

# Content

Science News from Chinese Media during the Period of January 2006

Collected and Compiled by the Helmholtz Beijing Office

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## Helmholtz Activities in China

The Chinese New Year of Dogs started on the 29. Jan. The entire mainland Chinese enjoyed at least 7 days free, including 3 official holidays plus two neighbouring weekends and holidays. This is but a quite busy month for our Helmholtz colleagues:

Dr. V. Santos and Dr. Golyshin from GBF paid a visit on the 4-8th of Jan to their partner, the Beijing Genomics Institute. Together with BGI, they have successfully received one FP6 project, and another one is also very promising to go through. As the carrier for the 1% Human Genomics Programme, BGI owns an outstanding sequencing and synthesizing capacity. Another unbeatable advantage is the large number of inspiring young scientists and students.



The meeting on the 06.01 with the new Minister Counsellor for Science and Technology, Mr. Papageorgiou, our side including both GBF colleagues, Prof. Huangmin Yang, Dr. Jing Wang and I, has also delivered very interesting and encouraging message: EU is considering promoting the excellent research groups from the third countries, like China and Russia, to participate in the ongoing EU Framework projects; EU is going to encourage more personal exchange, as it is necessary for filing proposals of big projects. It is just a pity, these EU calls, which Mr. Papageorgiou said with confidence going to be released, are still missing or unknown.

During the 11-14th. Jan. a [Sino-German Environmental Forum](#) was hold in Qingdao. Prof. Dinjus



from FZK was on the Forum and presented his concept for synthesized oil from biomass like strew. A jointly founded pilot project in Shandong, 10 times larger than the previous one in FZK, taking the technology from Germany and cheap resource and manpower in China, might be of great scientific and industrial interest. Later in May, Dr. Fritz, director of FZK will be visiting China again for pushing this project.

Taking the time in Qingdao, I visited 3 of the all 5 Chinese ocean research institutes in Qingdao, which comprised 60-70% of the Chinese ocean research force. They are the Institute for Ocean Research, CAS, the Ocean University China, and First Institute of Oceanography, Chinese Ocean Administration. They all have traditional good connection with Germany, but up to now more with Leibniz and MPG rather than with AWI.

Dr. U. Franck from UFZ has participated in a BMBF sponsored workshop in Guangzhou on the topic of Megacity. He is the liaison for the Helmholtz programme on the health impact by aerosol. As he has already got some partners in Beijing, it is our suggestion that he should pay also several days in Shanghai visiting the potential partners. Our office helped him to identify the best groups and organized his trip in Shanghai during the period of 14-18th. He met several the best groups, including the Fudan University and the Shanghai CDC (Centre for Disease Control). Our assistance and my colleague Liu's accompany of in Shanghai have been very much appreciated.

Actually there are much more things to report than you can see here. But to save the time and space, let's first wish you will find this edition of China Highlights informative and interesting.

Dr. Hong HE, Head of the Helmholtz Beijing Office

## 1 Science News

### 1.1 Energy

#### **Nuclear power plants generate 53 bln kwh last year**

**(People's Daily, 2006-01-13)**

China had nine nuclear generating units operated commercially last year, achieving sound operation results. Their total generated power reached 53.08 billion kilowatt hours, with electricity on grid reaching 50.33 million kilowatt hours, an increase of 5.18 and 5.29 percent respectively year on year, according to statistics released by the State Commission of Science and Technology for National Defense Industry, reports China News Agency on Friday.

Of the electricity, the first-phase Qinshan Nuclear Power Station project generated 2.35 billion kilowatt hours, the two generating units of the plant's second phase project yielded 10.13 billion kilowatt hours, the two generating sets of the third phase project generated 10.12 billion kilowatt hours. The two generating units at the Daya Bay Nuclear Plant in Guangdong Province generated 15.45 billion kilowatt hours while the two generating units at the Ling'ao Nuclear Power Plant generated 15.03 billion kilowatt hours.

#### **China to build large-sized garbage power plant in its eastern region**

**(People's Daily, 2006-01-14)**

The construction of a large-sized garbage power plant, capable of generating 200 million kwh of electricity per year, has started in Linyi City, East China's Shandong Province.

With an investment of 238 million Yuan (30 million US dollars), the project will be able to process 400 tons garbage and produce 75 tons of steam per hour as part of the city's heating sources in the winter.

The yearly garbage processing ability will reach 300,000 tons after its completion in October, said Xu Qinxiang, director of the project.

By the time the project is completed, the city will stop the traditional garbage-burying operation. Instead, garbage will be collected by sanitation workers and sent to the power plant, where the useful materials such as metal and plastic will be recycled, while the remaining will be leavened and dehydrated before it can be burned.

Heat produced from burning two tons of garbage equals that of one ton of coal and the after-burning residua can be used to make brick, cement and other building materials, according to Xu.

#### **Solar-heat-pump hot water demonstration project passes acceptance check**

**(CAS, 2006-01-16)**



(The project is located at the Moon Altar Athletic Center in Beijing.)

On January 11, "studies on a solar-heart-pump hot water system", a demonstration project carried out by the CAS Guangzhou Institute of Energy Conversion (GIEC) for the 2008 Olympics in Beijing, passed an acceptance check in Beijing.

In line with the need of the Athletes Village of the 2008 Olympics, GIEC researchers have developed a system for the year-round hot water supply with pollution-free solar energy supplemented by thermal pumps. The system could provide 100 tons of hot water every day for the Olympic Village and venues nearby, 90% of which are heated by using solar energy. Over the past two years, the researchers have filed three patents and published three papers for the project. Two students have carried out their doctoral or master's studies in the project.

### **China to complete artificial sun**

**(Xinhua Net, 2006-01-19)**

It was learned from the Hefei Institutes of Physical Science of the Chinese Academy of Sciences (CAS) that it will have completed the Experimental Advanced Superconducting Tokamak (EAST) which aims to explore infinite and clean energy resources of nuclear fusion by this March or April. By then, Hefei will become the first institute in the world to have built an all-superconducting non-circular section nuclear fusion experiment facility, which could be called as an artificial sun.

The energy resource crisis has begun to threaten the world, as oil, coal and other types of non-renewable energy resources will be used up in a century. Scientists recommend the extraction of deuterium from sea water and the ignition of nuclear fusion of this element in temperatures as high as 100 million degrees Celsius. In nuclear fusion, deuterium abstracted from one kilogram of sea water will be able to produce as much energy as that of 300 liters of gasoline.

Invention of a facility that can withstand the temperature of 100 million degrees Celsius and control deuterium and atomic fusion to ensure steady and continuous energy output equals to invention of an artificial sun, which can provide infinite and clean energy like the sun, as sea water is virtually inexhaustible.

In 1990, the CAS Institute of Plasma Physics built China's first superconducting Tokamak equipment HT-7, making China the fourth country in the world to have such equipment after Russia, France and Japan. In 2000, scientists at this institute began to build a new-generation all-superconducting non-circular section Tokamak equipment on the basis of HT-7 and gave it the new name EAST.

As an upgraded product of HT-7, EAST brings China into the globally leading group in nuclear fusion research. It is also a key project of China's ninth five-year-plan. EAST started overall

assembly in 2003.

### **The Project “Ni-MH Battery for Hybrid Vehicles” Passed Acceptance**

**(MOST, 2006-01-20)**

The research project “Heavy Duty Ni-MH Battery Pack and Management Module for EQ6100HEV Hybrid Electric Bus” undertaken by Hunan Shenzhou Science & Technology Co. Ltd. under the National 863 Program found itself accepted by the MOST Office of the 863 Program in Energy Technologies. The Dongfeng hybrid electric buses equipped with such Ni-MH battery packs and battery management systems have been in operation for more than 100,000 km per unit.

### **“The Research on Shen-Li Fuel Cell Engine” Passed Acceptance Check**

**(MOST, 2006-01-23)**

Recently, the research topic "Fuel Cell Engine I" undertaken by Shanghai Shen-Li Technology Co., Ltd. passed the acceptance check organized by the Office of Energy Technology under MOST's 863 Program.

This research topic has satisfactorily fulfilled the assignment specified in the contract and delivered 10 fuel cell engines for 40~50kw sedan and 4 modularized fuel cell engines for 65~130kw passenger cars and submitted relevant technical documents.

### **Key energy research project kicks off at CAS institute**

**(CAS, 2006-01-25)**



"Basic Research on Highly Efficient Catalytic Conversions of Natural Gas and Syn-Gas," a project supported by the National Key Basic Research Program (dubbed the "973 Program") was officially launched at a meeting held on December 24, 2005 in Beijing. Participating in the meeting were its team leaders and members of the experts panel.

Prof. BAO Xinhe, Chief Scientist of the project and director of the CAS Dalian Institute of Chemical Physics (DICP), chaired the meeting. He first talked on the objectives of the newly initiated research. After making a retrospect of the progresses attained in the previous studies on an analogous program, he pointed out that the new program has to orient on the demands of the economic development of our country, and to make new contributions on the optimal utilization of natural gas resources. For research projects closely connected with production sectors, the new program should be aimed at the bottle-neck problems in industrial applications. As basic research project, the study should concentrate on the ascendancy of the talent resources of the research

teams to tackle scientific issues in the conversions of natural gas, while establishing an intimate interaction with those teams directing to the practical utilization of natural gas.

Prof. LIN Bingxiong, project coordinator representing the Ministry of Science & Technology(MOST), also addressed the meeting with the hope that all the experts participating in the research work will elaborate their creative capabilities and elevate the importance of chemistry in the solving of energy problems during studies on optimal utilization of natural gas, so as to render greater dedication for the sustained economic development of China.

This program is a continuation of a previous "973 Project" entrusted to DICP by the MOST, with the title of "Catalysis Basis for the Optimal Utilization of Natural Gas and Coal-Bed Gas", which was ranked No.1 by MOST among all the energy research programs accomplished over the last few years in China.

Eight components are included in this new project:

1. Key problems relating to production of syn-gas from natural gas, large scale production of hydrogen, and conversion of CO<sub>2</sub>.
2. Synthesis of high quality fuels from natural gas.
3. Production of oxygenated compounds from syn-gas (GTO).
4. High temperature fuel cells basing on syn-gas and natural gas (SOFC).
5. Direct catalytic conversion of methane.
6. Non-conventional direct conversion of methane.
7. Structure-effect relationship and dynamic characterization of catalysts and catalytic systems.
8. Micro-mechanism of catalytic processes and determination of reaction intermediates.

Part of the above projects will be collaborated with various domestic institutions.

### **Solar energy utilization in Tibet**

**(China News, 2006-01-26)**

According to the latest statistics, 70,000 households of farmers and herdsmen living in Tibet's Ngari are using solar energy. The Qinghai-Tibet Plateau is the highest plateau in the globe and has been cited as the Roof of the World. Tibet has the most abundant solar energy resource in China, and the annual radiant quantity reaches 6,000 to 8,000 million joule per square meter in most part of the plateau. Tibetan residents jokingly call solar energy utilization "burning the sun."

Tibet's current solar energy utilization ratio equals to 130 kilotons of standard coal every year. The autonomous region's alternative energy resource program has ensured electricity consumption of 280,000 residents and benefited nearly 400,000 households of farmers and herdsmen. This program has changed not only local herdsmen's style of life and work, but also their living environment.

Tibet is rich in energy resources. Besides solar energy, it has about 200 MKW of average natural hydropower deposits annually, more than 1,000 geothermal fields, and 93,000 MKW of wind power deposits yearly. The Yangbajing Geothermal Field alone is estimated to have 150 MW of potential.

Tibet began its solar energy program in 1990. After years of research, development and experiments, Tibet has built up seven county-level solar energy power stations with 10 KW to 100 KW of capacity, more than 2.3 MW of solar energy opt-electrical facilities of various types, 160 small hydropower stations in the country, and 17.9 MW of newly-added installed capacity.

As the central government keeps increasing investment in Tibet's ecological construction and environmental protection, Tibet's energy resource exploitation and utilization is expanding from simple lighting to agriculture, pasturing, water conservancy and other fields. In the next twenty years, Tibet will invest 22.7 billion yuan (US\$2.8bln) in 160 projects to strengthen conservancy and construction of existing pastures, natural forests and wildlife resources.

### **China develops first robot for nuke projects**

**(People's Daily, 2006-01-26)**

Chinese scientists have developed a robot which can collect foreign matters inside a 22-meter-deep water tank of a nuclear reactor, in addition to other functions.

The robot, a "small guy" about 42 cm long, 19.8 cm wide, 13.8 cm tall and 13.8 kilograms in weight, was specially designed for underwater foreign-matter collection in the nuclear reactor, the first of its kind to be used in China's nuke projects.

It was independently developed by the Chengdu Research Institute of Photoelectricity Technology under the Chinese Academy of Sciences, based in the capital of southwest China's Sichuan Province.

Sources with the institute said that a trial operation of the robot proved successful recently at the Daya Bay Nuclear Power Plant in south China's Guangdong province.

The robot is able to dive into 22-m-deep water with weak acidity and low nuclear radiation, and has flexible, agile movements and strong gradeability. Its speed can be adjustable within a range between zero and nine meters per second.

Also, the "small guy" is equipped with an underwater creeping machine, a TV camera, a manipulator, a cleaner, an underwater pump and a controller, the source added.

The manipulator, equipped with the robot, is mainly used for collecting screw drivers and other relatively big things. The underwater pump is used to siphon glass fragments and other powder-type residue, the source said.

