOTANICA YUNNANICA*. The researchers have completed studies on the second batch of eight species.

Sino-Russian team to check Baikal ecology
(CAS, 2005-07-20)

A CAS official told a press conference in Tianjin on July 16 that it will launch a joint research into ecology and industry around Lake Baikal with the Russian Academy of Sciences next month.

Chen Zhu, vice-president of the CAS, said, "It marks a major step in strengthening Sino-Russian ties in the sciences, and will serve as a platform for our long-term partnership."

The upcoming investigation, to be conducted by 15 experts from the CAS and seven from the Siberia Branch of the Russian Academy of Sciences from August 9 to 30, is the largest on-site joint scientific activity ever held by the two neighbors.

According to the CAS, the project will collect information on the climate, forestry and hydrobiology of the Baikal area.

Experts from both countries will research the influence of the regional climate in Baikal upon the climate of northern China, which has been greatly affected by frequent climate changes in Siberia.

Another focus for the investigation is a comparative study of industrial enterprises in the Baikal region and China's northeast, which it is hoped will help revitalize heavy industry in the latter as well as deepening bilateral relations.

The two countries' academies of science have been involved in joint work for decades, and the CAS solicited Chinese institutions for their interest in participating in the Baikal project last November.

Lake Baikal is located in the southern part of eastern Siberia. It is the oldest freshwater lake on earth, as well as the deepest continental body of water, having a maximum depth of 1,620 meters and an area of 31,500 square kilometers.

The lake contains 20 percent of the planet's freshwater and more endemic species of plants and animals than any other in the world. Fed by 336 rivers and streams including the Angara, Barguzin, Selenga, Turka and Snezhnaya, it holds 50 species of fish including bullhead, sturgeon and omul.

S&T result helps improving production capacity of the grassland
(MOST, 2005-07-23)

Products from the project of "Intermediate Test on New Types of Chemical Herbicide for the Grassland" called Mielangdu and Miejidou, are mainly used for clearing the natural root of Langdu and Jidou on the grassland, improving the ecological structure of the grassland community and increasing production capacity of the grassland. This is a project of the State Fund for Agricultural S&T Results Transformation.

During project implementation, an intermediate test production line of Mielangdu and Miejidou with an annual output of 20 tons was set up and 28 tons of Mielangdu and 9.9 tons of Miejidou were produced. 182 person-times of technical personnel in the demonstration area received training. Field experiment for the effectiveness was conducted in an area of 510,000 mu in

different types of grassland in Gansu, Qinghai, Sichuan and Inner Mongolia.

New technology combats paper mill pollution
(China Daily, 2005-07-27)

Pressing the start button on the pulping machine, Li Chaowang, president of Beijing Doo Research and Development Centre, set the centre's newest pulping production line, into operation this month.

With the roar of machines ringing in their ears, Li ushered visiting paper-making experts, officials and entrepreneurs along the factory's production line in Dandong, Northeast China's Liaoning Province.

When they reached the end of the production line Li showed the visitors the fresh wet pulp the process had produced.

According to Li, the line can produce 30,000 tons of straw pulp each year without discharging waste water and polluting environment.

Invented by Li and two of his colleagues, Li Keshi and Li Gangrong, the newly patented technology could be the answer to the pollution, energy consumption and raw material supply problems that have plagued China's papermaking industry.

At the moment even the world's most efficient pulp manufacturing systems need 20 tons of water to produce just 1 ton of pulp.

But, with their new technology, only 6 to 8 tons of water is needed to produce each ton of paper pulp, the three inventors say.

"The water, electrical power and coal consumption of the new technology used for producing the same amount of paper pulp only account for 40, 53 and 20 per cent respectively of the traditional paper-making industry," they said.

Furthermore, during the entire paper-making process, no polluting alkali, sulphur or chlorine chemicals were used to bleach the pulp, and the paper it produces still adheres to all State quality standards.

"The new technology will help China ease up key issues restricting the development of its paper-making industry, reducing the discharge of waste water and the resulting pollution," said Hu Zongyuan, adviser to the China Technical Association of the Paper Industry.

"Most of the waste water, the major source of pollution, can be recycled for further use after being treated in line with State standards," Hu said.

Hu applauded the technology as "pioneering work for China's paper-making industry" which has long been under fire from environmentalists for the pollution it causes across the country.

Bleaching paper with chlorine produces a carcinogen called dioxin, which is harmful to the

environment and can remain in water and soil for as long as 50 years, experts warned.

Moreover, "the new technology will play an increasing role in protecting China's forestry resources by using many other plants as raw materials including the stalks of crops and cotton as well as vegetable fibre," Hu said.

Today more than 95 per cent of paper in developed countries is made from wood cellulose with the waste water being well treated, he said. "In China, however, a lot of paper has to be made from straw pulp due to the shortage of wood."

Jin Zhicheng, an official from the State Forestry Administration said the new technology would help develop China's "recycling economy" through saving energy and making full use of existing resources available for pulp processing.

It will also benefit China's efforts to rehabilitate its ecosystem, save the country's limited forestry resources and reduce the water and electricity consumption of the ever-growing pulping industry.

Originating in ancient China, the art of paper-making was one of the nation's great inventions along with printing, gunpowder, porcelain, silk and the compass.

China has become the world's second-largest paper consumer after the United States, and the country's domestic demand is expected to rise to 50 million tons this year from 47 million tons in 2004.

It is estimated that the paper demand in China will reach 70 million tons by the end of 2010.

Demand for paper will continue to outpace production during the next five years because of the country's rapid economic growth, experts say.

Today, China's paper-making sector imports more than half the world's waste paper.

But the country's paper industry has become a target of criticism for the pollution it creates, its high demand for timber and its high energy consumption.

Over the past five decades, many small paper mills have sprung up throughout China, pulping straw instead of wood because of the shortage of raw materials.

A logging ban introduced in 1999 to protect China's natural forests has caused the timber shortage to become even more acute.

To increase supply, the central government plans to plant 5 million hectares of fast-growing trees within 10 years.

The plan is expected to lessen the Chinese paper industry's reliance on imported raw materials.

To meet the increasing demand for raw materials, China also needs to increase the imports of waste paper. Nearly 94 per cent of China's wood pulp is currently imported from other countries. The government hopes that within 10 years imports can be cut by 85 per cent.

Relying on aging technology, China's small paper mills have wreaked havoc on the environment with many discharging their chemical-laden waste directly into rivers and lakes.

Since the early 1970s many of China's major polluters have come from the paper industry.

As a result, the central government has closed down hundreds of pollution-prone mills.

All small paper mills capable of manufacturing 30,000-50,000 tons of pulp have been shut down in East China's Shandong Province to prevent them from polluting water along China's ambitious South-to -North water diversion project, designed to carry water from the Yangtze River in the south to drought-stricken Northern China.

Unfortunately, such pollution-control has not only affected the revenue of local authorities but also forced many workers to be laid off, and cut the income of local farmers who sold raw pulping materials to the mills.

"With the new technology, farmers can get rich by making full use of their crops instead of simply burning them which would cause air pollution," Hu said.

"In the past such pollution has been so serious that planes could not take off from some airports because of the thick black smoke from farmers' burning-off their fields.

"This new paper-making technology is promising for China. As an agricultural country, China is rich in stalk resources which can be used as the raw materials for paper-making," Hu said.

China's new expedition plan to Antarctic
(CRI, 2005-07-28)

China is hoping to improve its advantageous position in scientific research in the Antarctica by launching a new expedition to the remote region.

The Office for Polar Expedition with the State Oceanic Administration (SOA), released that Chinese scientists has kicked off the new expedition plan, also known as "Grove Plan", on Tuesday.

Scientists will complete a range of tasks in the expedition to Grove Mountains in Antarctica.

These tasks will include collection of meteorites, geological surveys, mapping, research on the evolution of the icecap, the installation of an automatic meteorological station and the construction of a sanctuary in the Grove Mountains.

The Grove Mountains are 460 km away from China's Zhongshan Station in Antarctica.

1.3 Health

Nanoparticle PCR: A new approach of DNA amplification
(CAS, 2005-07-01)

The polymerase chain reaction (PCR) is a technique for quickly "cloning" a particular piece of DNA in the test tube (rather than in living cells like *E. coli*). Thanks to this procedure, one can make virtually unlimited copies of a single DNA molecule even though it is initially present in a mixture containing many different DNA molecules.

In cooperation with collaborators from Shanghai Jiao Tong University, CAS scientists have come up with a novel approach to improve the specificity of PCR. Their work has been published recently online by *Angew. Chem. Int. Ed*, a world-renowned German journal of applied chemistry.

Having revolutionized molecular genetics, PCR has become one of the most popular techniques in

modern biological and medical sciences. Owing to PCR's exponential amplification ability, one could start from even a single copy of target DNA to produce a large amount of DNA copies for sequencing, molecular diagnosis, or genetic analysis. This remarkable amplification ability is critical in many circumstances, such as early-stage diagnosis of HIV or cancers. Given the rapidly increasing interest in optoelectronic DNA biosensors, the extremely high detection sensitivity of PCR has not been surpassed until now. However, the specificity of PCR does not match its unparalleled sensitivity. It is well known that even with sophisticated optimization, PCR specificity is not always satisfactory.

With the support from CAS and some other governmental departments, a research team headed by Fan Chunhai and Hu Jun from the CAS Shanghai Institute of Applied Physics and Zhang Zhizhou from the Bio-X Life Science Research Center, Shanghai Jiao Tong University, developed a novel PCR method that employs inexpensive gold nanoparticles to effectively avoid nonspecific PCR reactions.

This highly selective strategy shows that, as reported by the Shanghai team, in the presence of appropriate concentrations of gold nanoparticles, PCR amplification can be optimized both in terms of yields and specificity. Therefore it opens new opportunities for improving PCR by employing very stable, commercially available, and inexpensive inorganic nanomaterials.

Furthermore, the team suggests that the gold nanoparticles may also be applied to various PCR reactions that require either high specificity or high yields, such as single-molecular, multiplex, and long-distance PCRs.

The new technology not only links PCR with the gold nanoparticles but also opens a new horizon in the development of nano-biotechnology through furtherance of the widely applicable method of PCR, says a reviewer of the Angew. Chem. Int. Ed. As the classic bio-chemical reaction of PCR can remarkably raise its own efficiency, an application "bottleneck" of the most important standard method in molecular biology is somewhat solved.

Changes in farming practices urged to control bird flu
(Xinhua Net, 2005-07-07)

Some practices in the production and marketing of live animals for food must be urgently changed to reduce the risk of the H5N1 avian influenza virus spreading from poultry to humans, international animal and human health experts said Wednesday.

The experts made the call at the closing of a bird flu meeting jointly organized by the UN Food and Agricultural Organization (FAO), World Organization for Animal Health (OIE) and World Health Organization (WHO).

"We agreed that it is vital to urgently change or even end a number of farming practices that are dangerous to humans," Chief Veterinary Officer with FAO Joseph Domenech said.

"These include the way chickens, ducks and pigs are raised in close proximity to each other, often with no barriers between themand humans. Another area of concern is wet markets, where animals are often slaughtered in unsanitary conditions," Domenech said.

These practices increase the danger of an interspecies transmission of avian viruses, with the risk of an exchange of genetic material and the emergence of a new virus that could endanger human health, he said.