### **"863" fuel cell projects passed acceptance check**

**(CAS, 2006-01-27)**

"Fuel-Cell-Driven Motors" and "Modeling Design of Proton Exchange Membrane Fuel Cells and Studies of New Type of Membrane Electrode Assembly (Catalyst Coated Membrane, CCM)," two projects conducted by the CAS Dalian Institute of Chemical Physics (DICP) with support from the National High-tech Development Program (the "863" Program) passed acceptance checks on January 7 and 8 in Dalian. The appraisal was organized by the Energy Technology Office of the "863" Program. Present at the meeting were Prof. BAO Xinhe, Director of DICP, Prof. YI Baolian, Member of Chinese Academy of Engineering, and other team members of the projects.

The assessment panel researched consensus that important progress has been attained in the research project of fuel-cell-driven motors, particularly in the investigations of MEA, dual-plates, catalysts and fabrication techniques. These studies, experts say, have conducted beneficial explorations in prolonging the life-duration and in lowering the cost of the fuel cells. Relatively in-depth investigations have been conducted in the topic of modeling of proton exchange membrane fuel cells, especially in the designing of distribution plates, in assembling of modules and in sealing techniques. Valuable probing of the CCM technique has also been carried out.

## **1.2 Earth and Environment**

### **Chinese civilian South Pole expedition back to HK**

**(CAS, 2006-01-05)**

A civilian expedition composed of six Chinese mountaineers arrived in Hong Kong on Thursday morning, formally completing their mission of clearing seven summits in seven continents and reaching both the South and North Poles ("Seven Plus Two Mission").

The group reached the South Pole on December 28, which enabled two members, Wang Sachs and Chung Kin Man, to complete their "Seven Plus Two Mission". The 52-year-old Chung also became the first Hong Kong native that has fulfilled the mission.

"The expedition (to the South Pole) was smooth and we had very good cooperation with each other," Wang told a small group of media at the airport terminal.

The expedition landed on the Antarctic continent on December 18 and reached the South Pole 10 days later. Only light injuries of frostbite were reported in the mission.

Wang and Chung have added two more Chinese names to the list of people that accomplished the "Seven Plus Two Mission".

Chinese mountaineers Wang Yongfeng, Ci Luo and Liu Jian on Dec. 16 reached the South Pole and completed the "Seven Plus Two Mission." Before the trio, only five people had achieved the mission.

### **CAS botanical garden becomes partner of GMS biodiversity initiative**

**(CAS, 2006-01-06)**

The CAS Xishuangbanna Tropical Botanical Garden has recently received US\$700,000 funding from Asian Development Bank as a collaborating partner for the Biodiversity Conservation Corridor Initiative (BCI) of the Great Greater Mekong Subregion (GMS), which comprises Cambodia, the People's Republic of China, Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam.

Although regional economic corridors are expected to play a crucial role in delivering the development agenda in GMS, there is concern that increasing development activities in the economic corridors may adversely affect critical ecosystems and high value biodiversity areas, resulting in fragmentation of natural landscapes. People are worried that it would undermine the functioning and performance of the region's ecosystems, thereby threatening long-term socio-economic development and environmental security of the Subregion. The proposed GMS biodiversity conservation corridor initiative is to support the broad-based agenda of sustainable development identified by the GMS countries.

With the technical assistance from Asian Development Bank, BCI will contribute to improving livelihoods of the beneficiaries. The project will be carried out in three steps. A total of US\$36 million will be invested in the Phase I (2005-2008), which is to assess the poverty situation and offering interventions with the aim of contributing to poverty reduction. The Phases II (2009-2011) and III (2012-2014) will be introduced for increased investments and consolidation of benefits from sustainable use and environmental protection. The project is to help the countries in the GMS establish priority biodiversity conservation landscapes and corridors for maintaining the quality of ecosystems by 2015, ensuring sustainable use of shared natural resources, and improving the

livelihoods of the local people.

### **China invents planting machine to tackle desertification**

**(People's Daily, 2006-01-09)**

A newly invented vegetation-planting machine gives hope to the effort to control desertification that has haunted the north China region for years.

The machine can work two to three hectares of land per day, said the Institute of Botany under the Chinese Academy of Sciences after the technical appraisal.

Trial operations of the machine in about 67,000 hectares of pasture in Inner Mongolia, north China, since 2004 show the forage grass planted with the machine survived the harsh winter and spring seasons in the desertified land, and no wind-blown sand is spotted in the planted areas.

Weighing 12 tons, the 2.8-meter-high and 6.6-meter-long machine can move swiftly in the desert, and complete the whole procedure of water spraying, ditch digging, sowing, fertilizing, and moisture layer forming in 5 minutes, said experts from the botany institute.

China now has 1.74 million square kilometers of desertified land, mostly in the north.

China's decade-long desertification control efforts have already yielded some effect since last year, according to an official in the forestry sector. Wind- and sand-control projects and reforestation helped add greenery to over 18 percent of the country's land in 2005.

### **Chinese Antarctica explorers discover 150 meteorites**

**(People's Daily, 2006-01-09)**

Since their first discovery of meteorite on Jan. 1, 2006, the explorers with China's 22nd Antarctica expedition have found 150 meteorites on the Grove Mountains till 10:00 pm Jan. 7 local time or 1:00 am Jan. 8 Beijing Time.

Some of the meteorites discovered are of rare types. The biggest one weighs 901g, according to Dr. Ju Yitai, captain of the team stationed on the Grove Mountains.

Meteorite collection is an import mission for the explorers.

They aim to increase China's collection of Antarctica meteorites and discover new and special types. Besides, they are also seeking unknown meteorite-intensive areas in the enrichment areas formed through glacier movement and melt.

Dr. Ju said meteorite collection is the main task for his team in the first 20 days.

With improving weather, most team members have joined the collection apart from other work. In the past couple of days, they picked as many as 30 pieces each day. On Jan. 7, in particular, 70 pieces were found.

### **China kicks off 1st int'l cooperative research on global climate change**

**(CAS, 2006-01-11)**

China kicked off on January 9 in Beijing the first international cooperative research program on global climate change organized and led by Chinese scientists.

The research program will be launched at the International Project Office (IPO) for the Monsoon Asia Integrated Regional Study (MAIRS), which is based in the CAS Institute of Atmospheric Physics.

Prof. Frits Penning de Vries, director of the MAIRS IPO, said at the official inaugural for the project that a new branch of Earth system science is emerging to research the causes, impacts and

their interrelations or regional climatic changes.

To promote Earth system science in the Asian region, Prof. Vries said, the four major global change programs, the World Climate Research Program, the International Geosphere-Biosphere Program, the International Human Dimensions Program and the International Biodiversity Research Program, decided in 2004 to create a research program targeted at the Asia Monsoon Region.

Deforestation and pollution from intensive industrial development have begun modifying the Monsoon. Human activities are clearly starting to alter the Monsoon system, Prof. Vries said.

The international steering committee for the MAIRS is composed of more than 20 recognized scientists from international research projects as well as from China, Japan and the Republic of Korea.

Fu Congbin, a CAS member, leads the steering committee.

The steering committee and the IPO are now drafting scientific and executive plans for upcoming research, which is scheduled to be published in November.

### **Sino-German Forum on Environment: Cooperation in Regenerative Energy and circular Economy**

(Translated from online news)

The 2<sup>nd</sup> Sino-German Forum on Environment was held in Qingdao of Shandong Province in 12 January, 2006. Matthias Machnig, State Secretary of Germany and Federal Minister of the Environment, Nature Conservation and Nuclear Safety, and Zhu Guangyao, vice-minister of the State Environmental Protection Administration (SEPA), attended the forum to precede the international cooperation between China and Germany in the fields of regenerative energy, sustainable energy, circular economy, and environmental symbols and green purchases. The forum attracted other more than 300 representatives from economic and environmental protection circles of the two countries.

"The forum will highlight issues surrounding sustainable development and a circular economy, since they are a top priority for China" said Mr. Zhu. "Germany is well-known for its advanced technology and rich management experience in the fields of renewable energy and a circular economy. Co-operations between the two countries look to have a rosy future."

"A strong environmental policy could help to support further economic developments," said Mr. Machnig.

After the forum, the two sides delivered the "Qingdao Announcement of Sino-German Environmental Forum" to promote the strategic partnership in the field of environment. The two countries will intensify the collaboration in energy saving, efficient energy and regenerative energy through training and communication to hoist the sustainable use of energy and environmental protection.

### **Scientists draft geological map of Antarctica**

(Xinhua Net, 2006-01-17)

A Chinese expedition team is conducting comprehensive geological research on Grove Mountain in Antarctica.

They are also drafting a geological map, which will be a world first for the mountain. The distribution map will show the geological features of the area, including rocks and faults.

The expedition team will study every accessible peak that is not covered by ice and snow. They will also collect and analyze a large amount of rock samples.

This is the first time Chinese scientists are doing their efforts to draft a geological map of the Antarctic inland.

### **Ancient oceanic trench found in Guangxi**

**(Xinhua Net, 2006-01-17)**

Archaeologists found a large-scale oceanic trench in the areas with Karst topography in south China's Guangxi Zhuang Autonomous Region thought to have formed about 400 million years ago.

The 20-hectare natural museum is located at Mount Malong in the scenic city of Guilin.

The oceanic trench includes different sorts of stalagmite and stone chimes, and many resemble animals and pagodas.

Archaeologists say that the oceanic trench was on the margin of the Baisha rupture belt about 400 million years ago.

### **Ocean No.1 mission accomplished**

**(China News, 2006-01-22)**



(The Ocean No.1 returns to the shores off Qingdao.)

China's first ever round-the-world ocean research mission has returned to the shores off Qingdao, in eastern Shandong province, after some 300 days at sea.

The “Da Yang Yi Hao” scientific mission ship, or Ocean Number 1, has visited the Pacific Ocean, the Atlantic Ocean and the Indian Ocean, covering a span of 100 thousand kilometers.

On Saturday, the mission’s experiment results have passed examination by an expert panel from the China Ocean Mineral Resources Research and Development Association.

Chief scientist of the Ocean Number 1 mission, Guo Shiqin, says they have accomplished the purpose of the mission, demonstrating China's ocean research capabilities are moving towards advanced world levels.

Ocean Number 1 is China's top marine research ship, weighing 5,600 tons and equipped with state-of-the-art equipment.

The mission, launched from Qingdao on April 2nd, has four main objectives.

The first is to obtain samples of sulfides, rocks and sediments near hot liquid openings at target areas of the three oceans as well as biologic and other solid samples offering a basis for further indoor research.

The second is to make an initial survey of resource distribution of hot liquid sulfides in specific sea floor areas in order to accumulate experience. The ultimate goal is to develop a group of ocean professionals for future round-the-world scientific research missions and in-depth surveys and research on hot liquid sulfides at sea floors.

The third is to push development of scientific ocean research forward by obtaining relevant first-hand data about mineral components, fluid chemical properties and life formation at hot-fluid jet openings. Multi-disciplinary approaches involving geology, chemistry and biology are used to better understand geologic formation of hot fluid as well as functional mechanisms among hot liquid spout minerals, chemicals and living organisms.

The Fourth seeks to bring about the development of related ocean equipment technologies.

### **Science ship returns after 300 days at sea**

**(Xinhua Net, 2006-01-23)**

China's first scientific research ship to circumnavigate the globe returned home yesterday after 300 days at sea.

The mission has fulfilled the long-held Chinese dream to make a transoceanic voyage, and also brought back more than 1,000 kilograms of hydrothermal sulfide samples containing copper, zinc and precious metals such as gold and silver.

Setting off from East China's coastal city Qingdao last April, "Dayang Yihao (Ocean No 1)" travelled 43,230 nautical miles (79,975 kilometres), first visiting the Pacific and then sailing across the Atlantic through the Panama Canal. It then travelled to the Indian Ocean, rounding the Cape of Good Hope before continuing back to the Pacific through the Straits of Malacca.

"The distance is the equivalent to circling the equator twice," said Lu Huisheng, 40, captain of the vessel.

The expedition was divided into six working trips with five stopovers, including Micronesia, Mexico, South Africa and Singapore for supplies of fuel, drinking water and fresh food.

Chinese scientists on board have gathered many rock samples, monitored and mapped out the ocean floor for future deep-sea mining operations and also conducted deep-sea biological research such as investigating, collecting and classifying sea life samples.

Han Xizhu, assistant to the chief scientist in the trip, said studies on the distribution of hot liquid sulfides on the sea floor have been undertaken in a bid to accumulate data for further development and exploitation.

"First-hand data of life formations near thermal vents are also a focus of the research mission, as biological gene study in this extreme environment may help with the fight against human diseases," she said.

Marine analysts said the trip marks the first step in the efforts of Chinese scientists to expand their reach to all major oceanic areas and to transform their focus from field research of mineral and biological resources to all-purposes studies, including advanced equipment testing and professional training.

About 120 scientific researchers, including several scientists from the United States and Germany, took part in the mission.

Among them there were only two females, Han one of them.

"Life aboard a research ship is not normal," she said. "You've got to work, work and work and there is no perception of time, even though the days on the calendar change."

**China to invest 9 billion to protect swamp land****(China News, 2006-01-24)**

The State Council has recently approved the Implementation Program of China's Swamp Land Protection Project (2005-2010), which says that over the next five years, China will invest a total of 9 billion yuan to protect the country's swamp lands.

According to information released on Monday by China's State Forestry Administration, the implementation program would be carried out with priority given to four aspects, namely protection of the swamp lands, reclamation of swamp lands, setting some lands as examples that have done well in keeping the lands' sustainable development, and capability building. With more efforts put in construction and management, it is expected that 50% of the nation's natural swamp lands and 70% of those important swamp lands are under effective protection and a basic protection system will take form in natural swamp areas.

The implementation program, jointly designed by eight central departments including the State Forestry Administration and the Ministry of Technology, clearly defines the protection goals, emphasized efforts, and detailed protective measures. It divided the nation's swamp areas into eight groups based on their locations. In terms of the current situation, from 2005-2010, priority will be given first to those established state-level swamp protection zones and those provincial-level protection zones located within the important national swamp areas. Demonstration projects will be taken in those typical and important swamp areas in aspects of land reclamation and sustainable development. Capability constructions will also be limited to those urgently needed aspects such as protection and management, monitoring, scientific research, and publication and education.

Statistics from a national survey of swamp land resources showed that the total areas of swamp lands with an area covering at least 100 hectares amounts to 38.4855 million hectares. China's natural and semi-natural swamp lands account for 3.77% of the nation's total territory.

**Big salt tide to re-strike Pearl River Delta****(China News, 2006-01-25)**

Guangdong (China) Astronomical Society forecast that affected by astronomical, hydrological and meteorological factors, the Pearl River Delta will witness another big salt tide between Jan. 25 and 30.

A big salt tide with a chloride content of more than 6,000 milligrams per liter will strike Dayongkou water gate in the Modaomen channel for several days in a row. As a water diversion project known as "control the salt tide and replenish fresh water" is under implementation on the Pearl River in mid January, relevant departments have reserved sufficient fresh water. Despite its truculent arrival, this big salt tide will not affect water supply and drinking water safety in Zhuhai, Zhongshan and Panyu of Guangdong Province.

Astronomical factors of this big salt tide include: the moon will move to above the Tropic of Capricorn on Jan. 25 and cause a Tropic tide; the sun, the moon and the earth will appear in a beeline on Jan. 29 and form a Syzygy tide; the moon will be the closest to the earth on Jan. 30 and cause a Perigean tide. These three tides will converge and overlap in a short period, and thus push the salt tide up in the Pearl River prominently.

This massive salt tide is expected to abate obviously after Jan. 31. Future salt tide situation in the

Pearl River Delta is subject to the rainfall around the Pearl River drainage area.

### **China faces severe pollution in maritime territory**

**(China News, 2006-01-31)**

139,000 square kilometers of China's maritime territory are below sea water quality standards for clean sea areas in 2005, and overall pollution in the maritime territory still needs improving. The "2005 China's marine environmental quality communique" recently published China's State Oceanic Administration published released the information.

It is learnt that the State Oceanic Administration has launched trendline supervision on marine environment quality in China-managed maritime territory, surveillance of land-to-sea sewage outlets in adjacent maritime areas and typically weak maritime ecological zone, red tide controlling as well as monitoring of crucial maritime functional zones, such as marine aquaculture zones, oceanic nature reserves, coastal bathing places, marine dumping zones and offshore oil and gas development zones.

The outcome of monitoring and controlling shows that China still faces severe situations in inshore maritime territory pollution. The polluted areas mainly cover Liaodong Bay, Bohai Bay, Yangtze River estuary, Hangzhou Bay, inshore areas of Jiangsu Province, Pearl River estuary and partial water areas in some big and medium-sized cities. A large part of inshore sea area is clean, and sea water quality in high seas maintains favorable.

## **1.3 Health**

### **Yunnan builds ethnic group gene bank**

**(Xinhua Net, 2006-01-03)**



(The largest gene bank of Chinese ethnic minority groups has been set up at Yunnan University in southwest China's Yunnan Province, according to sources with university.)

The largest gene bank of Chinese ethnic minority groups has been set up at Yunnan University in southwest China's Yunnan Province, according to sources with university.

A total of 1,250 healthy male DNA samples from all 25 minority ethnic groups in Yunnan have been collected by the gene bank, according to Xiao Chunjie, director of the Human Genetics Studies Center with Yunnan University, based in Kunming, capital of Yunnan.

According to Xiao, 50 samples were taken from each of the 25 minority groups with a population of more than 5,000.

"It took us four years to collect these samples, all gathered in light of international standards," he said.

To get highly pure DNA samples, the collectors sampled from remote areas in deep mountains where minority ethnic groups reside, he said.

"The reason why only male samples were collected is that men have both X and Y chromosomes, but women just have the X chromosome," he said, adding that the sampled men have no relationship of consanguinity to each other.

In addition, at least three preceding generations of the sampled men were purely of the bloodline of their own ethnic groups, with no history of intermarriage with other groups, he said.

Yunnan is one of the birthplaces of the Chinese nation. Yuanmou Man is believed to have lived there about 1.7 million years ago. The fossils of Yuanmou Man were first discovered at the Shangnabang Village in Yuanmou County in 1965 by young geologist Qian Fang.

Currently, 25 out of China's 55 minority ethnic groups live in Yunnan, with a total population of more than 10 million. Among these, 15 minority ethnic groups are exclusive to Yunnan.

### **Shandong scientists reclone calf from cloned cattle**

**(People's Daily, 2006-01-03)**

A calf reclone from body cells of cloned cattle was born Monday in Liangshan County of east China's Shandong Province, bringing the reclone calves alive to six in China.

Two calves died after birth in a cattle recloning project included in China's 973 program, a basic science development program.

The project was jointly undertaken by a team from China Agriculture University based in Beijing and the Shandong Kelong Animal Husbandry Co., Ltd..

The animal mammary gland bioreactor technology has been employed for the project.

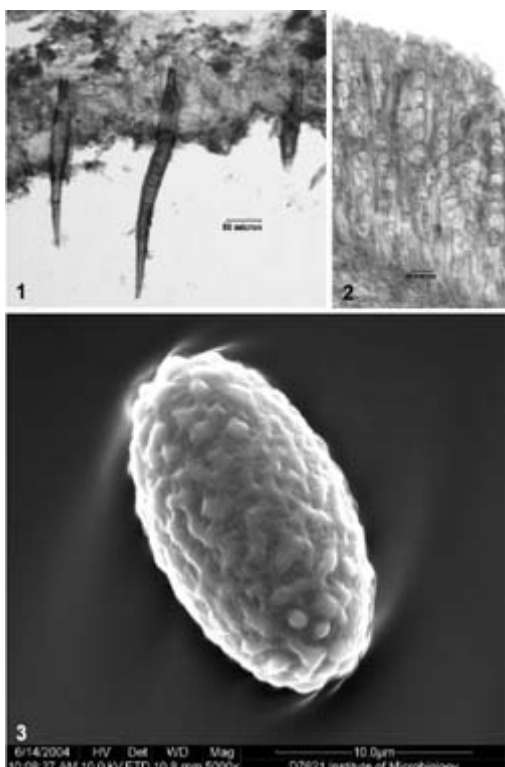
Scientists said the birth of the reclone calves indicated China's mammary gland bioreactor technology has been up to the world standards.

The research team, headed by Professor Li Ning, selected four cloned cattle with high mammary gland expression for their recloning experiment.

The newborn calves all originated from ear cells of cloned cattle.

### **A new species of cup-fungi found in southwest China**

**(CAS, 2006-01-04)**



Prof. ZHUANG Wenying from the CAS Institute of Microbiology has discovered a new species of the cup-fungi from her collections in Qinghai and Xinjing, China.

The new species, *Scutellinia kor.ana* W.Y. Zhuang, sp. nov. , was found from Hemuxiang in the north part of Xinjiang. The species' epithet refers to Prof. Richard P. Korf for his contribution to fungal taxonomy and nomenclature.

Among the existing species of the genus, the size of apothecia and shape of ascospore ornamentations of the new species are somewhat similar to those of *S. cubensis* (Berk. & M.A. Curtis) Gamundi, a fungus commonly found in the tropical and subtropical regions (Schumacher 1990); whereas, the very low spore markings under light microscope recalls that of *S. sinosetosa* W.Y. Zhuang & Zheng Wang from Yunnan and Shaanxi provinces (Zhuang & Wang 1998). An SEM study of the spore surface morphology of the new species reveals that the spore markings are much narrower and lower than those in *S. cubensis* and the ascospores and asci are both narrower under light microscope as well. Comparing with *S. sinosetosa*, the spore ornamentations of the new species are much wider.

### **Southwest China laboratory develops silkworm gene chip**

**(People's Daily, 2006-01-05)**

Gene chip of silkworm and its expression profile have been unveiled at the key sericultural laboratory of Agricultural Ministry based in Southwest Agricultural University in Chongqing municipality in southwest China.

Experts with the program said this achievement will help China's silkworm industry and prevention of human diseases.

A chip of only several square centimeters records 22, 000 genes of a silkworm cell. The genes, after coded, will be available for searching via computer.

The laboratory published China's first essay on silkworm on Science magazine in December 2004.

**University of Hong Kong finds SARS-resistant human gene****(People's Daily, 2006-01-05)**

The University of Hong Kong has found recently that a human homozygote gene pair can help resist against the SARS virus and treat other incurable diseases.

Hong Kong media says that research on the SARS sample has proven for the first time that L-SIGN, a human gene, decomposes and kills virus, thus reducing the infection rate by 30 percent. As the avian flu and HIV/AIDS show similar pathologic mechanism as that of the SARS, researchers believe that drugs stimulating the proliferation of L-SIGN or care by medical staff with stronger L-SIGN will contribute to preventing the spread of the epidemics.

The report published on the Nature Genetics says that every human body carries L-SIGN which is a protein molecule absorbing, dissolving and eliminating virus.

Clinical case studies has also proven the power of this gene in fighting against virus. The University of Hong Kong has found that out of the 285 subject SARS patients only some 40 percent of them have L-SIGN based on homozygote gene while 56 percent healthy humans have homozygote L-SIGN gene. This implies that people whose L-SIGN is composed of homozygote gene have lower risk of contaminating SARS.

That finding also brings new lights on the treatment of the avian flue, HIV/AIDS, tubercle bacillus, hepatitis C (HC), and Ebola virus. Researchers believe that this result will lay a good foundation for treating other diseases and help health authorities with their policy-making for public health.

**China claims 100 IPRs on human functional genes****(Xinhua Net, 2006-01-07)**

Chinese scientists have claimed nearly 100 intellectual property rights on human functional genes, which have shown great potential in disease prevention and pharmaceutical development.

Sources with the Ministry of Science and Technology (MOST) said here Saturday that the great progress in human genome research is an important step of the "863" high-technology program, a national project initiated in March 1986 aiming to enhance the country's overall strength.

So far, Chinese scientists have established a platform for selecting human functional genes, cloned and identified 1,346 new genes, and carried out large scale examination of genetic functions. Among the 100 human functional genes with Chinese intellectual property rights, 20 or more are now in the initial stage of laboratory research.

In the meantime, the MOST said, progress has also been made in research on genes relevant to tumour and cardiovascular diseases and the causes of the diseases, and a group of genes related to heredity diseases have been cloned and identified, such as cataract and epilepsy among children. These research results have been published in the journals of "Science" and "Nature", laying asound technological foundation for the diagnosis and treatment of heredity diseases.

Besides, Chinese scientists have also scored remarkable achievements in genome research such as on rice, microorganism, silkworm, and schistosome.

**Lazy eye might see bright future, even after age of 8****(CAS, 2006-01-09)**



Amblyopia, commonly known as lazy eye, is a developmental disorder of spatial vision in the absence of any detectable structural or pathologic abnormalities that cannot be corrected by refractive means.

The condition occurs when a child's eyes are misaligned and one eye begins to shut down. It is generally treated by putting a patch over the better eye to strengthen the weaker one. Until recently, the long-standing belief among doctors has been that if the disorder is not caught by about the age of 8, it is too late to do anything about it. Untreated, the condition can cause permanent vision loss in the affected eye.

In cooperation with colleagues from home and abroad, CAS researchers have discovered that young adults with amblyopia improve substantially and retain their gains after receiving a new treatment they have developed.

As reported online in a recent issue of the journal *Vision Research*, a research team, led by Prof. ZHOU Yifeng, an expert in visual information processing from the CAS affiliated University of Science and Technology of China and Institute of Biophysics, suggests that the visual system of adult amblyopes might still retain substantial plasticity and there is a way to help people with lazy eye who are in their late teens or older.

For the study, the researchers took 23 people with lazy eye, ages 14 to 27, and divided them into different groups. Over a period of 9 to 19 days, using a computer screen, members of two groups were taught to improve their contrast perception in the affected eye, said Prof. Zhong-Lin Lu from the University of Southern California in US, who is co-author of the paper and primary investigator.

The researchers trained the subjects in detection of a small "gabor", a set of three contrasting dark and light ovals that neurophysiologists have identified as a basic unit of visual perception.

Surprisingly, a marked improvement has been seen in standard vision tests. The seven subjects improved their overall visual acuity 25 to 216 percent, with an average of 70 percent.

Another 10 subjects in a slightly different training program showed an average improvement of 46 percent. Eight subjects in a control group showed no improvement.

Amblyopia is sometimes due to a misaligned eye that can be reoriented surgically. But in many cases the eye is perfectly healthy, Lu said, "The problem is actually in the brain. This is a neural deficit."

Next, the researchers plan to test their method on patients at a clinic in China. Other plans include developing a home training program. "It could become a clinical procedure," Lu said.