The experts also concluded at the three-day meeting that priority should be given to the situation in small-scale and backyard farms and suggested taking four actions in this field.

First, farmers should be enlightened on the dangers of high-risk behavior and on how to change their farming practices.

Second, different species of animals should be raised separately and the intermingling between animals and humans should be eliminated.

Third, farmers should be provided with adequate compensations and/or rewards to encourage them to report suspected bird flu outbreaks in their flocks and apply control measures.

Fourth, the vaccination of poultry flocks should be conducted as part of a multi-element response to the bird flu threat in high-risk areas, provided that the vaccine used complies with OIE standards and vaccination is carried out under proper supervision.

About 90 delegates from the three organizations and other institutions attended the meeting on avian influenza and human health which opened on Monday.

SARS vaccine trial runs smoothly to 2nd stage

(China Daily, 2005-07-07)

A total of 300 volunteers will take part in the second-phase human trials of a SARS (severe acute respiratory syndrome) vaccine, experts said yesterday.

Scientists in Beijing will carry out trials among volunteers aged 20 to 60 to test the effectiveness of the vaccine in human beings, Zhong Nanshan, president of Chinese Medical Association, told the Guangzhou-based Nanfang Metropolis.

According to Yin Hongzhang - an official from the State Drug Administration, which is in charge of supervising trials of any new vaccine or drug - the first phase trials involved 36 volunteers at the Sino-Japanese Friendship Hospital in Beijing on May 22, 2004. By early December 2004, antibodies against the disease were found in all volunteers, without obvious side effects.

The vaccine was produced by Beijing's Sinovac Biotech Co Ltd in 2004 after SARS emerged in 2003 and again in 2004, leaving at least 350 dead, mostly in China.

Zhong did not release the exact date of the second phase or which hospitals will undertake the trials.

The 300 volunteers will undergo various medical examinations to record the persistence of antibodies over a nine-month period after the vaccine is administered, Zhong said.

The first-phase test was designed to show the vaccine could build antibodies in the volunteers without side effects, but not to see how long antibodies remain present in people's bodies, Zhong added.

Experts say only after a vaccine has passed three phases of human trials will it be licensed for use on the public.

Up to now, no volunteers who took part in the first-phase trials have reported any side effects, Zhong said.

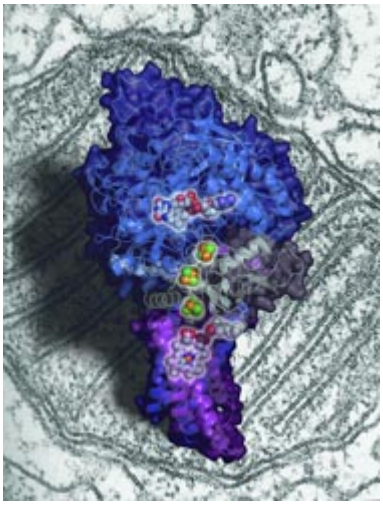
"I am fine and have been healthy since I got the vaccine on May 22, 2004," Lan Wanli, a university student based in Beijing, said yesterday. He was the first person in the world to receive the vaccine.

Lan said he has had a medical examination to test for antibodies but the result is not yet available.

The second round of tests will involve further experimental verification in other aspects, such as dosage and the schedule for injecting the vaccine to gain a better understanding of how it can be used most effectively, experts said.

Chinese scientists solve the crystal structure of mitochondrial respiratory membrane protein Complex II

(CAS, 2005-07-08)



New insights into the mechanism of mitochondria, the subcellular structures which generate energy for living cells, have been obtained by scientists at the CAS Institute of Biophysics (IBP) and Tsinghua University. They have determined, for the first time in the world, the crystal structure of Complex II (also known as succinate:ubiquinone oxidoreductase), one of the four respiratory membrane protein complexes located in the mitochondrion.

Mitochondria, as cellular organelles, are the "energy factory" of the cell and are mainly responsible for cell aerobic respiration. They realize energy transformation through the oxidation-phosphorylation process and provide most of the energy for cell activity. The oxidation process in mitochondria is carried out by four respiratory membrane protein complexes inside the mitochondrial inner membrane (Complex I, II, III and IV).

Since the 1990s, mapping the three-dimensional structures of these four membrane protein complexes has been a major research focus in biology. For many years, scientists have made great efforts, trying to make advances in this area. Until recently, however, only the crystal structures of Complex III and IV had been solved.

Three years ago, a joint team led by Prof. Zihe Rao, IBP director and Vice-dean of the Medical School, Tsinghua University, began their efforts to solve the three-dimensional structure of the Complex II using new methods.

They opted to extract and purify this membrane protein complex from porcine heart and finally completed the determination of its three-dimensional structure, which is comprised of four

different proteins. Their work was published in the July 1 issue of *Cell*.

This work is important because it provides a *bona fide* Imodel for study of the mitochondrial respiratory system, increasing scientists' understanding of one of the most fundamental processes of biological systems, says Prof. Rao, who came back to China in 1996 after spending eight years in the Laboratory of Molecular Biophysics, Oxford University in UK. It will also facilitate the development of therapies to treat human mitochondrial diseases related to mutations in this complex, he notes.

The structure determination of membrane proteins is a very challenging and frequently unrewarding task. Complex II is one of the few membrane proteins whose structures have been solved in the world to date, and is the second such achievement by Chinese scientists. In 2004, IBP researchers succeeded in determining the crystal structure of the major light-harvesting complex of photosystem II (LHC-II).

With the determination of the Complex II structure, scientists now have more than half of the mitochondrial respiratory membranes filled in. What remains is the Complex I protein, and that has become a new target for Prof. Rao and his colleagues in coming years.

China gives tsunami DNA data to Thailand
(CAS, 2005-07-08)

On July 1, China handed over to the Thai government the test data of nearly 1,100 DNA samples of the victims who were killed in the massive tsunami on Dec. 26, 2004.

Chinese Premier Wen Jiabao and his Thai counterpart Thaksin Shinawatra witnessed the brief ceremony as the data was passed from Lu Yongxiang, president of Chinese Academy of Sciences, to the Thai Deputy Foreign Minister Preecha Laohapongchana.

The tsunami catastrophically swept over number of nations in Southeast Asia including Thailand. Statistics from the Thai government showed that 5,395 people were killed by the disaster in Thailand, among whom 1,953 were foreigners.

To accelerate the process of victim identification, countries including China, Australia, the Netherlands, France, New Zealand and Singapore, sent DNA experts to Thailand shortly after the tsunami. DNA samples were also sent to various countries for further testing.

Deng Yajun, a senior researcher from the Beijing Genomics Institute under the Chinese Academy of Sciences, said nearly 1,600 DNA samples were sent to her institute from Thailand.

"We have completed DNA testing on over 1,100 samples and the results were given to the Thai government on the occasion of Thai Prime Minister Thaksin's visit here," she said. "The rest of the samples are still under identification."

The samples were delivered from Thailand's National Police Department to the Chinese Academy

of Sciences, an official with the Chinese Foreign Minsitry said. Chinese scientists tried to identify the victims through DNA testing on the bone and cell samples.

China and Thailand enjoy 30 years of diplomatic ties. During official talks with Chinese Premier Wen, Thai Prime Minister Thaksin expressed his government's appreciation for China's help after the Tsunami disaster.

Thailand and China are like brothers and are friends in need, said Thaksin.

Reports from the Chinese government said that as of March 1, the Chinese government had offered 686 million yuan (about 82.9 million US dollars) to Tsunami-affected countries in addition to 576 million yuan from the public and private sectors.

Thaksin arrived in Beijing Thursday night for a three-day official visit to China. This is his third trip to China as Thai prime minister.

Chinese scientists work out new tool to decode mammal genes
(Xinhua Net, 2005-07-26)

Chinese scientists have worked out a highly efficient tool to decode information in mammal's genome and hopefully to study more closely the mammalian life cycle, including causes for birth defects and certain diseases.

The findings, a transposition system dubbed PiggyBac and its elements, are "landmark findings with the potential to alter the way mouse genetics is carried out worldwide, and with implicationsfor human gene therapy," say editors with Cell, an authoritative international magazine on life science.

The findings have been summarized into a thesis and will be published on the upcoming issue of the magazine, according to sources with the Shanghai-based Fudan University and Cell's website.

Entitled "efficient transposition of the PiggyBac Transpositionin Mammalian Cells and Mice," the thesis will make a cover story, said Prof. Xu Tian, head of the university's developmental biology institute and leader of the research team.

The first author of the thesis is Ding Sheng, a third-year graduate student at Fudan University.

In Chinese, the PiggyBac, a DNA transposon from a moth, is named after "Kua'e", the Hercules in Chinese legends. Its elements can be used for genetic manipulation of mice, including generating transgenic mice.

The researchers have used the transposable elements in mice because earlier researches found mice and humans each have about 30,000 genes, among which 99 percent are similar. Besides, more than 90 percent of genes associated with diseases are identical inhumans and mice.

The new tool can also pinpoint genes for certain diseases and build models for gene therapy and other new therapies and medications.

The international Human Genome Project has found through sequencing that mammals have around 30,000 genes, but scientists are yet to decode the information in the genome.

Scientists find genetic evidence for southern origin of modern humans in East Asia
(CAS, 2005-07-27)

Genetic studies have provided evidence for an African origin of East Asian populations, but their prehistoric migration routes in the Asia region remain a long-standing controversy. On the basis of the genetic evidence generated so far, particularly from Y-chromosome data, CAS researchers recently discovered that early modern humans entered the region from its southern part, and then they made a northward migration about 25,000 - 30,000 years ago.

Researchers have been debating on modern human origins for a long time. Some of them, mostly archaeologists, believe that the abundant hominid fossils found in China and in other regions of East Asia show evolutionary continuity, not only in morphological characters, but also in spatial and temporal distributions. This observation implies that the evolution from *Homo erectus* to *Homo sapiens* and then to *Homo sapiens sapiens* (modern man), took place in East Asia as well as in Africa. On the other hand, the Out-of-Africa hypothesis, which suggests that local populations outside Africa were completely replaced by modern humans who originated in Africa, has been supported by extensive genetic evidence and by archaeological findings.

The hypothesis was reinforced in 2001 by a study of Y chromosomal DNA, in which an international consortium including Chinese researchers showed that East Asian populations migrated out of Africa and suggests that little or no interbreeding of Homo erectus and Homo sapiens occurred after the migration. However, the prehistoric peopling of East Asia by modern humans still remains controversial with respect to early population migrations, which is highlighted by genetic disparity found by previous genetic studies between the northern and southern populations of the East Asians. Geneticists speculate that the disparity must have something to do with the itinerary covered by the forebears of today's Eastern Asian people in their prehistory migration from the Grand Rift in the East Africa.

A recent study made by a research team headed by Prof. Su Bing from the CAS Kunming Institute of Zoology (KIZ) has shed new light on the issue. As reported in July 14 issue of *the American Journal of Human Genetics*, the researchers carried out a systematic genetic screening of the 2,332 male individuals sampled as 40 representative populations from East Asia by comparison of Y chromosome's genetic tags. Their study shows that the Y-chromosome haplogroup specific to East Asias is more diverse in southern population than their northern cousins and the southern population is found to have their own specific haplogroups while only part of East Asian specific haplogroups exist in the northern populations.

Based on these findings, the KIZ scientists came to a conclusion that the southern population should be the ancestral while the northern population was its posterity as a result of the former's migration from the south to the north which occurred about 25,000 to 30,000 years ago. In other words, the earliest inhabitants in the Orient had been the southern population originating from east

Africa and then they migrated to the north. So the earliest migratory route of modern humans in East Asia should be from south to north.

China starts producing pig-borne disease vaccine
(Xinhua Net, 2005-07-28)

People in southwest China that affected by a pig-borne disease are expected to receive vaccines soon.

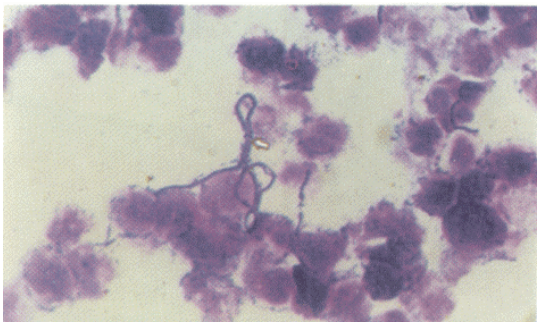
According to experts with the team sent by the Ministry of Agriculture to the area of the outbreak, the vaccines for streptococcus swine type II, a bacteria carried by pigs, will soon be batch-produced in south China's Guangdong Province and are expected to reach Sichuan Province in about one week after being inspected by the Ministry of Agriculture.

Yongshun biomedical company in Guangdong will be the first to mass-produce the vaccines. It has already produced a small number of vaccines after receiving emergency training from the expert team.

Ning yubao, a member of the expert team and researcher with theChina veterinarian medicine monitoring institute, said the vaccineshould help control the outbreak.

The Ministry of Health announced 152 confirmed or suspected infections by noon on Thursday, killing 31 people. All those infected are reported to have handled sick pigs.

Gene sequence of deadly big bacteria completed
(Xinhua Net, 2005-07-28)



Chinese scientists have completed genetic sequencing of the bacteria which is confirmed the ultimate cause of a strange pig-to-human infection, that had killed 27 people in southwest China's Sichuan Province by Wednesday.

The gene sequencing test shows the bacteria, streptococcus suis, has exactly the same gene sequence in sick pigs and humans, said Xu Jianguo, an epidemic prevention expert with the Chinese Center for Disease Control and Prevention.

Starting from July 19, researchers from the center have separated the bacteria from sick pigs as well as the blood and spleen samples of villagers stricken by the strange disease, Xu said.

Xu and his colleagues are carrying out further research to study how closely the bacteria from pigs and human is genetically correlated in order to find molecular biological evidences of how the disease spreads from pig to human.

By Wednesday noon, the number of people infected with the bacteria had reached 131, 14 more than the day before, Ministry of Health said.

Although most cases were reported in the cities of Ziyang and Neijiang, six towns in other parts of Sichuan reported six human infection cases Wednesday, according to a statement from the

ministry.

Leading veterinary experts and officials have moved to dispel public fear, saying China has the technology to control the outbreak, which poses no permanent threat to either livestock breeding industry or human beings.

"We have the technology and procedures to bring the disease under control," Thursday's China Daily quoted a Ministry of Agriculture official, as saying.

The official said, under anonymous condition, that China had developed pig vaccines.

Traditional Chinese medicinal capsule for curing HIV/AID undergoes clinical test
(People's Daily, 2005-07-31)

A traditional Chinese medicinal capsule capable of curing HIV/AIDS has been put under clinical test with the approval of the State Food and Drug Administration.

Chen Dagang, inventor of the capsule and leader in charge of the clinical test, said the clinical test had been carried out in a number of medical establishments in Beijing, including You'an Hospital, the No. 302 Hospital of the Chinese People's Liberation Army, Peking Union Medical College Hospital and Ditan Hospital since July 7, and the test would be completed in nine months.

Pre-stage research in the past five years proves that the capsule, made from 16 kinds of medicinal herbs, is capable of restraining HIV integration enzyme from outside the human body and curbing the virus from duplication inside the infected cell, according to Chen.

Integration enzyme is the third essential element for HIV duplication, or in other words, HIV without integration enzyme is not infectious, said Chen, adding that his capsule, like any other synthetic drugs, had to overcome drug-resistant substance occurring in the process of usage as of the first-generation anti-retrovirus medicine, which might gradually lead to a weakened curing effect.

1.4 Key Technologies

CAS researchers develop a type of new materials: metal plastics
(CAS, 2005-07-18)

A research team headed by Prof. Wang Weihua from the Key Laboratory of Extreme Conditions Physics of the CAS Institute of Physics has developed a new kind of cerium-based bulk metallic glasses with an exceptionally low glass transition temperature, similar to or lower than that of many polymers.

The polymeric glass is organic materials with a very wide range of application due to its higher glass-forming ability, lower glass transition temperature, and more stable super cooled liquid region than those of metallic glasses. The thermoplastic nature of common glassy polymers is processed in molding and imprinting procedure. For metallic glasses, however, engineering application fields are limited because of the limitation of alloy size and the lack of workability and machinability. While many metallic glasses are now available in bulk form, similar exploitation of their viscous flow is impeded by higher glass transition temperature and lower resistance to crystallization. Yet the mechanical and electrical properties of metallic glasses are, for some applications, far superior to those of polymers.

CAS scientists demonstrate that, in near-boiling water, these materials can be repeatedly shaped, and can thus be regarded as metallic plastics. Their resistance to crystallization permits extended forming times above the temperature and ensures an adequate lifetime at room temperature. Such materials, combining polymer like thermoplastic behavior with the distinctive properties of metallic glasses, are highly unusual for metallic alloys and have great potential in applications and can also facilitate studies of the super cooled liquid state.

HK robotic claw to help deep-sea exploration
(Chinanews, 2005-07-19)

A Hong Kong-designed robotic claw will be used by Ifremer, a French oceanographic and environmental research agency, for deep sea exploration, reported South China Morning Post on Monday.

The titanium claw is slightly larger than a human hand with the weight of less than 1 kilogram. It will be attached to a robotic arm on Victor 6000, an unmanned submarine made by Ifremer, which with a reach down to 6,000 meters is one of the deepest divers ever built.

According to designers of the gripper, it is designed to retrieve even a pin by blind-gripping or passive self-adaptive motion, said Ng Tze-chuen, a private dentist who designed the claw with Yung Kai-leung, a Polytechnic University engineering professor.

Vincent Rigaud, director of Ifremer's underwater systems department based in France, said the new invention could be used on wreck exploration or for scientific purposes for deep-sea exploration. The gripper will undergo further tests before executing the task.

China begins preliminary research on 1,000 teraflops supercomputer
(People's Daily, 2005-07-22)

China has begun preliminary research for the "1,000 teraflops computer" project for the "11th five-year plan" period. Lenovo Group will head the project.

The supercomputer system that calculates 1,000 teraflops per seconds will be needed to meet demands of national economy's development and social progress during the 11th five-year plan. China cannot depend on other countries in developing the supercomputer.

It is reported the US plans to develop the 1,000 teraflops supercomputer in 2010. "Both China and the US will face common technological difficulties although they have different starting point," said an executive of Lenovo.

During the preliminary research, in-depth analysis of the huge discrepancy between China's current technological foundation and the technical demands of the supercomputer will be made. In next year the key technologies of supercomputer will be studied fully.

Supercomputer first appeared in 1970. In June 2004, China's independently developed 10 teraflops "Shuguang 4000A" became one of the top 10 supercomputers in the world, which signifies that China-made supercomputer made important breakthroughs in multiple core technologies.

At the end of 2004, IBM announced success in developing the 100 teraflops supercomputer. On July 13, China's National Research Center for Intelligent Computing systems (NCIC) and the Dawning Company announced beginning research on a supercomputer with a peak calculation speed exceeding 100 teraflops per second. According to Li Jun, president of the Dawning company, China's 100 teraflops "Shuguang 5000" supercomputer will be put into use in 2008. Japan, in the mean time, is hastening the development of 100 teraflops supercomputer too.

The 3rd Chinese National Committee for WDC set up in Beijing
(CAS, 2005-07-25)

The Third China's National Committee of the World Data Center was set recently in Beijing. It was decided at the meeting that Prof. Li Jiayang, Vice President of CAS, will succeed Prof. Sun Honglie to head the National Committee.

The committee is to optimize the management and evaluation systems and to further encourage data and information exchange among the internal scientific data centers as well as the exchange with the WDC headquarters, other WDC centers and other data services at home and abroad, according to Prof. Li. Meanwhile, the committee will encourage the Chinese scientific data centers to get in touch with the current major scientific programs across the world in order to bring the China Center for WDC into its full play.

China entered the WDC in 1988 and presently, there are nine data centers focusing on respective disciplines, under the administration of the coordination committee attached to the WDC-D.

Experts speak highly of world data centers in China
(CAS, 2005-07-25)

(China has achieved enormous progress in data sharing during past years, and is hopeful to become a leading country in the field, says Prof. Thomas Ferris Webster, Chair of WDC Panel.)

From July 4 to 8, a panel from the World Data Center System (WDC) made an on-the-spot inspection to world data centers in China.

The 9-member panel visited the nine centers and two candidates for future centers in Beijing, Tianjin and Lanzhou, respectively. After the inspection tour, the panel comes to its conclusion that encouraging and substantial progress has been made in China and the majority of the inspected centers are able to meet the requirements set by the WDC and their operation is in compliance with the relevant norms. China's successful practice provides an exemplary model for other countries in this aspect, the panelists added. The centers prove to be capable of playing a great leading role for the development of world data centers in Asia and even in the world.

The panel also made concrete suggestions for the centers, urging them to further strengthen international cooperation and adopt English as their working language.

The WDC was created by the International Council for Science (ICSU) to archive and distribute data collected from various observational programs. At present, the system has five regional centers in the US, Russia, Europe, Japan and China respectively. Each regional center has its own

centers in different disciplines, totaling 53 in number worldwide. By now, there are nine centers under WDC-China. Its holdings include a wide spectrum of disciplines, ranging from seismology, space, astronomy, geophysics, geology, glaciology, geocryology to renewable resources and environment.

Caption: Prof. Thomas Ferris Webster is an oceanographer at the US University of Delaware and Chair of WDC Panel, China has achieved enormous progress in data sharing during past years, and is hopeful to become a leading country in the field.

Prototype of "MEMS Micro-generator System" successful

(MOST, 2005-07-25)

Recently, the prototype of the 863 Program MEMS project "MEMS Micro-generator System" passed the acceptance check organized by the Office of Automation Technology. This project was undertaken by Chongqing University. The successful development of the MEMS micro-generator will lay a solid theoretical and technical foundation for the integration of mini-type energy and micro-sensor, micro-performer, circuit and micro-system.

This prototype has the merits of miniaturization, high efficiency, long life, no battery charging or replacement of fuel, no waste output, convenient and flexible use and mass production. It possesses extensive application prospects and market demand in the fields of imbedded device, distributed sensor system, wireless communication, traffic, toys, aviation & space flight and environment monitoring.

China develops spherical robot

(People's Daily, 2005-07-26)

After years' arduous efforts, the research group led by Professor Sun Hanxu from Beijing University of Posts and Telecommunications have developed China's first spherical robot to which the country enjoys intellectual property rights.