**Human gene research sees great fruits****(People's Daily, 2006-01-09)**

Since the implementation of the High Tech Research and Development (863) Program China has, in the research of functional genomics, acquired about a hundred key functional genes which show prospects for application in disease diagnosis and treatment and drug development and for which it has independent property rights (IPR).

Chinese scientists have established and perfected the platform technology for screening of human functional genes, cloned and appraised 1,346 new genes and launched gene function screening and examination of scale. Among the functional genes of independent IPR over 20 have entered the preliminary lab development stage.

Meanwhile, research on the relevant genes and pathology of tumor and cardiovascular diseases (including hypertension, diabetes and old-age related diseases) is being carried into depth. Scientists also cloned and appraised genes of transmissible diseases such as transmissible dentine genes, transmissible child cataract genes, transmissible atria fibrillation.

These original research results have been published in magazines such as Nature and Sciences and laid down a good technological foundation for diagnosis and treatment of relevant transmission diseases.

Moreover, China has also made a series of important progresses in the research of rice genome, microbe genome, silkworm genome and schistosome genome etc.

**Chinese scientists build database of immortalized cells****(People's Daily, 2006-01-09)**

China's database of immortalized cell samples of all Chinese ethnic groups has basically taken shape a decade after scientists' investigation and sampling throughout the country, sources with the Ministry of Health said Monday.

The research team, led by principal investigator Chu Jiayou and jointly supported by the Chinese Academy of Medical Sciences and the Chinese Academy of Sciences, has collected a total of 3,119 different strains of everlasting cells, and kept 6,010 DNA samples for further research.

The group has also developed a mature and stable technology to transform a lymph cell B into an immortalized cell by making use of Epstein-Barr virus, Chu said, quoted by the Health News newspaper.

Immortalized cells can be kept in labs for research for quite a long time.

By observing the genomes of different ethnic groups, the technology helps scientists' study in pathogeneses, diseases-causing genes, genetic diagnoses and therapies, Chu said.

Having the world's largest population and 56 ethnic groups, China is rich in genetic resources. Different ethnic groups have different enzyme systems and human leukocyte antigens.

As a result of inter-marriage and migration among the ethnic groups, Chu said, some comparatively pure genomes are facing the danger of extinction. Preserving these genomes thus becomes an urgent task for maintaining complete and pure genes of different ethnic groups in China.

The Chinese immortalized cell database does not prohibit overseas use for lab research on such cell strains. Some 149 cell strains have been provided to a European human genome research center, according to the newspaper.

The Chinese research group are further studying the genetic diversity of those cell samples,

including studies on chondriosome DNA, chromosome Y, and single nucleotide polymorphism, Chu said.

They have done genetic scanning and typing of 28 Chinese ethnic groups, built genetic trees for 32 East Asian peoples, and compared 15 global ethnic groups. Some of the research results have been published in prestigious scientific journals such as *Nature* and *Human Genetics*.

### **China discovered blood type gene structure**

**(China News, 2006-01-09)**

According to *Nanfang Daily*, an expert appraisal committee headed by Chinese Academy of Engineering academician Lu Daopei recognized the breakthrough in blood type allelic gene sequential structure research of the Chinese people led by Prof. Wu Guoguang with Shenzhen's Institute of Transfusion Medicine. Their research discovered and reported a large quantity of the Chinese people's blood type allelic gene sequential structure in a systematic way for the first time in the world, which superseded the classic serologic blood grouping technique.

The research group led by Prof. Wu has been devoted to research of the Chinese people's red cell blood type allele in the past five years. With the help of various molecular biological technologies, they successfully identified and analyzed gene sequences of the Chinese people's red cell blood type in line with ABO, Diego, Dombrock and secretion type blood grouping systems, took the lead in elucidating discrepancies between molecular genetic backgrounds and structures of the Chinese people and that of other peoples reported in the globe, established China's first blood type allelic gene information and red cell bank, and developed the unprecedented DNA blood grouping technique to identify Diego and Dombrock blood groups which suits the Chinese people's ABO blood type alleles and secretion type blood type alleles, which superseded the conventional serologic blood grouping technique.

At present, information about blood type allele sequential structures mainly comes from the white people. Systematic research on blood type allele structure and characteristics of various ethnic groups and people in different regions in China and the establishment of the Chinese people's blood type polymorphic genetic resources sharing platform is of great significance and in urgent need.

### **Experts find ways to cure adult weak sight**

**(Xinhua Net, 2006-01-10)**

Chinese experts cooperated with his U.S. peers and developed a possible way to cure adult weak sight, with their thesis published in the latest authoritative magazine of *Vision Studies*.

The scientific outcome was jointly made by Professor Zhou Yifeng and his colleagues from University of Science and Technology of China (USTC) and Professor Lu Zhonglin from American South California University.

Zhou and Lu chose 23 patients at an average age of 19.3 and divided them into three groups.

Using specific stimulus from computers, the experts tried, through different ways, to raise the sensitivity of light contrast of the patients.

The stimulation lasted for nine days to 19 days in different groups.

Though light contrast sensitivity is merely one function of people's visual system, the researchers found the eyesight of the patients were improved by 70 percent after the tests.

Zhou said weak sight was relevant to abnormal visual experience in early growth, such as

strabismus.

The vision system has been considered having no or weak plasticity in the key growth period for a long time.

Due to the ineffective treatment to the weak sight patients for quite a long time, doctors almost stop doing anything to cure the disease of the patients who are above eight years old.

But now, the age limit of weak sight treatment may be different as what people used to believe, said Zhou.

### **China's human bird flu vaccine test progressed**

**(China News, 2006-01-10)**

Prof. Lin Jiangtao, director of the Respiratory Department of the China-Japan Friendship Hospital who is in charge of the first-phase clinical trial of human bird flu vaccine, indicated that China has commenced clinical trial for the second dose of human bird flu vaccine recently and six volunteers have received injection to date.

According to The Beijing News, in the following five weeks, the clinical trial base in China-Japan Friendship Hospital will inoculate volunteers participating in the trial with different doses of human bird flu vaccine by stages every week. Lin said that if the above six volunteers experience no adverse reactions such as fever and pain this week, another 24 volunteers will be vaccinated with the second dose.

Compared with the first batch of volunteers in the trial, those in the second stage of trial will receive a doubled dose of such vaccine. At present, six volunteers receiving the second dose have safely passed 72 hours of observation after the vaccination and no adverse reaction was reported.

Lin believes that based on current results of the trial, China's human bird flu vaccine initially proves safe on human body. If everything goes smoothly, volunteers will be vaccinated with the third dose around the Chinese New Year.

### **China makes debut export of human-use vaccines**

**(People's Daily, 2006-01-14)**

Live hepatitis A vaccine produced by a biotech producer based in this capital of east China's Zhejiang Province has been given a green light to enter the Indian market, marking a debut export of China-made vaccines.

The hepatitis A vaccines independently developed by Chinese virologists have been inoculated on 130 million persons in China, which has helped bring down the incident rate of the infectious disease by 20 percent every year in China during the past decade.

The Zhejiang Pukang Biotech Co. said on Saturday that the vaccines with complete domestic intellectual property right were ready for export to India, after they passed human test and the ensuing observation for three years in the country.

Although China announced that it has basically controlled the prevalence of hepatitis A, there are still 1.4 million people found infected with the disease globally.

Vaccines remain the most effective way to curb the spreading of hepatitis diseases. Pukang Biotech is exploring exports of the vaccines to Guatemala and the Philippines.

### **Parasitic wasps used to kill pests**

**(CAS, 2006-1-16)**

CAS scientists have developed egg parasitic wasps to curb the spread of certain kinds of insect pests.

The new measure has been tested on over 13,300 ha. arable land in 13 provinces and regions, according to a principal of the CAS Wuhan Institute of Virology, based in this capital of central China's Hubei Province.

The egg parasitic wasps transfer fatal virus by stinging the target pests when spawning their eggs in pest eggs, he said.

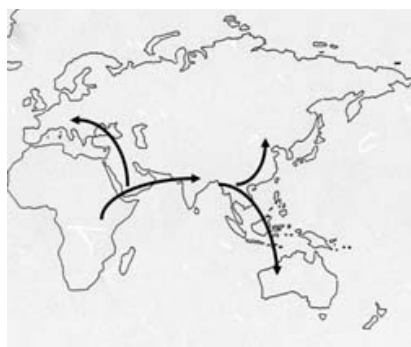
The expert explained that pests are infected when they are eggs, and when they grow up, they can carry the epidemic within the species.

The new technology won the second place of the State Technologies and Inventions Prize on Jan. 9 this year and four national patents before.

The technology poses no harm to pest's natural enemies and is pollution free. It has a promising future in preventing and curing pest problems among crops, forests, teas, vegetables and fruits, according to the expert.

### Research sheds new light on the peopling of South Asia

(CAS, 2006-01-19)



Human mitochondrial DNA (mtDNA), a circular molecule with 16,569 base pair length, encodes 13 proteins, 22 tRNAs, and 2 rRNAs. In the past few years, complete sequencing mtDNA genome has become a powerful tool to determine the matrilineal components and their evolutionary relationships (viz. phylogeny) and thus to gain some detailed insights into the past of modern humans. Hitherto, no similarly systematic study has been applied to South Asia--an important area which hosts a diverse conglomerate of people with different morphological, genetic, cultural and linguistic characteristics and has been suggested to serve as a key region for the dispersal of modern humans after the "Out-of-Africa" event.

To fill the lacuna, a research team led by Prof. ZHANG Yaping, an expert in molecular evolution and population genetics from Kunming Institute of Zoology, CAS, have completely sequenced 75 macrohaplogroup N representatives which were carefully selected from a collection of 1,200 mtDNAs sampled across India. Their results determined five novel haplogroups (viz. N5, R7, R8, R30, and R31) as well as another six known indigenous ones (viz. N1d, R5, R6, U2a, U2b, and U2c), which are pronouncedly different with the other haplogroups in other regions (Europe, East Asia and Oceania), and the separation time is estimated to be 60,000~70,000 years ago. Moreover, it turns out that the European mtDNA lineages observed in India have a close relationship with the typical European ones. The researchers believed that the high-level similarity and wide spreading of the European lineages in India indicated large-scale gene flow.

Their results are in agreement with the previous viewpoint on the peopling of South Asia. Based on the evidence from archeological, anthropological and genetic studies, it has been proposed that the modern Indian population resulted from three migration events: the first and most ancient one originated from the east Africa about 60,000 years ago, leading to the aboriginals in India; the second came from Near East about 10,000 years ago, which was related to the spreading of agriculture; and the third resulted from Aryan invasion about 4,000 years ago, laying a ground for the caste system in the country. In their results, the eleven indigenous haplogroups were derived from the most ancient migration and represented the aboriginals in India; while the European lineages indicated the gene flow since Neolithic from Fertile Crescent or Central Asia steppe.

Their results also shed more light on the migration mode of modern humans after "Out-of-Africa" exodus. The traditional view holds that there were two distinct migration routes after the "Out-of-Africa" event: a southern route along the Asian coastline and a northern route through the Levant to Near East, with haplogroup M dispersing along the southern route while N along the northern one. Prof. Zhang and colleagues' results, however, indicated that it was unlikely for the haplogroup N to enter India through the northern route. Instead, haplogroup N might have taken the same route together with M. That is, the "Out-of-Africa" dispersal is not a two-route but a single route migration along the Asian coastline. The aforementioned work was reported in *The American Journal of Human Genetics* (75: 966-978).

Similar analysis has been performed on Indian haplogroup M lineages. By complete sequencing 56 representatives selected from more than 1200 Indian individuals which were proven to belong to haplogroup M on the basis of control-region and partially coding-region information, Zhang and colleagues identified seven novel indigenous haplogroups (M34-M40) and provided complementary information in supporting eight known ones (M2-M6, M18, M30, and M33). Their reconstructed phylogenetic tree covers nearly all Indian autochthonous M lineages and thus can serve as the basis for the subsequent mtDNA studies for the region.

The comparison of matrilineal components among India, East Asia, Southeast Asia, and Oceania at the deepest level revealed a star-like and non-overlapping pattern, thus reflecting a rapid dispersal mode of modern humans along the Asian coast after the initial "Out-of-Africa" event. This work was published (on-line) in *Molecular Biology and Evolution*.

### **China confirms tenth human H5N1 infection**

**(China News, 2005-01-24)**

China's Ministry of Health yesterday announced one more human case of bird flu, bringing the tally up to 10 cases.

The infected person is a 29-year-old woman surnamed Cao from Jinhua Town of Chengdu, Southwest China's Sichuan Province, said a report released by the ministry. She has been hospitalized in Chengdu and is in critical condition.

Coinciding with the news, the country's veterinary workers were urged not to relax their containment efforts during the coming Spring Festival when a supply of safe poultry must be ensured.

"We must see clearly the severe situation during Spring Festival and always put people's health and safety first," Vice-Premier Hui Liangyu said in Beijing yesterday, one week before the traditional Chinese gala.

Hui, also chief of the national bird flu control headquarters, said consumption of fowls and their

products will soar during Spring Festival and early spring, when the transfer of poultry will be more frequent, and the migratory birds begin their journey north.

Earlier, the country's Chief Veterinary Officer Jia Youling said winter and spring are the peak seasons for bird flu, and 60 per cent of China's domestic birds are raised on backyard farms with inadequate management, which makes epidemic prevention difficult.

The country reported 32 outbreaks of H5N1 bird flu last year. All the epidemic sites had ended quarantine isolation by January 3, according to the Ministry of Agriculture.

Despite the achievements, containment workers are facing new challenges, and no one can afford to relax their efforts, Hui told the meeting on the prevention and control of avian influenza.

During the week-long holidays, there must be people on duty to deal with any emergencies and to ensure the smooth flow of information, he said.

Supervisors must make sure vaccination, monitoring and disinfection measures are implemented conscientiously and all hidden perils are eliminated, he said.

To prevent human infection of the deadly H5N1 strain of bird flu, screening of suspicious pneumonia cases and training of contingency squads must be strengthened, the vice-premier said.

China has reported 10 human cases of bird flu. Six of them died.

The eighth case, a 6-year-old boy surnamed Ouyang who was confirmed to have contracted the disease on January 9 in Central China's Hunan Province, is recovering at a local hospital, Xinhua reported on Saturday.

But bird flu control is just one side of the coin. As poultry is almost an indispensable cuisine for traditional Chinese festivals, the vice-premier also called for solid work to monitor the market supply of poultry products for reliable quality and safety.

Quarantine and inspection must be enhanced to guarantee that all products are up to standards. Anyone who averts quarantine or is involved in the transferring, processing and marketing diseased and dead animals and poultry products must be penalized.

In addition, there should be more publicity to promote consumption of bird products, he said.

Sales of eggs and other poultry products have picked up as the Lunar New Year draws near.

In Nanchang, capital of East China's Jiangxi Province, sales of eggs have increased by 20 per cent each month to reach 20 tons a day, according to the municipal bureau of statistics.

### **Scientists: Basic gene may lead to myopia**

**(Xinhua Net, 2006-01-26)**

A gene basic to the development of the eye may also be a factor in near-sightedness, according to a team of scientists in Guangzhou, South China's Guangdong Province.

It follows a 10-year study, which involved fitting contact lenses to the eyes of rhesus monkeys.

The gene, called pax-6, has been discovered to play an important role in the process of eye development.

"This study was to determine the mechanism leading to human short-sightedness based on the role of pax-6 in the causes of the same eye condition in infant rhesus monkeys," Ge Jian, director of Zhongshan Ophthalmic Centre under Guangzhou's Sun Yat-sen University, who leads the study, told China Daily Wednesday.

"Our study means we can reinforce the much-debated idea that most young people become short-sighted from reading too close to books or working too closely to objects such as computer screens."

According to the centre's statistics, about 70 per cent of Chinese teenagers are suffering from short-sightedness, much higher than the 6 per cent in the United States.

"But only less than 5 per cent of them are born susceptible to sight problems, with the rest being affected by the environment," Ge said.

Inspired by this phenomenon, Ge and his fellow researchers started the study on myopia in collaboration with Earth Smith and other top professors of Huston University in 1995.

Not satisfied with previous studies on flies, mice, chickens and some other animals, they decided to study rhesus monkeys, the physical structure of which is the closest to human beings.

Infant rhesus monkeys, aged from one to six weeks, wore -3.00 D glass lenses, designed for short-sightedness, over their right eyes and zero-powered lenses over their left eyes.

Ten weeks later, optically induced short-sightedness started to develop in the monkeys.

The pax-6 gene expression in the retinas of the defocused right eyes was significantly higher than in those of the left eyes.

The result suggests that pax-6 may be involved in vision-dependent eye growth, Ge said.

To induce monkeys to be shortsighted, researchers also placed contact lenses in their eyes, performed laser operations or forced them to live in small spaces for a long time, leaving them no choice but to see objects closely.

The results were similar with the first study, Ge said. All those means to induce short-sightedness in monkeys were similar with the causes of the same eye condition in human beings' short sight, he added.

The result of the study makes it more convincing that the increasing tendency of children to stay indoors watching televisions, playing computer games or reading books too closely to their eyes can cause short-sightedness.

### **China reports 70,000 new HIV infections in 2005**

(China News, 2006-01-26)



(University students sign their name on a banner that reads "preventing AIDS, fulfilling responsibility" in Beijing on December 1, 2006. China reports there were some 70-thousand new cases of HIV infection last year, and a total of 650-thousand people are now living with the virus.)

China reports there were some 70-thousand new cases of HIV infection last year, and a total of 650-thousand people are now living with the virus.

The figures were released in a joint statement by China's Health Ministry, the World Health Organisation and the United Nations AIDS agency on Wednesday.

Wang Zhong De is China's Deputy Minister of Health.

"The total number of HIV/AIDS carriers for the country is 650-thousand. Out of that total, 75-thousand are AIDS patients. In 2005 new HIV carriers were estimated at between 60- to 80-thousand nationwide."

In the past, China reported that it had 840-thousand people infected with HIV and 80-thousand with full-blown AIDS.

According to the Deputy Minister of Health, China conducted a national survey in 2004 on HIV/AIDS infections caused by blood selling, and found that the actual number of people who had contracted the disease through this channel was much lower than originally estimated in 2003. The joint statement notes that the lower numbers released Wednesday do not mean that the situation is becoming less critical.

The latest national survey indicates that HIV/AIDS cases remain on the rise in China, and the epidemic is also spreading from high-risk groups to the general population. New HIV infections occur mainly due to injecting drug use and unprotected sexual contact.

### **China making headway in fight against TB: health official (People's Daily, 2006-01-28)**

China has made "huge progress" in the past five years in the fight against tuberculosis (TB), said an official of a global TB program on Friday.

"What we have seen is that progress has been made in China. Amazingly, the progress has been huge," Marcos Espinal, executive secretary of Stop TB Partnership, told Xinhua.

"It (The Chinese government) is very committed to controlling TB. It is in the process of expanding access to TB services all around the country, from half of the provinces three years ago to all the provinces now."

He said three years ago Chinese hospitals were not part of the DOTS (Directly Observed Therapy Short-course) strategy and half of TB cases came from hospitals. Now all hospitals across the country have adopted this system.

As a result, 60 percent of TB cases were detected in China in 2005, compared to 28 percent five years ago.

Espinal said he was very optimistic about TB control in China. However, he warned that to fight TB in such a huge and populous country is not an easy task.

Two things are needed before China can claim victory: long-term political and financial commitments and long-term planning, he said.

With 1 million new TB cases every year, China is the world's second hardest-hit countries, after India.

Stop TB Partnership, a global initiative supported by more than 400 organizations worldwide, unveiled an ambitious global plan at the Davos annual meeting of the World Economic Forum on Friday.

The plan aims to treat 50 million TB cases and prevent 14 million deaths from the epidemic by 2015. It also envisages new drugs by 2010, new effective diagnostic tools by 2012 and a new vaccine by 2015.

The ultimate goal of the international community, said Espinal, is to make the world free of TB by 2050.

The plan costs about 56 billion U.S. dollars over the next 10 years, and 31 billion dollars in addition to the currently projected funding is needed.

On average, about 50 percent to 60 percent of the funding comes from governments, the rest from donors, said Espinal.

Microsoft Chairman Bill Gates, who helped launch the plan, pledged to commit 600 million dollars for TB in the next 10 years, on top of the 300 million dollars the Gates Foundation has already pledged.

### **Wild bird suspected to carry H5N1 virus in HK**

**(People's Daily, 2006-01-28)**

The result of preliminary testing of a dead Oriental Magpie Robin found in Sha Tau Kok, Hong Kong, indicated a suspected case of H5N1 avian influenza, a spokesman for the Agriculture, Fisheries and Conservation Department (AFCD) said in HK Friday.

Further confirmatory tests were being conducted, added the AFCD.

The dead bird was collected by AFCD staff Thursday in a privately-owned hut near a village house in Sheung Wo Hang Tsuen upon a public referral.

The spokesman reiterated that the department would maintain frequent inspections on poultry farms to ensure that proper precautions against avian influenza had been implemented.

"We will continue to monitor poultry farms closely. There is no abnormal mortality and the chickens show no symptoms of avian influenza," he said.

As a safety measure, the department is carrying out inspection of some 10 poultry farms within five kilometers from where the bird was found. Surveillance of wild birds in the area has also been stepped up. Backyard poultry owners are advised to contact the AFCD through the government hotline if they would like to surrender or vaccinate their chickens.

"They should consider giving up backyard farming if biosecurity measures are found inadequate. Any suspicious outbreak of disease among their birds or their neighbors' birds, or significant increase in mortality should be reported to the AFCD immediately," he said.

"We also strongly advise the public not to set free their pet birds as their chance of survival in the wild is minimal."

The spokesman added that if H5N1 avian influenza virus was confirmed to be found in this Oriental Magpie Robin, it might be an indication that the virus exists in the natural environment.

The Center for Health Protection (CHP) of the Department of Health contacted six AFCD staff and seven household members of the family who owned the village house and hut. All were asymptomatic and they were put under medical surveillance.

People are reminded to observe good personal hygiene. They should avoid personal contact with wild birds and live poultry and clean their hands thoroughly after coming into contact with them.

## **1.4 Key Technologies**

### **1st Quantum computer to be developed in 15 years**

**(Xinhua Net, 2006-01-06)**

The first quantum computer in the world is likely to be developed in 15 to 20 years, said Guo Guangcan, an academican of the Chinese Academy of Science (CAS) and professor of the University of Science and Technology of China (USTC).

Despite remarkable achievements China has made in the field of quantum technology, the country is "still in the basic stage," Guo said at a recent symposium in Hefei, capital of east China's Anhui Province.

A quantum computer is a computer that uses quantum mechanics, rather than digital logic.

In the 1970s it was envisioned that computers would eventually become so small that regular physics would be ruled out by quantum mechanics.

In quantum computing, data units are known as qubits, which are much different than regular bits. They can be in states of 0, 1, or what is called a superposition of them, which means they can be both at the same time.

Guo has contributed significantly to quantum mechanics, proposing the probability quantum cloning principle, establishing the theory of quantum error coding avoidance and proposing quantum processing free from decoherence.

### **Nanometer lubricant helps cars to run without oil**

**(China News, 2006-01-17)**

A car was able to finish a journey of 5,050 kilometers without any oil in the engine, thanks to a new technological product called nanometer lubricant.

The journey helps China to set up a new Guinness record. It also strengthened China's leading position in World in the nanometer lubricant technology.

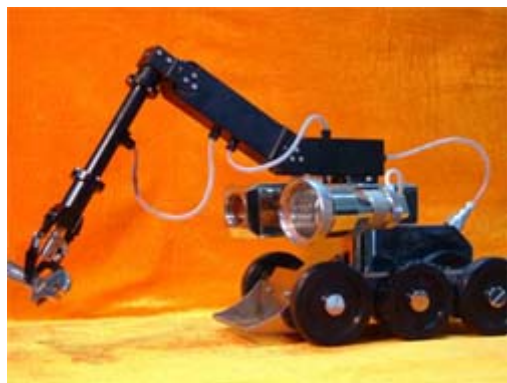
Without any oil in the engine, people from the Wangguan Petroleum Chemical Company, in east China's Qingdao city, recently kept a car running for 5,050 kilometers, a round trip from Qingdao to Hengyang of Hunan via Beijing. The company was able to finish the trip by applying a compound lubricant additive, the Roab nanometer grease.

The car, after lubricated with the grease, was able to travel thousands of kilometers without any oil.

For a long time, lubricant is regarded as an important element for its effectiveness in making cars running more smoothly. Lubricant additives, the key element to upgrade the quality of lubricant, involve a lot of scientific work from experts around the world. Traditionally, China solely relied on imports for this high quality product. The nanometer lubricant technology would help China to break such monopolized status.

### **China's first salvaging robot for nuclear power plants**

**(CAS, 2006-01-18)**



Researchers from the CAS Institute of Optics and Electronics in Chengdu, capital of southwest

China's Sichuan Province, have been successful in building China's first robot for searching and retrieving underwater foreign objects in nuclear power stations. The equipment is now being used in the Guangdong Daya Bay Nuclear Power Station, one of the largest commercial nuclear installations in China.

Loose or foreign objects in reactors would cause serious damages to nuclear plants. To inspect the problem and remove the objects quickly and safely, a remotely operated systems for a hazardous environment is in urgent demand.

The system developed by CAS researchers incorporates state-of-the-art technologies in the field of optics, fine mechanics, automation, and information processing and system integration. It has the capability of searching and operation.

The robot system is composed of an underwater crawler, a two-dimensional pan and tilt, a TV camera system, an image compression and storage system, a mechanics gripper, a cleaner, a vacuum pump and a remote-controller. Its gripper could pick up a relatively large object such as screwdrivers or spanners, while its cleaner could deal with something smaller like a screw. With its vacuum system, the system could suck sediments such as broken glass or paint flakes. The total weight it could collect is up to one kilogram.

The robot system has many advantages, including small size, flexibility, low cost (only one eighth of an imported one) and large carrying capacity. The six-wheeled machine is capable of climb a slope up to 30°C and move with a speed of 0-9 meter per minute. Its comprehensive advantages are obviously higher than its overseas counterparts, laying a solid foundation for the further development of underwater robots in China.

#### **Fire control robot passes technical appraisal (Xinhua Net, 2006-01-19)**

A China-made reconnaissance robot used in fire control, the first of its kind in China, passed technical appraisal by a group of Chinese scientists in charge of key state science and technology programs recently.

The robot was jointly developed by the Robot Institute of Shanghai Jiaotong University and Shanghai Fire Control Institute of the Ministry of Public Security.