The robot, a project under the National Natural Science Foundation, has reached world advanced level and passed the appraisal by experts.

Beijing University, as asked by the appraisal panel, examined the robots and determined that the robot is unprecedented both at home and abroad.

The robot laboratory of Beijing University of Posts and Telecommunications adopted a brand-new, highly effective means of internal drive, under which the robot can move smoothly in straight line and arc, climb on slope of 20 degrees and realize rotation.

Standing still, the robot can start moving in any direction. The kind of spherical robot has broad prospects for application not only in education, scientific research, field operation and civilian transport but also in anti-terrorism and other state-of-the-art fields.

Report meeting on scientific data sharing project standards

(MOST, 2005-07-29)

In order to promote the progress of standardization of the scientific data sharing project, the office in charge of the scientific data sharing project held a "Report Meeting on the Progress in Standard Development for the Scientific Data Sharing" in June in Beijing. Leaders from the Department of Basic Research of MOST, members of the working group, experts from the relevant fields and the office staff were present at the meeting.

The working group of the scientific data sharing project briefly reported on the progress in the development of standards for the scientific data sharing project, focusing on the three core standards, i.e. Public Data Meta-directory, Meta-data Standards and Plan for the Classification and Numbering of Scientific Data. In order for the pilot institutions to put forward suggestions on improving these standards, in light of their own experience, detailed explanation was made on the function of the standards, the scope of application, technical contents, targeted problems, solutions, and suggestions on operation.

At the meeting, official and experts held exchanges and discussions on scientific data sharing standardization. They also put forward suggestions for improvement in combination with their own experiences. The meeting put forward requirements that the pilot institutes attach great importance to standard development, make a careful study of the suggestions submitted by the working group and put forward suggestions for improvement. It was also suggested that the working group spare no efforts to summarize the feedback and make timely improvement.

China-made chips infringe on no foreign intellectual property
(Xinhua Net, 2005-07-29)

The Chinese Academy of Sciences (CAS), developer of the 64-bit Godson-2 microprocessor, said here Friday that it infringes on no international intellectual property rights.

The CAS announcement referred to recent reports that the Godson architecture is considered as "an imitation" of the chip architecture invented by a US-based chip company, MIPS Technologies. Godson-2 is about "95 percent MIPS compatible," according to the reports.

Hu Weiwu, principal investigator for the Godson program who works at the CAS Institute of Computing Technology, said, "It's totally inappropriate to charge us with intellectual property infringement on the ground that our chips are 95 percent compatible with MIPS products."

"We built two different apartments, but with two bedrooms each facing the same direction. Could anyone conclude that one copied another?" Hu said.

Hu and his team worked for five years to develop chips in the Godson family. In the past years, he said, most of his team members worked about 80 hours a week. They produced the first Godson chip in 2002 and upgraded it to its latest version of Godson-2, which roughly equals to Pentium III in technical performance.

"In general concepts," Hu said, "many well-known brands have 95percent similarity."

"But at the micro-architecture level," he added, "Godson-2 is a totally different story from the MIPS chip."

MIPS develops a unique repertoire with 12 unaligned memory access instructions. The US

company has obtained patents for such instructions in the United States, Japan, the Republic of Korea, Canada and Australia.

"We didn't copy their repertoire and Godson-2 is run in a different way," Hu said.

The possible infringement dispute was aroused by a report done by a US market research firm, In-Stat.

China is already capable of designing world-class microprocessors, In-Stat said. The only restraint on their performance is that Chinese chip-fabrication technology lags about two generations behind the rest of the industry.

However, China is catching up fast and the Chinese could gain access to state-of-the-art fabrication technology by outsourcing some manufacturing to independent foundries outside China, the firm said.

China's ambition to make its own microprocessors will affect microprocessor vendors all over the world, In-Stat expected.

"The In-Stat assessment on Godson-2 is mostly objective," Hu said, "but some content of the assessment was distorted by a few irresponsible mass media outlets."

Hu acknowledged that his research and development team used to label Godson-2 as "MIPS-like" for marketing benefits.

"We're now realizing that it was not wise to do so," Hu said.

Li Guojie, a Chinese Academy of Engineering academician who also heads the CAS institute, said, "We always keep high alert on our intellectual property strategy and try to evade any traps laid by foreign companies."

"As for Godson-1 and Godson-2," Li said, "We've applied for more than 20 patents of invention with some having been granted."

Huo Yutao, a Beijing-based information technology analyst, said, as more and more consumer-electronics embedded with Chinese-made microprocessors are exported overseas, more intellectual property disputes are likely to occur.

1.5 Structure of Matter

Second phase of BEPC renovation in full swing
(CAS, 2005-07-13)

(Prof. Fang Shouxian turns the key to shut off the storage ring of the 17-year-old BEPC on July 4)

The 640-million-yuan upgrading project of the Beijing Electron-Positron Collider (BEPCII) has entered into its second phase. On July 4, the dismantlement of the old and the installation of the new with the old single ring being replaced by a new double ring formally started. This is the most crucial and difficult "battle" for the upgrading project. Before this, the first phase - the Linac upgrade - has been finished successfully, and the development and fabrication of the storage ring and detector components are well under way.

The circumference of a successful double ring collider is mostly over 2 kilometers, while that of the BEPC is only 240 meters. What's more, its cross section and the interaction region are narrow and short, the BEPCII has been designed as such that in its 240 meters circumference, two storage rings, one for electrons and the other for positrons, will be built. The performance will be improved after the upgrade by a factor of 100 compared to the old single ring. At the same time, the BSRF insertion devices and front ends must be increased, all of which have added great difficulties to the upgrade project.

Quality is the guarantee to the upgrade schedule and the basis for reaching the designed specifications, stresses Prof. Chen Hesheng, BEPCII Project Manager and IHEP director. He further calls on researchers and engineers in the project to pay special attention to quality, and every detail in all links of the upgrading project, thus ensuring the second phase being accomplished in an all round way.

Prof. Pan Jianwei honored with Fresnel Prize by the European Physical Society
(CAS, 2005-07-19)

Prof. Pan Jianwei (J. W. Pan), a physicist of the CAS-affiliated University of Science and Technology of China (USTC), has received the 2005 Fresnel Prize of the European Physical Society.

Prof. Pan was selected by the award's jury for "his pioneering works on experimental demonstration of quantum teleportation, entanglement swapping, entanglement purification and multi-photon entanglement. "

Prof. Pan graduated from the Department of Modern Physics, USTC, in 1992, and received his Ph. D from University of Vienna in 1999. He has been engaged in the studies into quantum communication for many years. Some of his pioneering work in the field includes the first realization of quantum teleportation in the world, entanglement swapping, preparation and manipulation of three-, four- and five-photon entanglement, and entanglement purification.

In 1993, in cooperation with Dr. D. Bouwmeester, Prof. Pan was the first ever in the world to accomplish distant transmission of unknown quantum states and the resulting paper was published

in the Nature. His paper was also appraised by the prestigious journal to be among the "Twenty-one Classic Papers in a Hundred Years of Physics".

In April 2005, Prof. Pan and his colleagues demonstrate that desired entanglement can still survive and be used in secure quantum communication after entangled photon pairs have been distributed through the noisy ground atmosphere of 13 km, which is the longest yet and well beyond the effective thickness of the aerosphere.

1.6 Transport and Space

China prepares to export 1st satellite
(Xinhua Net, 2005-07-01)

(The Jiuquan Satellite Launch Center is seen in this undated file image.)

Work on the development, manufacturing and launching of China's first satellite for a foreign buyer is going on smoothly as scheduled, China's major space product supplier and service provider announced here Friday.

Wang Haibo, president of the China Great Wall Industry Corp., said preliminary designs of the project passed the evaluation of a panel of experts representing the buyer of the satellite, Nigerian National Space Research Development Agency (NASRDA).

According to contracts signed in December 2004 between the Chinese company and NASRDA, the communications satellite, known as NIGCOMSAT-1, will be based on China's latest model of satellite platform, DFH No.4.

With 28 transponders, including 4 C band, 18 Ku band, 4 Ka band and 2 L band ones, the satellite will be capable of meeting the requirements of Nigeria for telecommunications, broadcasting and broadband multimedia services, said Wang.

The platform is designed to have a lifespan of 15 years and 5,200 kg in weight, and the transponders with a designed power of 8 kw will be 800 kg, he said.

To be designed, made and launched by China's space sector, he said the satellite will be put into the orbit by Chinese-made Long March 3 B carrier rocket at the Xichang Space Launch Center in southwest China's Sichuan Province, and will be delivered to NASRDA after it is in the orbit in early 2007.

The satellite represents the first one China to export to a foreign country although China also proved to be a reliable launch service provider in the world as it has launched 30 satellites in24 commercial flights since 1990.

Wang said this is also the first time for China to provide a package of space products and services, including design, manufacturing, orbital delivery, ground products and services, to an overseas client.

The satellite will be monitored and tracked by a ground station to be built in Abuja, the capital of Nigeria, by the Chinese firm, and a ground station in Kashi in northwest Xinjiang Ugyur Autonomous Region.

Moreover, the Chinese company will offer operating support services and be responsible for training Nigerian technicians.

The Chinese company, the international agent of the China Aerospace Science and Technology Corp. that produces carrier rockets and satellites, was awarded the deal late last year after it beat 21 international rivals in a public bidding, including those from the United States, France, Britain, Italy and Isreal.

Ahmed Rufai, manager of NIGCOMSAT-1 project, said that all parties of the satellite contract are satisfied with the progress in implementing the deal.

The satellite will help Nigeria to be turned into a knowledge-based economy from its over-reliance on oil trade, he said.

Experts gather in Guangzhou for Asian Games Intelligent Transport
(MOST, 2005-07-04)

Recently, "Guangzhou Intelligent Transport Construction and Development Seminar" jointly conducted by the Coordination Office of China Intelligent Transport System (ITS) and the People's Government of Guangzhou Municipality convened in Guangzhou. Present at the seminar were MA Songde, Head of the ITS Coordination Office and Vice Minister of Science and Technology, XU Jing, Executive Vice Head of the ITS Coordination Office and relevant leaders from the member organizations of the ITS Coordination Office including the Ministry of Finance, Ministry of Construction, Ministry of Communications, CAAC and the General Logistics Department of PLA.

LIN Yuanhe, Executive Vice Mayor of Guangzhou delivered the report of "Guangzhou Asian Games Intelligent Transport Development Program" on behalf of Guangzhou Municipal Government, proposing the development and application of intelligent management, improvement of traffic operating efficiency and the establishment of a comprehensive traffic and transportation system that is highly efficient, speedy, humane, intelligent and ecological. Deputy Director-General XU Jing reported the ITS development situation and future work plan to the leaders and experts at the meeting.

Academicians LI Deyi, SUN Jiaguang, ZHONG Shan, ZHANG Luqian, LI Bohu and JIANG Jingshan from the Chinese Academy of Engineering participated in the discussion on the development of Guangzhou Asian Games Intelligent Transport and put forward suggestions for the development planning of Guangzhou intelligent transport.

Comet collision closely observed by Chinese scientists
(Xinhua Net, 2005-07-04)

A Chinese astronomer said here Monday the collision of a US spacecraft with a speeding comet willhelp the human being to explore origin of life on the Earth.