Weighing about 300 kilograms, the robot walks back and forth on its four continuous chain treads. It can turn left and right, climb over a barrier 250 mm high and go up stairs with a gradient of 30 degrees.

Carrying three cameras, the robot can monitor conditions on the ground and in nearby areas and send relevant information back to its controllers.

The robot is equipped with two flameproof ultrasonic sensors which can help the robot turn away from barriers and move to safe places.

Able to test and identify poisonous substances, oxygen deficiency, explosives and heavy smoke in dangerous places such as the site of an explosion, the robot can make a very effective contribution to the safety of firemen.

This kind of robot is expected to go into batch production and will soon be widely available for fire control in China.

#### **Studies on RFID technology making progress (CAS, 2006-01-20)**



Analyses and Testing of Radio Frequency Identification (RFID) in Logistics, a research project carried out by researchers from the CAS Institute of Automation (IOA) with the support from the National High-tech Development (so called "863") Program, passed the acceptance check on January 13.

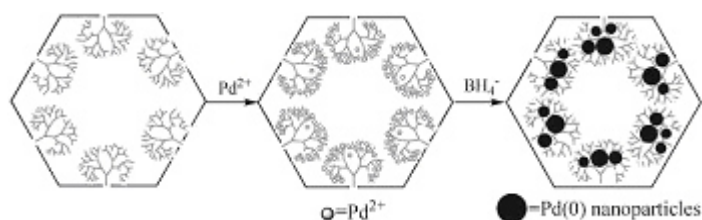
RFID is an automatic identification method, relying on storing and remotely retrieving data with devices called RFID tags and readers. An RFID tag is a small object that can be attached to or incorporated into a product, animal, or person. It contains silicon chips and antennas to enable them to receive and respond to radio-frequency queries from an RFID reader. A significant advantage of RFID devices over a bar code is that the RFID device does not need to be positioned precisely relative to the scanner. For example, you could just put all of your groceries or purchases in a bag, and set the bag on the reader. It would be able to query all of the RFID devices and total your purchase immediately.

However, some common problems with RFID are reader collision and tag collision. Reader collision occurs when the signals from two or more readers overlap. The tag is unable to respond to simultaneous queries. Systems must be carefully set up to avoid this problem. Tag collision occurs when many tags are present in a small area; but since the read time is very fast, it is easier for vendors to develop systems that ensure that tags respond one at a time.

To address the problems, IOA researchers have been working on a state-of-the-art testing platform that could present the typical scenarios and a complete demonstration framework for its application. Over the two years, the researchers have established an analysis and simulation testing platform for RFID. On the basis of the platform, they conducted detailed analysis and evaluation on a tag, reader, antenna and middle ware of the technology. The researchers set up a typical testing environment for logistics, including warehousing management, distribution management in assembly lines, and smart-self management; they have completed norms for application and testing norms for attaching RFID tags on object surface (the third draft); a consulting report on RFID application in logistics; and a solution to RFID-based tracking system for food safety. The research project has resulted in three monographs and three papers and filed for two patents.

### Studies on organic-inorganic hybrid composites make novel progress

(CAS, 2006-01-23)



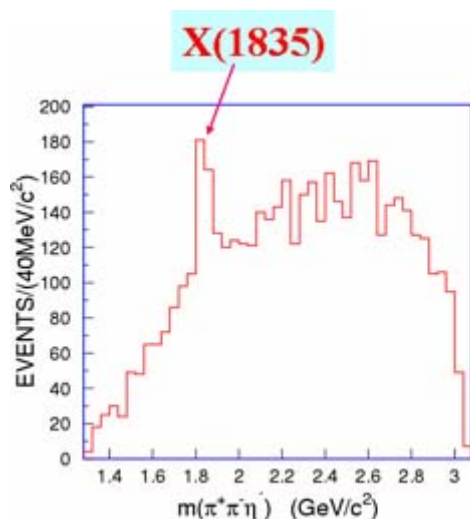
With the support of the National Natural Science Foundation of China and the CAS *Bairen* Program, a team led by Prof. GAO Qiuming from the CAS Shanghai Institute of Ceramics has made remarkable progress in studies on the preparation of organic-inorganic hybrid composites and their performance.

As a good catalyst, the precious nanometer metals have received attention from various fields. However, because of a large number of reactive atoms on their surface, the nanoparticles are usually unstable and easy to aggregate over time, leading the loss of the performance of the nanomaterials. To solve the problem, Prof. Gao and colleagues have explored the use of hyperbranched polymers for encapsulating palladium nanoparticles in the context of supported catalysts by combining Polyamidoamine (PAMAM) with mesoporous SiO<sub>2</sub>. PAMAM is a nano-scale organic polymer with a flexible dendrite structure while SiO<sub>2</sub> is an excellent carrier with a rigid, uniform open-pore framework. By taking advantages of the two, the combination provides a good micro-environment for preparing nano-materials for a good nanoparticle catalyst, raising its activity by 1.5 times. Furthermore, These catalysts can be easily recovered, reused multiple times, and preserved for one month in the air, maintaining high catalytic efficiencies.

The work was published online by the *Journal of American Chemical Society* on the December 23 with the title of "Heterogeneous Hydrogenation Catalyses over Recyclable Pd(0) Nanoparticle Catalysts Stabilized by PAMAM-SBA-15 Organic-Inorganic Hybrid Composites," and highlighted by the journal *Science*.

## 1.5 Structure of Matter

### A new particle observed at BESII (CAS, 2006-01-09)



An international research consortium announced on January 6 the observation of a resonant state at the upgraded Beijing Spectrometer (BESII). The discovery, which was reported in the Dec. 31, 2005 Issue of the *Physical Review Letters*, has aroused a broad interest from the high-energy physics community in the world.

The new particle, which is named as X1835 (X means an unknown structure) for the time being,

was discovered in  $J/\psi$  decay to one photon and three mesons on the analysis of 58 million  $J/\psi$  events. With a mass of 1835 MeV, the new particle is very short-lived, only existed about  $10^{-23}$  seconds.

Scientists expect the X1835 might be a new particle they have cast about for several decades. Particle physicists are making various speculations on its basic structure. However, according to researchers, the final identification can not be made unless even more data are available and in-depth experimental and theoretical studies are carried out.

The BES is a large-scale, general-purpose solenoidal detector installed on the Beijing Electron Positron Collider (BEPC) on the campus of the CAS Institute of High Energy Physics (IHEP). The BES International Collaboration, which is composed of the physicists and graduate students from IHEP and 20 other universities and research institutions from home and abroad, is dedicated to the study of tau lepton and charm quark physics.  $J/\psi$  particle, a composite of charm quark and anti-charm quark, was discovered simultaneously at the Brookhaven National Laboratory and the Stanford Linear Accelerator Center in the United States in 1974 by Prof. S.Ting and Prof. B.Richter who were awarded the Nobel Prize for the discovery. The study of  $J/\psi$  decays provides physicists an ideal laboratory for the study of light hadron spectroscopy and charm physics.

Scientists say that more detailed studies will be made on the X1835 and other recent discoveries at BES in 2007 when a major renovation on both BEPC and BES is completed with a much better improvement in their performance and much larger numbers of  $J/\psi$  events collected.

## 1.6 Transport and Space

### **Chinese scientists discovered two supernovas**

**(China News, 2006-01-02)**

Tsinghua University revealed today that its Physics Department professor Lou Yuqing and his colleagues and graduate students have discovered two supernovas and named them 2005mc and 2005mf. Their discovery has obtained the formal recognition of the International Astronomical Union.

Tsinghua University owns the best optical telescope of all mainland Chinese colleges and universities with the largest diameter of 80cm and the best performance for optical telescopes. The telescope is located at the National Astronomical Observatories' Xinglong Station and is responsible for the critical tasks of roaming the sky to look for and observe supernovas, afterglow of gamma ray bursts, active galactic nucleus, variable stars and other astronomical phenomena.

The period around New Year's Day is the golden season of astronomical observation. In late December 2005, Prof. Lou and his observation team discovered two supernovas in UGC4414 and UGC4798 Galaxy successively, marking an end to the history that no telescopes of mainland Chinese colleges and universities ever discovered any supernovas.

Since their discovery was made around Christmas, Prof. Lou jokingly called it the scrumptious Christmas offensive. According to the National Astronomical Observatories' complex spectroscopic analysis, 2005mc is an Ia type supernova, but the type of 2005mf remains undefined.

**China's first feeder passenger jet to go into trial production****(People's Daily, 2006-01-04)**

China's first designed-in-China feeder passenger jet has passed all its blue print tests and the first model of the ARJ21 is to be built, said China Aviation Industry Corporation I (AVIC I) here Wednesday.

In early 2005, blueprints for ARJ21 were completed by China Airplane Designing Institute I (CADI I) under AVIC I in Xi'an, capital city of northwest China's Shannxi province.

The blueprints for the ARJ21 have passed theoretical airworthiness tests and they have been submitted for production. Sources with AVIC I could not confirm when the first test flights might take place.

"We will hand all the structural drawings to our partners for machining," said Huang Qiang, a manager with CADI I, adding that the ARJ21 is supposed to challenge Boeing and Airbus which are the largest providers in China for 78-to-105-seat regional jets.

The ARJ21 project partners have signed contracts with 19 aerospace component suppliers in Europe and the United States, said Huang.

ARJ-21, is short for "Advanced Regional Jet for the 21st Century," is featured for its safety and low price. It is the first regional jet that China has fully developed on its own, in accordance with the standards set by General Administration of Civil Aviation of China (GACAC), Federal Aviation Administration (FAA) and Joint Aviation Authorities(JAA).

Once it goes into production the company expects to sell 500 of the jets in the next 20 years, said Huang.

AVIC I, founded in 1999, is the largest aviation manufacturer in China. It has 47 factories and 31 research and development institutes. Its major products include military aircraft, commercial aircraft and airborne equipment.

**121 defence labs accredited for tests for aerospace****(Xinhua Net, 2006-01-06)**

China has accredited its first group of 121 national defense laboratories for standardized measures and tests for aerospace, aeronautics and nuclear technologies as well as dual technologies.

These accredited labs include those from the China Aerospace Science and Technology Corporation, China National Nuclear Corporation, and China State Shipping Building Corporation, according to the Science and Technology Daily.

The move is aimed to strengthen the national defense industry and develop dual technologies for both military and civilian use, said Wu Weiren, a senior official with the State Commission of Science and Technology for National Defense Industry, quoted by the newspaper.

The accreditation authorities will keep an eye on the management of the accredited laboratories to ensure that they can meet higher requirements for research and development, Wu said.

The labs would be deprived of the accreditation once they are found to have their management and technological capacity weakened, he added.

The accreditation system for national defense labs, which is prevailing in developed countries, was established in China in April 2004. So far, a total of 186 labs in the country have applied for the accreditation.

**2007 moon rocket production kicks off****(Xinhua Net, 2006-01-06)**

Manufacturing of the carrier rocket and satellite for China's first lunar expedition has kicked off, according to the State Commission of Space, Technology and Industry for National Defence.

Related facilities including the launch and ground application systems have begun testing, said spokesman Jin Zhuanglong at a press briefing.

China is scheduled to send its first satellite to the moon in April 2007 from the Xichang Satellite Launch Centre in Southwest China's Sichuan Province, in a one-year lunar mission dubbed Chang'e Project.

Apart from the moon exploration project, China also plans to launch four satellites by the end of this year. These include "Xinnuo 2," a large-capacity satellite for communications. Two others are for scientific research and one for weather forecasting.

Jin also outlined a long list of China's priority projects in several industries related to national defence, emphasizing the development of products for civilian use.

"We will give priority to research into new regional jets this year," he said. "And we will start developing large airplanes in the next five years."

Last September, the country announced the trial production of ARJ-21, or Advanced Regional Jet, hoping to reduce reliance on Boeing and Airbus in the domestic aviation market.

The 100 per cent domestically designed short-haul passenger plane is expected to take its maiden trial flight late this year, Xinhua reported.

**China's lunar probe program goes into crucial stage****(People's Daily, 2006-01-06)**

China's defense industry will continue to push ahead with the manned space flight and lunar probe programs and focus on improving innovative capability for science and technology and core competence in 2006, said Jin Zhuanglong, spokesperson of the Commission of Science and Technology and Industry for National Defense.

According to Jin, during the past five years, the innovative capability of the defense industry is enhanced to a new height and breakthroughs are made in a batch of programs including: completion of the research of a large geosynchronous equatorial orbit (GEO) satellite platform; initial samples of 120-ton liquid oxygen/kerosene-fueled and 50-ton hydrogen/ oxygen rocket engines which are to be finalized; breakthroughs in 1-million-kw PWR Nuclear Power Plant; full-swing research of independently designed regional jet planes; great progress from Shenzhou-5's "one man one day" flight to Shenzhou-6's "two men five days"; production initiated for aircrafts of Chang'e 1 satellite and carrier rocket, as well as system integration and test of the tracking, telemetering and control system, launching site and ground application systems; a number of programs winning State Scientific and Technological Progress Award and State Innovation Award; average annual increase of 36 percent for patent application.

The Commission of Science and Technology and Industry for National Defense will lay emphasis on research and production of Chang'e 1 satellite and carrier rocket in 2006. To guarantee the successful completion of the program, all supervision and research departments will take vigorous measures to control the technical conditions, improve coordination and address quality and weak links.