Wang Sichao, a senior researcher with the Chinese Academy of Sciences (CAS) Nanjing Zijinshan

Observatory, said over a telephone conversation with Xinhua that comets have brought water,ice and organic substance to the Earth from the outer space.

"Organic stuff could evolve into life in suitable environment,"Wang said, adding that study on comets might give scientists keys to unravel mystery of life beginning.

The US National Aeronautics and Space Administration (NASA) blasted off a spaceship, named Deep Impact which coincides with a Hollywood 1998 movie, January from Cape Canaveral, Florida.

In 1994, a comet crashed into the Jupiter, which aroused worry among the Earth's residents.

Wang said his observation team has already taken pictures of Tempel 1 Saturday evening with a high-resolution telescope. His team will closely track the collision and movement afterwards.

Skygazers in the Western Hemisphere might able to see a shiningbrighter than normal.

An expert with Beijing Observatory said Chinese skygazers couldalso view the celestial fireworks, which might last for several hours after the collision, with professional telescopes.

A Beijing astronomy fan told Xinhua that he and his friends with similar interest will surf on websites, such as www.space.comand www.nasa.gov/deepimpact, to view live images.

Huang Chunping, a leading engineer who oversees the rocket system for China's first manned space mission in 2003, said that China is also able to send an impactor into the space.

"But we still need to make sure that scientific data could be successfully transmitted back to the Earth via impactor's mothership," Huang said.

China launches another experiment satellite
(Xinhua Net, 2005-07-06)

China launched a new satellite early on Wednesday, which will test conditions in space over the next three years. The Long March carrier rocket was sent off from the Jiuquan Satellite Launch Center in western China.

China to host int'l symposium on clean vehicles
(Xinhua Net, 2005-07-08)

An official with China's Ministry of Science and Technology said here Friday his ministry will organize the Fourth International Clean Vehicle Technology Conference and Exhibition from Nov. 23 to 26 in Beijing.

Xu Jing, vice director of the ministry's hi-tech development and industrialization department, said the scheduled conference will focus on clean vehicle policies, clean fuel and energy-saving technologies, alternative fuel and alternative fuel vehicle, electronic and fuel cell vehicles.

As for the exhibition, he said, visitors will see vehicle products using clean fuel and the state-of-the-art hybrid electronic and fuel cell vehicles invented by world-leading car manufacturers.

During the conference and exhibition, a fleet of clean fuel vehicles will parade the streets of Beijing. Conference organizers will also invite officials, business people in the auto industry, journalists and consumers to observe clean fuel vehicles.

China's hi-resolution space telescope in 2008

(China News, 2005-07-13)

According to the People's Daily, China has succeeded in independently developing its first space solar telescope (SST), which will be launched into space in 2008. This telescope has obtained acceptance certificate from authoritative departments.

This China-developed SST will be attached to a man-made satellite and carried into the 730 km-high sun synchronous orbit. It is designed to work three years in space after the launch. The telescope will be used to study the solar magnetic field, fine structures of the sun surface and release of solar flares and to forecast solar activity.

This telescope, five meters in length, two meters in width and two meters in height, has a couple of one meter-caliber main optical telescopes, making it the largest caliber SST in the world. With a spatial resolution capability of 70 km swath width on the solar surface 150 million km away from the earth, this telescope has a far sharper eye than that of the on-duty solar telescope SOHO, which was jointly developed by the US National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA). The US, Japan and the UK are now jointly developing their own solar telescope called SolarB, which has only half the capability in optical resolution than that of the China-made telescope.

According to Jin Shengzhen, a researcher with the Chinese Academy of Sciences (CAS) National Astronomical Observatories, the telescope will be the space instrument with the highest resolution to observe the macular outburst in 2009.

China-made telescopes race to space

(Xinhua Net, 2005-07-14)

A race into orbit is underway as the government decides which of the country's first two China-made space telescopes is to be launched first.

The Chinese Academy of Sciences (CAS) announced two firsts yesterday with the successful development of the country's first space solar telescope (SST) and its first hard X-ray modulation telescope.

"The final result of which telescope will be manufactured and launched first and when will be decided in August," said Jin Shengzhen, a researcher with the National Astronomical Observatories of CAS, which is leading SST development.

"Since both projects have gone through years of research and development and boast highly advanced technology, it is only a matter of which goes up first."

Jin said once the government approves the SST project, the launch will probably be in 2010.

The SST will be one metre in diameter, one of the largest of its kind in the world so far, and will be positioned in a Sun-synchronous orbit 730 kilometres from the Earth. Mostly manufactured in the United States, Japan and Europe, existing SSTs are 30 to 40 centimetres in diameter.

The new telescope's resolution ratio will be twice that of the Solar B SST, which is being manufactured by the United States, Japan and the United Kingdom and is expected to be launched next year, Jin added.

Another outstanding feature will be its unique two-dimensional spectral graph, which can "give a more precise analysis of the solar magnetic field - one of the most puzzling areas of physics," Jin said.

With a planned operational life of three years, the SST's mission will be to reveal information about the solar magnetic field, solar gas, solar flares, and other solar activity.

Distinct from the hundreds of orbiting telescopes, China's satellite will work on an "innovative but simpler" system, providing "much clearer images," said Wu Bobing, one of the leading scientists engaged in the institute's research.

The telescope, using the "direct demodulation method," will be less than half the size of its predecessors, cost only one fifth the price and yet provide much better quality images, he said. "Once the State approves the project this year, I believe it can be sent into space in three or four years, at a cost of about 600 million yuan (US$73 million)," Wu said.

"The telescope will have more powerful functions than the Hubble Space Telescope," said an official of the National Astronomical Observatories who gave only his surname, Xue. "It is expected to be put in an orbit four times as far from the Earth as the moon is."

The country is also debating the implementation of its part in the World Space Observatory Project.

China to launch manned spacecraft in October
(China Daily, 2005-07-18)

(A spacesuit worn by Yang Liwei, China's first man in space was displayed on a space exhibition.)

China may launch its next manned space mission within three months, an aerospace official revealed yesterday.

The country is also planning to put at least two more meteorological satellites into orbit before 2008 to provide better weather forecasting for the Olympics in Beijing, utility officials said.

"The manned spacecraft (Shenzhou VI) will ... preferably be launched in early October," Sun Weigang, director of the Space Department of the China Aerospace Science and Technology Corp, told China Daily.

It was the latest update of the launch timetable for the country's second manned space flight,

following Shenzhou V in October 2003.

Although Sun did not provide details about the new mission, space officials earlier said China has been preparing for the second manned venture into outer space since the first mission, piloted by Yang Liwei, almost two years ago.

Sun Laiyan, chief of the China National Space Administration, earlier told China Daily that Shenzhou VI will carry two men into orbit for five or six days.

The duo will be chosen from among 14 air force fighter pilots.

The trainees have stepped up training in weightless conditions and learnt to repair faults and deal with other emergencies in space, sources close to the country's space programme said.

Sun Weigang said China would also launch two recoverable scientific and experimental satellites by the end of the year. The two satellites will be recovered within three weeks of their launching, he said.

Sun's remarks were made on the sidelines of a ceremony yesterday in Beijing marking the handover of a meteorological satellite from its maker - China Aerospace Science and Technology Corp - to its user, the China Meteorological Administration.

The meteorological satellite, FY-2C, named after the initial letters of the Chinese words for "wind" and "cloud", cost 2.4 billion yuan (US$289 million) to develop and build. A Long March rocket blasted it into space last October.

In-orbit tests indicated the geo-stationary satellite, with an expected lifetime of three years, had met all the designed requirements.

Yang Jun, director of the National Satellite Meteorological Centre, said FY-2C, which watches the Earth from a height of 36,000 kilometres, will substantially improve the country's ability to monitor weather changes and its attempts to mitigate natural disasters.

Qin Dahe, director of the China Meteorological Administration, said every country covered by the FY-2C satellite could receive and use its meteorological data.

To serve the 29th Olympiad in Beijing, China is planning to send at least two further weather satellites into space before 2008, Yang said.

"Satellites in the pipeline include a FY-2D geo-stationary satellite, to be launched in 2006, and a FY-3A polar orbiting meteorological satellite that will hopefully be blasted into space in 2007," he said.

Chinese scientists detect greatest flare in galaxy

(People's Daily, 2005-07-21)

Astronomers have detected the biggest flare in the cosmos and ascertained the explosion occurred some 20,000-30,000 light-years away from the earth, which leaves human beings safe.

Dr. Atsushi Miyazaki, a Japanese astronomer who is now working at the Chinese Academy of Sciences (CAS) Shanghai Astronomical Observatory for his post-doctoral research, told Xinhua Wednesday in an interview that "The greatest flare in observation history was so powerful that it made our eyes blur through the telescopes."

"Telecommunications over the earth surface were temporarily affected by the explosion," Miyazaki said.

On Dec. 27 last year, a soft gamma-ray repeater, SGR1806-20, inSagittarius exploded and emitted a giant flare.

Soft gamma-ray repeaters, remarkable high-energy sources in the Milky Way, are believed to

originate from neutron stars with intense magnetic fields. Scientists call SGRs with extremely high magnetic fields magnetars.

In the 0.2-second explosion, total gamma-ray radiation, roughly equaling that from the sun in 250,000 years, emanated from the magnetar.

The Very Large Array in the United States, the Giant Meter-wave Radio Telescope in India, the Australia Telescope Compact Array inAustralia and the Nobeyama Millimeter Array in Japan closely tracked the flare. An international collaborative research team published the astronomical finding in the April 28th issue of Nature.

Leading a team at the Nobeyama Millimeter Array for detecting, Dr. Miyazaki obtained a gamma-ray decay profile.

"It was far enough and just like something happened in other people's backyard," he said.

"If it had occurred next door," he said, "the human beings might have faced a lethal threat."

Astronomers suggest that any explosion of such intensity withinthe range of ten light-years would destroy all life on earth.

The magnetar, with a diameter of 20 kilometers but a mass 1.5 times of the sun, had a magnetic field 1,000 trillion times stronger than that of the earth, which results from its high-speed rotation. It rotated a circle in every 7.5 seconds.

"Too powerful magnetic fields might tear up magnetars and make them explode," said Shen Zhiqiang, a senior researcher at the CAS observatory who closely works with Dr. Miyazaki.

Scientists have already detected three such explosions. The latest one was 100 times larger than the previous two in gamma-rayradiation.

Astronomers found a total of 12 such magnetars in the galaxy, with the nearest one to the earth being 13,000 light-years away from the earth. Every 1,000 years, they estimated, one such magnetar would appear. "The earth is totally safe right now," Shensaid.

"We still cannot predict the explosion of magnetars," Shen said, "But we're confident in calculating how far the explosion is from us."

Some scientists think that the extinction of dinosaurs on the earth might have been caused by similar gamma-ray radiation.

Chinese women astronauts set to fly by 2010

(China Daily, 2005-07-26)

Chinese women astronauts will soon be reaching for the stars along with their male counterparts, an official with China's space programme said last night.

They will embark on a space mission no later than 2010, working as flight commanders or

on-board engineers, Hu Shixiang, deputy chief commander of China's Manned Space Programme, told China Daily.

The selection process, to formally start in 2006, will choose at least four women astronauts, but will not necessarily favour professional pilots, Hu said while attending a reception for three American astronauts, who arrived in Beijing last week.

This year China's air force has selected around 30 women pilots, some of whom are reportedly intended to be future astronauts.

"It is true women aviators have some advantages in terms of flight experience and physique, but we need payload experts with strong science and engineering background to do experiments in outer space," he added.

That means China will focus on women with science and education backgrounds when looking for candidates, Hu said.

The scenario contrasts with the selection of China's first group of male astronauts, including Yang Liwei, who conducted China's maiden manned space flight nearly two years ago. Yang and his 13 colleagues, all former fighter pilots, are preparing for the country's second manned space flight, scheduled for this autumn.

"The life support and environment control systems of our launch vehicles and spacecraft will allow average people, who are physically adequate and with some training, to fulfil space missions," Hu said.

In the near future, the norm will be for Chinese astronauts, men and women, to work together as partners in journeys to outer space, he said.

Mae C Jemison, one of three visiting US astronauts, told China Daily: "China should have women astronauts as soon as possible, even earlier than next year, because you lose out on 50 per cent of the talent that are available if you don't have women included."

Jemison, who beca me NASA's first black woman astronaut in 1987, said she had full confidence in the talent of Chinese women, not only in terms of operating space vehicles, but also in terms of designing the vehicles and understanding how space research can be most beneficial.

Jeffrey B Greene, president of the Sino-American Aviation Heritage Foundation, which hosted the US astronauts' China tour along with the Chinese Society of Astronautics, yesterday said he hoped Chinese and American crews would one day fly together in the same spacecraft for peaceful space exploration.

The astronauts' tour, lasting until August 3, was sponsored by the Du Pont China Co.

China gets Galileo application projects from Europe
(Xinhua Net, 2005-07-28)

A Chinese general contractor for the European Galileo Project obtained here Thursday three application projects for developing the world's most advanced satellite-navigating positioning technologies.

The Galileo Joint Undertaking (GJU) endorsed China Galileo Industries (CGI) to develop the fishery application system, the location-based services and special ionospheric studies for the Galileo regional augmentation services.

The European Union (EU) and the European Space Agency kicked off the 3.5 billion-euro Galileo Project in March 2002 to develop a satellite-navigation system independent of the U.S. military global positioning system (GPS) monopoly.

The project will launch 30 navigation satellites, which will provide remote sensing data with resolution up to one meter. At present, the data resolution in the GPS civilian domain is only ten meters.

Ma Songde, vice minister of science and technology who is responsible for hi-tech research and development, said at the signing ceremony, "We have reached a concrete step forward and we will in the very near future sign more comprehensive and higher-level agreements for cooperation."

The scheduled cooperation will include projects concerning space and ground infrastructure construction. The first Galileo navigation satellite is expected to be launched later this year.

Rainer Grohe, the GJU executive director, said, "This cooperation will create mutual benefit for both of us."

Zhang Guocheng, executive director of the National Remote Sensing Center of China, said, "The fishery application system will greatly benefit China's fishery industry."

China was the first country outside Europe to join the Galileo Project, agreeing to invest a total of 200 million euros into the global consortium. About 70 million euros of the Chinese investment have been put into technologies development and the remaining 130 million euros into deployment of space and ground infrastructure.

Meng Bo, CGI chair of the board, said, "GPS is mainly for military use as well as for a little bit of civilian use, while the Galileo systems will be responsible for customers so as not toshut off signals without our customer's consent."

The EU estimated that by 2020, the Galileo Project will bring Europe tens of billions of euros in revenues and tens of thousands of job opportunities. Chinese experts expected revenues worth 260 billion Yuan (23.6 billion euros) in Galileo systems applications by 2020.

2 Innovation Management

New mission of the State Hi-tech Zones

(MOST, 2005-07-04)

The State Hi-tech Zones should bring into full play their advantages as the bases of hi-tech industrialization and build themselves into key carriers to promote technological progress and independent innovation capabilities, powerful engines able to drive the regional economic restructuring process and transformation of the economic growth pattern, service platforms able to support hi-tech enterprises to go out and participate in the international competition and a battlefront able to facilitate the control of the commanding ground of the global hi-tech industry, noted Premier WEN Jiabao a couple of days ago on his visit to Zhongguancun Science Park. The target raised by Premier WEN has defined a direction for rapid and healthy development of Hi-tech Zones in the future, representing a new requirement forwarded by the Communist Party and the State Government on the State Hi-tech Zones and a new mission that the State Hi-tech Zones must shoulder.

After two decades of development and construction, the State Hi-tech Zones have become key clusters of hi-tech industrialization bases and made huge contributions to the S&T, economic and social development of China. The young generation are growing rapidly and marching on the way paved by the old generation doing all they can to carve out a new world. Today's State Hi-tech Zones have stepped into a brand new era. The new situation needs a new concept, i.e. constructing State Hi-tech Zones focusing on promoting and boosting their capabilities of independent innovation.

The promotion of independent innovation capabilities is not only a prominent mission for the S& T sector, but also a distinct characteristic of the State Hi-tech Zones as well. The State Hi-tech Zones shall, all the time, take the development of hi-tech industry as its fundamental tenet and exert themselves to promote their capabilities of independent innovation. The construction purposes of State Hi-tech Zones are to create an optimized local environment, to incubate capabilities of technological innovation and to accelerate the development of hi-tech industry so as to promote the comprehensive competitiveness of the whole nation. In other words, the successful optimization of the industrial structure and transformation of our growth pattern must involve great efforts in the promotion of our capabilities of independent innovation and command of core technologies and key technologies. We cannot afford any departure from this tenet in season and out of season. The State Hi-tech Zones should attach great importance to independent innovation and make all endeavors to incubate hi-tech industries with competitive advantages and long-term potential. In the meanwhile, great importance should be attached to joint efforts in the development of hi-tech industries and reconstruction of traditional industries. In particular, we should be firmly determined to strengthen those industries with special features and great potential of becoming a huge driving force for the national economy to make due contributions to the promotion of China's overall national strength.

Experiences of the recent years prove that policies practiced by the national government to support the development of State Hi-tech Zones are effective and should be sustained. In the meanwhile, more profound issues have been noticed in the development of the State Hi-tech Zones and urgent studies are needed to find a proper solution to them. Taxation, financial and government procurement policies supportive to innovation should be put into practice to speed up the

development of the startup venture sector as well as intermediary services such as technical consulting and technology transfer and put in place an incentive mechanism and an excellent environment for independent innovations.

"Blazing the path with great courage" has always been an inherent and superior tradition of the State Hi-tech Zones. All the State Hi-tech Zones should inherit this tradition and carry forward the courageous spirit borne by the "chariot, horse and cannon" to search for new ways and make continual improvements to the incentive mechanism and policy systems for independent innovations so as to promote the State Hi-tech Zones to a higher level of development and uniqueness and accomplish the new historic mission with excellent achievements!

Prof. Chen Zhu elected into French Academy of Sciences
(CAS, 2005-07-04)

Prof. Chen Zhu, vice president of CAS and director of Shanghai Institute of Hematology, was elected as a foreign associate of the French Academy of Sciences on June 21.

The French Academy of Sciences comprises members, foreign associates and correspondents, who are selected from among the most eminent scholars. This year 17 foreign associates were elected into the French academy.

Born in Shanghai in 1953, Chen Zhu obtained his master's degree in medical science at Shanghai Second Medical University in 1981 and his doctoral degree at Institute of Hematology, Hospital Saint-Louis, University Paris VII, Paris, France, in 1989.

Prof. Chen conducted the first study in China to precisely classify hemophilia A and to perform carrier detection and genetic counseling of hemophilia A using advanced technology. He revealed the regulation of TCR gene rearrangement and expression in human malignant lymphocytes. In the study on leukemia related genes, he was the first to establish a molecular model of BCR-ABL rearrangement, and described different fusion genes to be the result of specific chromosomal translocation in acute promyelocytic leukemia (APL). He and his group made important discoveries in exploring the mechanisms of differentiation induction by ATRA and apoptois induction by As2Oe in the treatment of APL. Recently, as one of the coordinators of the Human Genome Project (HGP) in China, Prof. Chen has been participating in the planning and organization of this project. He and his colleagues have established a relatively comprehensive technology system for genomic DNA and cDNA mapping, cloning, sequencing and bioinformatics analysis, and identified a large number of genes regulated by ATRA. In addition, his group was the first to describe a gene expression profile of the hematopoietic stem/progenitor cells (HSPCs), and cloned dozens of full length cDNA of novel genes in HSPCs.

Prof. Chen's pioneering work is recognized worldwide, and received many rewards and honors.

For instance, he was elected a fellow of the Academy of Science for Developing World (TWAS) in 1989, a member of CAS in 1995, and a foreign associate of the US National Academy of Sciences in 2003. He was awarded Chevalier de l'Ordre National de la Lëgion d'Honneur, France in 2002, and conferred Doctor of Science *honoris causa* by University of Hong Kong and University Paris VII, Paris, in March and May 2005, respectively.

Political Bureau meets on national medium & long-term S&T development
(MOST, 2005-07-06)

The Political Bureau of CPC Central Committee met on June 27th to discuss a number of key issues concerning the National Medium & Long-term S&T Development Plan and worked over activities to be deployed for the acceleration of China's S&T progress. HU Jingtao, General Secretary of the CPC Central Committee presided over the meeting.

The Meeting pointed out that science and technology are the primary productive forces and a concentrated expression and a hallmark of advanced productive forces and the historic mission of building a well-off society in an all-round way has raised higher requirements for China's S&T development. In order to realize the objectives of building a well-off society in an all-round way, we must continuously achieve qualitative leaps in the development of China's productive forces by driving and relying on S&T progress and innovations with higher consciousness and on a most extensive scale so as to facilitate faster and healthier development of China's economy and society.

It was pointed out at the Meeting that significant achievements have been made in China's S&T development thanks to the continuous efforts and utmost fortitude of a few generations over the past five decades since the founding of New China. In the meanwhile, we must be keenly aware of the fact that S&T development level of China as a whole still lags behind the advanced level and we must do all we can to catch up. The first 20 years of this century is a key strategic period full of opportunities for China's economic, scientific and technological development. The formulation and implementation of the first National Medium and Long-term S&T Development Plan of the century is directly connected with the realization of the objectives of building a well-off society in an all-round way, the success of socialist modernization and the great rejuvenation of the Chinese nation and embraces great realistic and profound strategic significances.

The Meeting emphasized that, in face of the new situation where the world is making great strides in science and technology, we must uphold Deng Xiaoping Theory and the important thought of "three represents", implement the concept of scientific development in an all-round way and press ahead with the implementation of the strategies of rejuvenating China through science and education and reinforcing China by relying on human resources; we must put forward in a scientific way the guidelines, strategic objectives and strategic keystones of China's S&T development in the future by keeping abreast of the actual demands of China's social and economic progress and modernization and making realistic deployments; we must enhance our confidence and work hard to realize the great strides of China's S&T development.