**China to initiate large aircrafts project in five years****(People's Daily, 2006-01-06)**

China has launched the verification of the key sci-tech programme of large aircrafts in 2005 and will initiate the research and development of large aircrafts during the "Eleventh Five-Year" period, reports Beijing Morning Post on Jan. 6.

Speaking at the press conference of 2006 national defense technology and industry working conference, Jin Zhuanglong, spokesperson with Commission of Science Technology and Industry for National Defense announced the objective and main tasks of science technology and industry for national defense in 2006 and "Eleventh Five-Year" period.

Jin also noted that China will launch four satellites in 2006, including Sinosat 2, Fengyun (Wind and Cloud) 2 No.5, Ocean 1B as well as Shijian (Practice) 8.

**Pilotless remote sensing aircraft developed in China****(People's Daily, 2006-01-06)**

China's first 50kg-class pilotless remote sensing system TJ-1, an important fruit of the 863 Program, was successfully developed in Qingdao.

The TJ-1 pilotless aircraft is 2.4 meters long and 0.9 meters high with wingspan of 4.2 meters. With ceiling of 3,000 meters and controlled radius of 100 km, the aircraft can fly at 100 km per hour for four hours continuously.

With proprietary intellectual property rights, the TJ-1 is applicable in civil remote sensing, and satisfies demands in the fields like water conservancy, forestry, and environmental protection.

**Astronomers predict good stargazing year****(Xinhua Net, 2006-01-10)**

(Stargazers will be able to watch, if the weather cooperates, several interesting astronomical phenomena later this year including a partial lunar eclipse and a "Mercury-embedded Sun".)

Stargazers will be able to watch, if the weather cooperates, several interesting astronomical phenomena later this year including a partial lunar eclipse and a "Mercury-embedded Sun," astronomers said yesterday.

They also forecast several minor meteor storms. Venus and Saturn will also appear to overlap one another.

"The most important is when the Sun looks embedded with Mercury," said Tang Haiming, a manager at science department of the Shanghai Astronomical Observatory. "It only happens once every 20-plus years." He said it is expected to happen on November 9 when Mercury's orbit will

pass between the Sun and the Earth.

At that time, people will be able to see a small spot (Mercury) on the Sun with certain telescopes. The spot is the planet's shadow. He said a partial lunar eclipse will occur at 2:05am on September 8 and will last 1 1/2 hours.

He said the scale of this year's lunar eclipse will be much bigger than last year.

Additionally, people will also be able to watch two meteor storms - one in November and another in December.

### **China develops its first medium- and low-speed maglev train**

**(People's Daily, 2006-01-10)**

Chinese engineers have developed the country's first medium- and low-speed magnetic levitation train which travels 150 kilometers per hour, the developers said on Tuesday.

A series of tests show that the performance of the train reached the standards for safety and reliability, said engineers who have spent two years in the development.

The train, which also produces low noise and is pollution free with low maintenance cost, will be mainly used for the urban traffic system of the country.

Compared with fast maglev trains, the medium- and low-speed ones consume less energy. Therefore, the construction of medium- and low-speed maglev train lines in urban areas has become a new focus worldwide, according to industry insiders.

China opened the world's first commercial magnetic levitation train with the highest velocity of more than 430 kilometers per hour in Shanghai in 2002, based on German technology. The development of the medium- and low-speed maglev train indicated China has become the third country in the world able to build maglev trains, following Germany and Japan.

Maglev train lines have been considered as an effective means to deal with the heavy passenger flow in the Yangtze River Delta, one of the economic powerhouses in China.

### **Breakthrough made in power unit for new-generation carrier rocket**

**(People's Daily, 2006-01-16)**

China's self-developed 50-ton LOX/LH<sub>2</sub> (liquid oxygen, liquid hydrogen) engine passed a 200-second hot-firing Sunday in Beijing, marking a significant progress China made in developing the sample of that type of engine.

The engine, undertaken by the Commission of Science, Technology and Industry for National Defense, has the biggest propulsion among those propelled with liquid hydrogen and liquid oxygen. It incorporates in itself hi-tech, high performance, high liability, low cost, non-toxic and non-pollution.

The successful development of the engine will further push forward China's technology for liquid rocket engine.

The engine and the 120-ton LOX/kerosene engine, both basic propulsion units for China's new-generation carrier rockets, will play an important role in the nation's endeavor in satellite technology, deep-space exploration and manned space flight.

The Commission, mobilizing related institutions and corporations, started working on 50-ton LOX/LH<sub>2</sub> engine five years ago.

Now they have completed the design and manufacturing of system and key components as well as related experiments and have mastered the technologies on a series of core components with

breakthroughs made in 16 key techniques on ground test stand and 10 on engine.

### **China faces new challenge after sending Shenzhou 6**

**(China News, 2006-01-16)**

The chief designer of Shenzhou spaceship, Qi Faren, who is also a member of the Chinese Academy of Engineering, said recently that China's aeronautics faced greater challenge after successful launch of the Shenzhou 6.

Qi revealed that in the next step, China aimed to set up a space lab in the sky by 2020, which would allow astronauts to stay in space and in the end, to conduct scientific researches.

To do so, Qi said the Shenzhou 8, Shenzhou 9 and Shenzhou 10 were scheduled to be launched in 2010 and the three space shuttles would together form a small laboratory in the sky.

He said the launch of Shenzhou 5 was only a symbol of breakthrough, far from being a real success. With the launching of Shenzhou 6, China's aeronautics made a major breakthrough since astronauts were able to take off their clothes and excrete in the cabin, like an ordinary person does. However, this was still different from being able to walk in the space. He admitted directly that it was an arduous task for people to work in the aeronautics field.

While encouraged by the fact that China managed to send space shuttle into the sky within a short time and at minimum cost possible, Qi said "we have to admit at the same time that China's aeronautics takes a slow start in history and we need to put more efforts into it."

He said the ultimate goal of space project did not lie merely on sending spaceship, but to create a condition for people to live a normal life in space, as a preparation for future exploration to other planets like Mars and Jupiter. At present, the biggest obstacle for astronauts is how to maintain a normal life in space. He further emphasized that the most important task for space project was to fully guarantee people's safety in space.

### **Shanghai to complete Aerospace City in 5 years**

**(China News, 2006-01-20)**

Shanghai Space Industry Bureau chief Yuan Jie said today that the Shanghai Aerospace City, which will consume over 1 billion yuan (US\$123 million) in its first-phase project, will be completed by 2010 and the related China Aerospace Science and Technology Park is expected to be unveiled in Shanghai in the near future.

According to the draft of Shanghai's 11th Five-Year Plan, Shanghai intends to form several industry clusters in application satellite, carrier rocket and other arenas. Yuan analyzed that this plan aims to support China's national strategy and adjust and elevate Shanghai's space industry, which will help China's overall space industry lead the world level. He said that Shanghai has the honor to participate in the national manned space project and is advantageous in satellite and rocket development. Building the Shanghai Aerospace City is a significant step towards forming industry clusters.

Yuan indicated that hardware facilities for the Shanghai Aerospace City started construction last autumn and the first-phase project is scheduled to be completed at the end of this year. Afterwards, the headquarters of the Shanghai Space Industry Bureau and various research institutes in Shanghai will move to the aerospace city one after the other. By 2010 when the second-phase project of the aerospace city is in smooth process, the total investment will have increased to 2 to 3 billion yuan.

The Shanghai Aerospace City, which is located in the Minhang District in southwest Shanghai, covers an area of 1,120 mu (184.8 acres) and its construction area reaches 300,000 square meters. The aerospace city will include a few functional sections such as the dynamics section, the electronics section and the cooperation section, and many professional research institutes. The city will also set up a large aerospace science popularization hall which will be open to the public.

**Shenzhou VI orbital module works well 100 days**

**(Xinhua Net, 2006-01-26)**

The orbital module from China's Shenzhou VI manned spacecraft has been in normal operation for 100 days, since separating from the re-entry module on Oct 17 last year.

Current monitoring data shows that all systems on the vessel, including power supply, altitude control and data management systems, are working well.

Meanwhile, onboard scientific research apparatus have also been switched on, with preliminary results coming in and a quantity of experimental data transmitted.

The module is expected to work for six months to this April.

## 2 News from Universities

### **Number of Chinese students in Japan hits new record high**

**(People's Daily, 2006-01-09)**

The number of Chinese students in [Japan](#) reached 80,500 by May 1, 2005, accounting for two thirds of the total foreign students in that country, according to the survey results released recently by the Japan Student Services Organization (JASSO), reports the overseas edition of People's Daily on Monday.

The results show that the number of foreign students in Japan increased by 3.8 per cent over the previous year to reach 121,800, hitting new records for seven consecutive years.

The registered number in the country refers to those students who studied in universities and short-term colleges (approximate China's junior colleges), excluding those who study Japanese in language schools. If these students were added, then the number of Chinese students in Japan would be further increased greatly.

### **National postgraduate exam attracts record 1.27 mln examinees**

**(People's Daily, 2006-01-16)**

The 2006 national postgraduate examination, which kicked off on Saturday, has attracted a record 1.27 million examinees, up 9 percent over last year's figure, as competition for employment has become increasingly fierce.

Statistics from the Ministry of Education showed that universities across the country will recruit 344,000 postgraduates in 2006. It means one in every four examinees will be recruited.

An increasing number of university graduates choose to hold higher academic degrees, because they face greater employment pressure, Wu Jiang, president of the Chinese Academy of Personnel Science said in an interview with Xinhua.

"In the 1980's or 1990's, university graduates were destined to have decent jobs, as they were in urgent demand after the Cultural Revolution (1966-1976), during which university education was suspended. But now, some university graduates have become unemployed, due to continuous recruitment expansion and saturation of employment market in recent years," Wu said.

Statistics showed that there were 2.8 million students graduated from universities in 2004, only 70 percent of them found jobs upon graduation. The number of university graduates for this year is to reach 4 million.

The 4 million university graduates will compete with 2.7 million vocational school graduates, 2.6 million migrant workers, 1 million laid-off workers from state-owned enterprises and other 8.4 million registered unemployed to seek jobs this year.

Hu Xuan, a student majoring finance in Tianjin-based Nankai University, is one of the 1.27 million examinees of this year's national postgraduate exam.

"I studied around the clock for preparing the exam. To be a postgraduate of a well-known university is very difficult, but it will bring me bright career future and higher income," she said.

Hu also visited some job fairs and handed out applications to banks, accounting offices and foreign companies. But so far, there is no any optimistic response. "As a female university graduate in the intense employment competition, the possibility of finding an ideal job upon graduation is quite slim," Hu said.

The country's annual national postgraduate exam comprises speciality exam, English exam and politics exam.

Competition has become increasingly fierce, as the number of examinees rose year by year. In such circumstances, examination cheating was often spotted in previous years.

This year, some new exam rules have been introduced to prevent cheating. For example, a special identification card recognition system has been put into use to check up every examinee's ID card, so as to rule out the possibility that some examinees hired substitutes at the examination by using fake ID cards.

**Number of foreign students in China rises 20 percent annually: official  
(People's Daily, 2006-01-19)**

The number of foreign students studying in China has risen more than 20 percent annually over the past five years, a Chinese educational official said Wednesday in Beijing.

"The Chinese government values educational cooperation with foreign countries and welcomes more foreign students to come to China," said Liu Baoli, vice director of the international cooperation department of the Ministry of Education (MOE).

Addressing a Spring Festival reception held for foreign graduates, he said there were 110,000 foreign students studying in China in 2004. The number in 2005, which has not come out yet, should be much higher.

"China wishes to know more about the world and let the world know more about China," said Liu. He said the rapid development of China's higher education and high-quality universities is attracting more and more foreign students. China has become a popular destination for foreign students.

More than 500 Chinese universities have met conditions of admitting foreign students, he said.

Foreign graduates, Liu said, have contributed positively to friendly exchanges between China and other countries in the world in diplomatic, economic and cultural fields.

He said the ministry will adopt new measures to expand enrollment of foreign students.

"In 2006, about 10,000 foreign students will come to study in China on scholarships provided by the Chinese government," said Liu. "The standard of scholarships will also be lifted."

Since the People's Republic of China was founded in 1949, it has received students from more than 170 countries.

**53 Chinese universities to receive overseas students funded by foreign government  
(People's Daily, 2006-01-20)**

Fifty-three qualified Chinese universities and colleges were approved here Friday to receive overseas students sponsored by foreign governments, sources with the Ministry of Education said in Beijing.

On Friday, the China Scholarship Council (CSC), an official organization in charge of the foreign students' affairs, signed a contract with the 53 schools in group, thus kicking off a new program of cultivating overseas students.

Chinese Minister of Education Zhou Ji said at the signing ceremony that the CSC has joined hands with foreign governments and organizations to introduce in overseas students with foreign governmental scholarships, and encourage them to study for bachelor, master or doctor degrees.

"The move will improve the quality of overseas students in China, and promote the image of the

Chinese higher educational institutes," Zhou said.

Zhou noted China has become an important destination for overseas students, as students from more than 170 countries study in more than 500 Chinese universities and colleges. Since 1999, overseas students to China annually increased by 20 percent. In 2004, overseas students in China exceeded 110,000, of whom 28.52 percent are students studying for bachelor, master or doctor degrees.

In 2006, China will increase the government sponsorship for overseas students, thus increasing the number of overseas students to China to 10,000 from the original 6,700.