The Meeting emphasized that we must take S&T progresses and innovations as the primary driving force of our social and economic development more resolutely, regard the capabilities of independent innovation as a key step of economic restructuring, transformation of the growth pattern and promoting the national competitiveness and take the construction of an innovative nation as a key national strategy geared to the future. In the coming 15 years for China's S&T activities, we must adhere to the guidelines of supporting the development and leading the future

through promotion of independent innovation and great strides in key areas and resolutely take the enhancement of independent innovation capabilities as a key part of the overall S&T activities; we must make all endeavors to become a master of a group of kernel technologies in a number of important fields, take command of a batch of independent intellectual property rights and build a group of enterprises and brands with international competitiveness by sparing no efforts to reinforce the original innovations, integrated innovations and digestion and absorption of and innovations based on introduced advanced technologies so as to provide powerful S&T supports to China's economic and social development and modernization of national defense.

The Meeting emphasized that we must establish a complete and sound leadership and coordinating mechanism for the S&T activities, handle well the formulation and implementation of the various counterpart policies and actions and make all endeavors to achieve key breakthroughs in the deepening of the reform of S&T system, incentives to enterprise innovations, increase of input in S&T sector, acceleration of human resources development and reinforcement of S&T exchanges and cooperation with the international world.

It is put forward as a requirement at the Meeting that all regions and governmental departments shall follow the uniform deployment by the Central Government and organize enterprises, research institutes, institutes of higher learning and S&T forces of other natures to realize the various objectives and missions defined in the National Medium and Long Term S&T Development Plan through full mobilization of their initiative and joint efforts and reasonable distribution of responsibilities and duties.

Discussions on other issues were also conducted during the Meeting.

IPM celebrates its 20th birthday

(CAS, 2005-07-12)

A ceremony was held on June 25, 2005 in Beijing to mark the 20th anniversary of the CAS Institute of Policy & Management (IPM).

Some 300 participants were present at the meeting, including leaders and scholars of the CAS headquarters and other institutes, and staff members, alumni, graduate students and postdocs from IPM.

In his welcome speech at the meeting, Prof. Mu Rongping, IPM director, reviewed two-decade-long history of IPM, highlighting its major research orientations and academic results. He also drew a picture for the brilliant prospects in the institute's future.

Founded in June 1985, IPM is characterized by interdisciplinary studies of social and natural sciences. Over the past 20 years, the institute has mainly engaged in theoretical, methodological, and applied research into strategic policy and management issues arising from national S&T

development. It offers a variety of high-level research and consultancy services to the central authorities, local governments, and CAS to help them with their decision-making regarding S&T advancement, socio-economic progress, S&T administration and management of enterprises.

In addition to scientific research, IPM has been making efforts to be a training center for high-level professionals in the fields. At present, it has master's, doctoral and postdoc programs in management science and engineering, and a master's program in technical economics and management.

In the field of international cooperation, it has established constant academic ties with its counterparts in various countries across the world, including US, Germany, Japan, the UK, France, India, Canada and the ROK.

The institute has formulated a motto for its staff, calling for *zhitong qihe, jingshi zhiyong,* which means "conducting scientific research with the same ideal, in a harmonious atmosphere and for the sake of its application to the society."

With the motto, IPM people strive to build the institute into a world-class institution for scientific research, academic exchanges and talent training in S&T policy and management science, as well as a CAS think tank, database and methodological reservoir for development strategy and decision making.

54 projects of the 973 Program approved by MOST
(MOST, 2005-07-12)

The 2005-2006 Project Implementation Conference of the 973 Program (National Program on Key Basic Research Projects) was held in Beijing on July 1, 2005. CHENG Jinpei, Vice Minister of Science and Technology attended the conference, awarded the letter of appointment to the chief scientists and delivered a speech. The chief scientists of the projects established under the 973 Program and representatives of relevant supporting departments and undertaking units participated in the conference.

The establishment of 973 Program projects adopts the approach of "guidance by the guide, application by the units, evaluation by the experts and decision-making by the government". Selection of the projects maintains the important standard of innovation and follows the principles of "selecting the needed, selecting the important and selecting the best" and "fair, just and open". The mechanism of combining government decision-making with peer review is put into practice. In 2005, the 973 Program has accepted 277 project applications. On the basis of three rounds of peer review, 54 projects have been approved by MOST, of which 6 projects are from the agricultural sector, 5 energy sector, 5 information sector, 6 resource & environment sector, 14 population & health sector, 8 material sector and 10 comprehensive overlapping and frontier sciences sector.

The establishment of these projects has further improved the arrangement of 973 Program projects and strengthened the planning of strategic and proactive basic research. In the Eleventh Five-Year Plan, 973 Program, directed by the scientific development perspective, will comprehensively execute the tasks defined by the National Medium and Long-term S&T Development Plan. With the national objective as the guide, improvement of independent innovation ability as the fundamental starting point and the original innovation and integrated innovation as the central task, the 973 Program will give prominence to the key points, strengthen comprehensive overlapping and integration, work out the strategic planning of the state key basic research and provide

scientific support for the grand objective of constructing an innovation-based country and building a harmonious socialist society in our country.

Premier Wen highlights independent innovations

(CAS, 2005-07-21)

Chinese Premier Wen Jiabao Tuesday stressed the importance and urgency of improving the country's capability of independent innovations in science and technology.

Wen, also head of the state's leading group for science, technology and education, presided over the group's third plenary meeting to review the country's plans on science and technology.

The capability of independent innovations is the strategic basis for the development of science and technology, the key to adjusting the industrial structure and transforming the mode of economic growth, said Wen.

The meeting heard the reports on Zhongguancun high-tech parks by Beijing Municipal Government, the pilot project of knowledge innovation program by the Chinese Academy of Sciences, and the program for building a number of national key infrastructure facilities for science and technology by the National Development and Reform Commission.

The meeting said that China should give top priority to independent innovations in its science and technology work, which also should be included in the national economic and social development planning.

The national high-tech parks should play their part in increasing the country's capability of independent innovations, according to the meeting.

The meeting also stressed the importance of a favorable mechanism and environment for more independent innovations, including deepening the institutional reform in science and technology fields, strengthening the protection of intellectual property rights, and cultivating and introducing more talents.

China to develop basic conditions in science and technology

(People's Daily, 2005-07-29)

According to Chinese Ministry of Science and Technology, China will, with resource sharing as the core, speed up building four platforms of basic conditions to effectively support the scientific progress and independent innovation of the entire society.

The four platforms are:

Platform for the sharing of research base and laboratory and large equipment

Integrate the scientific equipment with a unit value of 500, 000 Yuan and a total value of 1.5 billion Yuan to form a nationwide sharing network; while based on the existent advantageous resources, establish several centers of large scientific equipment in the fields of life science, material science and resource and environment; based on existent national, departmental and local laboratories, establish a group of key laboratories in important basic disciplines and some pioneering disciplines.

Platform for sharing natural science resources

Strengthen efforts in creating conditions for sharing the plant germplasm resources to put in place a new mechanism to realize the sharing of 450,000 kinds of plant germplasm resources; integrate the germ, fungus and virus which have scientific importance and are of practical and potential value for research and application. Plus, such a platform also includes building a sharing system of

human genetic resources, animal germplasm resources, specimen resources, experimental animal genetic resource and experimental cell database, etc.

Platform for sharing scientific data

Put in place and improve ten-odd national scientific data sharing centers on meteorology, survey and mapping, seism, water resources, agriculture, forestry, ocean, land resources, geology and mineral resources as well as earth observation; in scientific and technological fields in which the data are under scattered management, build 11 scientific data sharing networks.

Platform for sharing scientific and technological literature

It includes a information back-up system for books in science and technology and a sharing system for patent literature.

Moreover, in order to accelerate the construction platform of the national basic conditions, the Ministry of Science and Technology, the National Development and Reform Commission, the Ministry of Finance and the Ministry of Education have issued a document on opinions on the its implementation in the Eleventh Five-Year Plan Period (2006-2010).

3 China's International Science Cooperation

Prof. Bai Chunli meets with leader of the European Fusion Development Agreement
(CAS, 2005-07-01)

On June 29, CAS Executive Vice President Bai Chunli held talks with Prof. Minh Quang Tran, director of the Swiss Plasma Physics Research Centre and nominated Leader of the European Fusion Development Agreement, at the CAS Institute of Plasma Physics (IPP) in Hefei, capital of east China's Anhui Province. After the meeting, Prof. Tran and IPP Director Li Jiangang signed an agreement on bilateral cooperation.

CAS, Thai Ministry of Agriculture sign MOU on cooperation
(CAS, 2005-07-06)

On July 1, CAS President Lu Yongxiang and Mrs. Sudarat Keyuraphan, Thai Minister of Agriculture and Cooperatives, signed a memorandum of understanding on the joint research and development of biomass technology.

China, Germany launch joint project on occupational education
(People's Daily, 2005-07-26)

China and Germany have officially started a joint project to boost employment through occupational education in east China's Jiangxi province, according to local authorities.

Under an agreement signed between the Chinese and German governments last October, Germany promised to inject 4.09 million euros into the occupational education project during the five-yearterm.

The project will introduce the advanced "action guidance teaching method" to train teachers from the local occupational education agencies.

The action guidance teaching method will also be piloted in 100schools, which mainly launch interdisciplinary synthetic subjects with priority on studying "cases" and enhancing students' ability in solving practical issues.

The implementation of the project is expected to usher in reform in the province's teaching modes and shift focus of education from teachers to students.

2005 symposium held in Greece on "Dragon Programme"
(MOST, 2005-07-27)

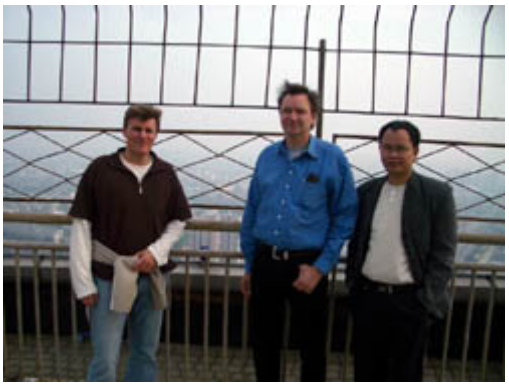
From 27 June to 1 July, 2005, an academic symposium on "Dragon Programme", the greatest

project of Sino-European cooperation in the field of remote sensing was held in Santorini of Greece. This was the second Sino-European academic gathering in the field of remote sensing following the launching of the "Dragon Programme" and also the "Dragon Programme" symposium in Macao in April last year. The symposium was jointly sponsored by ESA, NRSCC of MOST, and GSRT of the Ministry of Development of Greece. The aim of the meeting was to hold discussions and exchanges on the research results achieved from the Sino-European cooperation in the application of the ENVISAT remote sensing data during the one year's time since the launching of the "Dragon Programme"; and to make plans for concrete steps of further cooperation in the future. There were 52 leaders and experts present at the meeting, who represented relevant departments of MOST, NRSCC, and China's 21 domestic remote sensing organizations participating in the "Dragon Programme". There were 67 European scientists present at the meeting, who were from ESA, France, UK, Germany, Italy, Belgium，Holland, Spain, Finland, Norway and the host country of Greece.

Altogether 69 reports were submitted by both sides to the symposium for exchange, of which 31 reports were completed independently by Chinese scientists or in collaboration with the European side. High quality symposium reports marked rich periodic research results in the "Dragon Programme" of Sino-European cooperation, whereby ENVISAT data has been applied in China to the monitoring of water resources and flood disasters, paddy rice, forests, seismic activities, atmospheric pollution, ocean environment, draught, landslide, etc. This has raised China's capacity of remote sensing application and obtained much first-hand data of monitoring and evaluation, which is of great practical importance to the prevention and reduction of disasters, sustainable utilization of resources and environment protection.

During the symposium, meetings were held between the officials of both parties, where they had in-depth exchange of ideas on strengthening the channels of contact and cooperation with other international cooperation mechanisms and on the mechanism for long-term sharing of earth observation data. In order to support the 2008 Beijing Olympic Games, the two sides have decided to add a new item to the "Dragon Programme", i.e. "Application of Space Technology in Organizing the Olympics".

MPG and CAS set up a new partner group at the Dalian Institute of Chemical Physics (MOST, 2005-07-28)



(Prof. Li Weixue with his German colleagues K. Reuter and M. Scheffler.)

Max Planck Society (MPG) and CAS recently set up a Partner Group on First- Principles Theory of High-pressure Oxidation Catalysis at the CAS Dalian Institute of Chemical Physics (DICP).

Headed by Dr. Li Weixue of DICP and in cooperation with Dr. Karsten Reuter from the Theory Department of the MPG Fritz-Haber Institute, the group will be devoted to the development of precise and predictable catalysis theories based on quantum mechanics and under real oxidation conditions.

To promote network building between outstanding young researchers in CAS and MPG, a total of 10 partner groups have been established at CAS institutes. All the group leaders are scientists who have returned to China after working at an MPG institute as a fellowship holder. Within a fixed period of up to five years, they will be supported to continue and develop research partnership with their corresponding partners at MPG institutes.

Prof. Li Weixue, a physical chemist, carried out his postdoc research at MPG Fritz-Haber Institute from 1999 to 2002, and worked as an assistant professor at University of Aarhus in Denmark from 2002 to 2004. He received the prestigious CAS *Bairen* Program Award and joined the Dalian institute in 2004.

Currently there are two such groups at DICP. The other one is an MPG/CAS Partner Group on Nanotechnology in Catalysis headed by Prof. Bao Xinhe, DICP director.

MOST Vice Minister participated CTIBO project launching ceremony
(MOST, 2005-07-29)

On July 20th , 2005, the CTIBO project launching meeting was held in Beijing. CTIBO is a programme jointly initiated by the French Agency for Innovation and the Management Center for Innovation Fund of China. MA Songde, Vice Minister of Science and Technology, Mr. Franz Jessen, Deputy Head of Delegation of the European Commission to China, Mr. Guelluy, French Ambassador to China presented and addressed the meeting. Mr. LIANG Gui, Deputy Directo-General of the Management Center for Innovation Fund of China, presided over the meeting.

Vice Minister MA Songde said in his address that MOST had been making efforts to help China's small and medium enterprises (SMEs)"to go out", and had established overseas incubators in US., Russia and other countries. MOST is also trying to promote cooperation with relevant countries in technological innovation of SMEs and intermediary service regimes, so as to encourage the growth of SMEs on both sides. The greatest potential and hope of collaboration between China, France and the EU in the high-tech industry lies in cooperation between SMEs, and the technology-based SMEs in particular. However, due to the high cost of cooperation, the two countries' SMEs are still yet to go on the right track in their cooperation. Therefore, it is of great significance to launch the CTIBO project. We may well believe that the implementation of the project present many new ideas and new ways for the development of SMEs and innovation fund. It has a great role to play in helping the SMEs to "go out".

Asian investment is a EU aid programme with a view to opening multinational political dialogue, strengthening bilateral investment ties, coordinating collaboration between WTO members, and enhancing mutual understanding between China and EU. CTBIO is an Asian investment alliance project jointly initiated by the French Agency for Innovation and the Management Center for Innovation Fund of China, to promote cooperation between Chinese and French technological intermediary bodies in implanting international technological cooperation projects, in seeking international technological cooperation partners and in creating China-EU joint ventures by means of project cooperation. This project starts in July this year. The project cycle totals 3 years,

availing a total of 240 thousand euros in support from Asian Investment Alliance. So far, seven intermediary bodies have been selected, six Chinese and one French, including Zhongguancun Science Park, Tsinghua University International Technology Transfer Centre, Shanghai Technological Business Startup Center, Science Park of South China University of Technology, Guangzhou High-Tech Business Startup Centre, and China Northern Technology Exchange Market. The French one is IEC, a consultancy company.

4 Miscellaneous

Cross-Straits technology cooperation achieves new results

(Xinhua Net, 2005-07-06)

Three significant results in technology cooperation were achieved at the on-going Cross-Straits Forum on Industrial Standards in the Information Industry, sources with the forum said Wednesday.

The forum was jointly organized here by Taiwan Sinocon Industrial Standards Foundation, China Communications Standards Association and Chinese Electronics Standardization Association.

The Taiwan Sinocon Industrial Standards Foundation, China Communications Standards Association and Chinese Electronics Standardization Association will build up a long-term communication system, acting as a cooperation platform for information standards for professionals across the Taiwan Straits, the sources said.

Professionals across the Straits have had discussions on technical standardization in fields of AVS, TD-SCDMA, mobile storage and HD flat panel display. They reached consensus on technical cooperation in AVS development and research, mobile storage products and management development, as well as TD-SCDMA and HD flat panel display mutual technological development.

Professionals across the Straits will further cooperate in other technological standardization fields and a similar forum will be held in Taiwan at an appropriate time.

The two sides across the Straits both held that the rapid development of current world's information technology brings both opportunities and challenges to the professionals across the Straits. The information technology across the Straits should be mutually complementary, so as to face up to challenges and fulfill common development and a win-win situation, the sources said.

The forum is a result of a visit by Taiwan Kuomingtang (KMT) leader Lien Chan in early May. The Taiwan Sinocon Industrial Standards Foundation was comprised of all Taiwan's major electronics information enterprises.

HKSTP further develops SIP trading platform

(Xinhua Net, 2005-07-07)

Hong Kong Science and Technology Parks Corporation (HKSTP) announced Thursday a joint collaboration with leading Chinese technology and engineering universities to extend the semiconductor intellectual property (SIP) trading platform throughout Chinese mainland and Hong Kong.

According to HKSTP, the landmark collaboration will leverage the integrated circuit (IC) research and knowledge-base of Harbin Institute of Technology (HIT), Hefei University of Technology, Zhejiang University and the Hong Kong University of Science and Technology to further expand the mainland and Hong Kong Semiconductor Intellectual Property Trading Center (GCSIPTC) service capability at the Hong Kong Science Park.

The main objective of the collaboration between HKSTP and the four universities is to develop a due diligence platform in legal and technical terms for SIP certification and authentication purposes. The project will be completed in mid-2006, HKSTP said.

Through the tremendous effort of all involved parties, the seven national IC design centers in Chinese mainland and other established SIP trading centers in Shanghai and Beijing will be able to

share a very well developed platform, said HKSTP.

China ranks second in broadband users
(Chinanews, 2005-07-22)

(A man is playing a Net game at an Internet Coffee in Shanghai, July 21, 2005.)

China Internet Network Information Center (CNNIC) issued the "16th Statistical Report on Internet Development in China" in Beijing. The report indicates that up to June 30th, China's number of internet users was 103 million, 53 million of which are broadband users. Its number of netizens and broadband users rank No. 2 in the world, next to the United States.

According to this survey report, 45.6 million computers in China have been linked to the internet, up 25.6% year on year. Total bandwidth of leased international connections amounted to 82,617M and total websites reached 677,000. China's IP addresses are growing rapidly in number in recent years, totaling 68.3 million, and there are over four A-grade addresses, making China rank fourth in the world.

According to analysis of the statistics in the report, China's number of online shoppers has jumped to 20 million and nearly half of online transactions are paid by e-banking, indicating a tremendous online market. Online transaction value in six months reached 10 billion yuan (1.2 billion USD) while over three million mobile phones were sold online in six months.

Farmer becomes first Chinese individual to breed seeds in space
(People's Daily, 2005-07-25)

(Luo Dengqiang and his seed in hand.)

Luo Dengqiang, a farmer in Chongqing Municipality of southwest China, recently signed an

agreement with the Beijing Space Satellite Application Company on sending lotus seeds to the outer space.

Under the agreement, Luo will send 3,000 lotus seeds into the space in coming five years in a bid to acquire genetically transformed lotus seeds.

Luo, 53, will thus become the first individual in China to be involved in space-breeding business.

In 1992, Luo rented 500 mu (or 33 hectares) of land in Baoding Township of Dazu County, and turned it into a holiday resort with floral plants and recreational facilities.

As the resort, named Dazu Lotus Mountain Villa, includes a pond with 526 kinds of lotus flowers, it becomes a popular site, attracting numerous holiday-goers. The farm earns 600,000 yuan (about 50,000 US dollars) annually by exporting lotus seeds to Japan, Singapore and some other overseas markets.

In 1998, it occurred to Luo that he could send local lotus seeds to the outer space when he learned that plant's seeds may develop genetical changes or even have their quality improved under zero gravity in the space.

When China's first manned space vehicle Shenzhou V toured in the space, it carried over 40 kinds of species, but all of them were paid by state-owned companies, according to Li Jinhong, an official of the Beijing company. "Luo is the first individual to send seeds to the space," he said.

China's in-school postgraduates to exceed 1 million

(People's Daily, 2005-07-27)

The number of China's in-school postgraduate students will exceed 1 million after the entry of new students this year. China boasts the second largest scale of postgraduate student education in the world next only to the Unites States, said Wu Qidi, Vice Minister of Education, at the opening ceremony of the "2005 Academic Forum for Chinese Doctoral Candidates" held at Beijing Jiaotong University on July 25.

China has trained over 110,000 doctors and more than 820,000 masters since 1981, becoming a big country in terms of graduate education. The quality of postgraduate education in China in physics and chemistry, etc., has almost reached the level in developed countries. The Ministry of Education is implementing the "plan of innovation in postgraduate education", emphasizing on training the graduates' innovative consciousness, enterprising spirit and ability to innovate, according to Wu Qidi.

5 Information for upcoming Workshops in September

The 27th IEEE Biomedical Engineering Association International Annual Meeting
Date: September 01 – September 04
City: Shanghai
Contact: emb-conferences@ieee.org

International Symposium on Phytoremediation and Ecosystem Health
Date: September 10 – September 13
City: Hangzhou, Zhejiang Province
Contact: peenlab@zju.edu.cn

Fifth Asian-European International Conference on Plasma Surface Engineering and Production Exhibition
Date: September 12 – September 16
City: Qingdao, Shandong Province
http://www.aepse2005.mse.tsinghua.edu.cn

The 8th International Workshop on Plasma Based Ion Implantation and Deposition
Date: September 18 – September 22
City: Chengdu, Sichuan Province
http://www.biomatchina.com/

The 17th International Solvent Extraction Conference
Date: September 19 – September 23
City: Beijing
http://www.isec2005.org.cn/

7th World Congress on Recovery, Recycling and Re-integration
Date: September 25 – September 29
City: Beijing
http://www.ipe.ac.cn/R05/

The 8th International Conference on Electrical Machines and Systems-ICEMS2005
Date: September 27 – September 29
City: Nanjing, Jiangsu Province
http://www.icems2005.com

Abbreviations

CAS - Chinese Academy of Sciences

MOST - Ministry of Science and Technology

CRI - China Radio International

CCTV - China Central Television