Chinese universities attending the program include the Tsinghua University, Zhejiang University, Shanghai Jiaotong University, Sichuan University, Harbin Polytechnic University, Beijing Normal University, etc. Most of them are first-class universities in China.

Governments of Pakistan, Thailand, Vietnam, Tanzania and Rwanda also agreed to join the program. Zhou expressed his hope that the program could help cultivate foreign talents who know well about China and the Chinese culture.

The CSC revealed that it will mobilize local enterprises to set up special sponsorships for overseas students, who can serve the company after study in China.

### **AMSS, HK PolyU join hands in setting up a joint institute**

**(CAS, 2006-01-23)**

The Academy of Mathematics and Systems Science (AMSS) under CAS and the Hong Kong Polytechnic University (PolyU) have joined force in establishing a Joint Research Institute (JRI). The inauguration was held on January 20 in Hong Kong Special Administrative Region.

The purpose of JRI is to promote research collaboration on Engineering and Management Mathematics among researchers of Academy of Mathematics and System Sciences and The Hong Kong Polytechnic University.

AMSS is the highest research institution of mathematics and system sciences in China, with 15 Members of Chinese Academy of Sciences (CAS), 2 Members of Chinese Academy of Engineering (CAE) and other leading mathematicians in China. The Hong Kong Polytechnic University (PolyU) is the largest university in Hong Kong, renowned for its application-oriented teaching and research. There is a long history of good collaboration history between AMSS and applied mathematicians at PolyU. Five professors of AMSS, who are members of either CAS or CAE, have been invited by PolyU as Distinguished Visitors. Based upon the existing links, the Joint Research Institute is established. It would organize joint research projects on Engineering and Management Mathematics. JRI will foster technical exchange and research cooperation between Mainland China and Hong Kong. JRI allows both institutions to capitalize on their specialties to extend the frontiers of technology. The collaboration is expected to yield benefit in the developments of integrated solutions on Engineering and Management Mathematics.

### 3 Innovation Management

#### **Two scientists awarded China's top science-technology prize**

**(People's Daily, 2006-01-09)**

China granted its State Scientific and Technological Award Monday in Beijing to Ye Duzheng, an atmospheric physicist, and Wu Mengchao, a liver and gall specialist, the eighth and the ninth Chinese scientists to win the award.

Premier Wen Jiabao announced the decision to issue the award to prominent scientists at China's Fourth National Conference on Science and Technology, which opened here Monday morning.

Ye and Wu were each awarded 5 million yuan (about 600,000 U.S.dollars) at the awarding ceremony.

Ye was born in 1916, the same year China began keeping a climate record. The 90-year-old Chinese scientist was the first person to stress the importance of the Tibetan Plateau, the world's largest highland with a spread over an area of 2.5 million square km and an average height over 4,500 meters, as a heat source in summer and a cold source in winter.

The monograph by Ye and his research group on the meteorology of the Plateau is widely considered a major contribution to the understanding of the general atmosphere circulating over Asia.

The professor also extended his studies to include the general circulation over the whole northern hemisphere and published one of the world first research papers on the dynamics of the general circulation.

Ye received in 2004 the top prize from World Meteorological Organization, the highest meteorological award worldwide.

Wu, liver and gall specialist and academician of the CAS, served as vice president and deputy director of Society of Surgery of Chinese Medical Association, vice president of Sino-German Medical Association, president of Sino-Japanese Society of Surgery of Digestive Tract and member of International Association of Surgery.

As the founder of China's liver and gall surgery, Wu received such prizes as Medical Science Award of Chen Jia-Geng, Medical Sciences Award by Ho Leung and Ho Lee Foundation, and titled model medical specialist by Central Military Commission.

Since the award was established in 2000, nine Chinese scientists have received the 5-million-yuan top award, including Chinese hybrid rice developer Yuan Longping, mathematician Wu Wenjun and IT expert Wang Xuan.

#### **China outlines its strategy for building innovation-oriented country**

**(People's Daily, 2006-01-09)**

Chinese President Hu Jintao outlined major strategic tasks for building an innovation-oriented country at a national conference on science and technology that opened Monday in Beijing.

Hu said China will embark on a new path of innovation with Chinese characteristics, the core of which is to adhere to innovation, seek leapfrog development in key areas, make breakthroughs in key technologies and common technologies to meet urgent requirements in realizing sustained and coordinated economic and social development and make arrangements for frontier technologies and basic research with a long-term perspective.

Raising innovation capability should be given prominence to and the nation's competitiveness

should be enhanced broadly, said Hu.

Innovation is the core of the nation's competitiveness and the strategic motif of China's future science and technological development. The practice of the world's scientific and technological development shows that only with strong capacity of innovation, can a country win the initiative in the international competition, said Hu.

The real core technologies cannot be purchased but can only be achieved by innovation, which should be given priority in the whole scientific and technological work, he said.

Raising the capability of innovation must center on serving the economic and social development and try best to tackle major issues in the field which hamper the economic and social development, said Hu.

Technologies of energy resources, water resources and environmental protection should be developed as priorities. The intellectual property rights of key techniques in equipment manufacturing and information industries should be regarded as breakthrough points in raising competitiveness, said the president.

Boosting manufacturing and information industries, raising agricultural production capacity, making breakthroughs in energy exploration, technologies of energy-saving and clean energy resources and optimizing energy structure should be goals to achieve in the scientific and technological development, he said.

The goals also include developing recycling economy, making breakthroughs in pharmacy and key medical equipment, developing technologies for national defense, and building up advanced scientist groups, research institutions and enterprises, Hu said.

To encourage the innovation vitality of the entire society and turn the scientific and technological achievements into productive forces are important tasks of building up an innovation-oriented country, Hu said.

"The government would play a leading role in the scientific and technological innovation, while the basic role of market will be given a full play in the allocation of scientific and technological resources," he said.

"Companies would play a principal part in the innovation, while research institutes and universities across the country would assume a key and leading role in the innovation," he said.

Hu also stressed the combination of the military and civil scientific and technological resources and the combination of the central and local innovative forces in the innovative undertaking.

"Innovation-related laws, regulations and scientific and technological development plans should be improved," he said.

"A favorable mechanism should be established so that the science and technology will accelerate the social development, and in turn, the society should increase investment into the scientific and technological innovation," he added.

He encouraged the share of scientific and technological resources among various departments.

Hu also called on to create a favorable financial environment for companies to conduct innovation.

Hu said that talented people are the key of scientific innovation. China will implement the strategy of building up the national strength with talented people in an all-round way.

He said China will train world first-class scientists, especially young and middle-aged scientists, based on national key scientific research projects and international scientific cooperation projects.

An incentive mechanism should be formed to increase the efficiency of innovation and provide more chances for the young talented people. China will introduce more overseas talented people

and attract overseas Chinese graduates back to start businesses in China, Hu said.

China should not only inherit and develop traditional culture but also absorb the advantages of the cultures of other countries, said Hu.

Chinese research institutes and universities are encouraged to build joint laboratories and research centers with overseas research organs. China will support enterprises to increase export of high-tech products and establish research and development (R&D) bases overseas, said Hu.

International enterprises are also encouraged to set up R&D organizations in China, Hu added.

China supports scientists to take part in or play a leading role in international and regional key scientific projects, and join international scientific organizations, Hu said.

China will spend 15 years to turn itself into an innovation-oriented country, which means a broad and profound social reform, Hu said.

Hu urged the CPC and government officials at all levels to make contributions to increasing the capacity of innovation.

Hu pledged to step up efforts for the protection of intellectual property rights by improving the protection system and concerning laws and regulations while severely cracking down on violations according to law.

All the related departments of the central and local governments should take the development of science and technology, especially raising of the innovation capability, as a strategic investment by increasing the financial input, he said.

Hu said, all the efforts in enhancing China's innovation capability would yield to benefit the Chinese people by improving their living standards.

### **China to improve its academician system**

**(People's Daily, 2006-01-09)**

China's existing academician system is still "very young" and improvements are needed in selection procedures, financial rewarding and age limits, according to a leading Chinese technologist.

Academicians in China refer to members of the Chinese Academy of Sciences (CAS) and Chinese Academy of Engineering (CAE).

The academician system has made major contribution to the country's economic growth, scientific and technological progress as well as the development of the defense industry, said Shen Guofang, CAE vice president.

As for the call of some members of the general public for reforming the academician system, Shen said his academy will take the public advice into consideration for improvements, quoted by the Guangming Daily.

There have been heated discussions lately on the efficiency of the academician system. The primary debates are largely focused on the selection procedures and financial rewarding for CAS and CAE academicians.

Shen, who is also a CAE academician, said the CAE is considering improving the transparency of new academicians' selection and earnestly dealing with complaints from the scientific community on personal merits and academic achievements of the candidates.

Shen said he didn't believe state allowances for CAS and CAE academicians are unreasonable as some members of the general public claimed. However, he urged academicians not to participate in activities irrelevant to their academic focuses, particularly business activities.

China founded the CAS in 1949 and the CAE in 1994. Their academicians are top honorary titles for scientists and technologists who have made outstanding contributions to the nation.

About 80 percent of the incumbent CAE academicians are active in their research fields, Shen said.

However, the role and contribution of the academicians should not be exaggerated, he said, adding, "They should be treated appropriately."

### **Chinese president makes clear major tasks for ongoing conference**

**(People's Daily, 2006-01-09)**

Chinese President Hu Jintao made clear Monday in Beijing that the major tasks of the ongoing Fourth National Conference on Science and Technology.

Addressing the opening ceremony of the conference, Hu Jintao said: "the main tasks for this conference is to analyze the situation, reach common understanding, summarize experiences, make clear the development tasks and deploy the implementation of the country's middle-and-long-term program for science and technology development from 2006 to 2020."

The conference, which is also the country's first of such type in the 21st century, will also serve to mobilize the whole country and the Communist Party of China (CPC) to go unswervingly along the path of innovation with Chinese characteristics, work to build China into an innovation-oriented country so as to create a new situation in building a well-off society in an all-round way and accelerating the socialist modernization process.

Hu, on behalf of the CPC Central Committee and the State Council, also paid tribute to the science and technology workers' outstanding contributions to the development of China's science and technology undertakings.

"We must hold fast the opportunities and face up to various challenges to push forward the country's socialist cause with Chinese characteristics," Hu said.

According to Hu, China will implement the strategy of rejuvenating China with science, education and human sources and give further play the science and technology development and innovation so as to shift the country's social and economic development into the path of coordinately sustainable development with people first.

"We must really and truly put the science and technology at the strategic position of priority development to echo the increasingly tense competition on the world arena," said Hu.

Only in this way can China grasp opportunities of vital importance and therefore win initiative in its development, he said.

### **China opens national conference on science and technology**

**(People's Daily, 2006-01-09)**



China's Fourth National Conference on Science and Technology opened Monday morning in the Great Hall of the People in Beijing.

Chinese President Hu Jintao is delivering a speech at the conference, the first national conference on science and technology in the new century held by the CPC Central Committee and the State Council.

At 9:00 a.m., China's top legislator Wu Bangguo announced the opening of the conference, attended by all nine members of the Standing Committee of the Political Bureau of the Communist Party of China Central Committee.

Premier Wen Jiabao announced a decision of the State Council on issuing the 2005 national science and technology awards, including two top awards and awards of various classes.

**Prof. YE Duzheng receives China's top S&T award in 2005  
(CAS, 2006-01-10)**



(Prof. YE Duzhen (right) receives the State Supreme Science and Technology Award in 2005 from Chinese President HU Jintao (center) at the award presentation ceremony held on January 9 in Beijing.)

Prof. YE Duzhen (Tu-Cheng Yeh), a prestigious atmospheric physicist from CAS, has been chosen as one of the two laureates of the State Supreme Science and Technology Award in 2005. The other winner of the award is WU Mengchao, a liver and gall specialist from People's Liberation Army. They each received five million Yuan (about US\$ 600,000) for the award from Chinese President HU Jintao at the award presentation ceremony held on January 9 in Beijing.

Prof. Ye is one of the pioneers in the atmospheric science of modern China and global changes. He receives the award for his pioneering achievements in such areas as atmospheric dynamics, meteorology on Tibetan Plateau, atmospheric circulation in East Asia, global changes, adjustment

of atmospheric motions and atmospheric blocking high.

Prof. Ye was born in 1916 in Tianjin. He graduated from Tsinghua University in 1940, and obtained his PhD from in 1948 from the University of Chicago where he worked as a Research Meteorologist from 1946 to 1950. Prof. Ye was elected a CAS member in 1980. Now he is honorary director of the CAS Institute of Atmospheric Physics. Prof. Ye received in 2004 the top prize from the World Meteorological Organization, the highest meteorological award worldwide. Since established in 2000, nine Chinese scientists have received the 5-million-yuan top award, including four from CAS: In addition to Prof. Ye, the other three are WU Wenjun from the CAS Academy of Mathematics and Systems Science, HUANG Kun from the CAS Institute of Semiconductors and LIU Dongsheng from the CAS Institute of Geology and Geophysics.

#### **Mu-Ming Poo receives China's int'l S&T cooperation award (CAS, 2006-01-10)**



(Prof. Mu-Ming Poo.)

Prof. Mu-Ming Poo, an American scientist serving as director of the CAS Institute of Neuroscience, received China's International Scientific and Technological Cooperation Awards in 2005.

Established by the State Council in 1994, the award is granted to foreign scientists, science and technology engineers and managers, or organizations that have made important contributions to China's bilateral or multilateral scientific and technological cooperation. So far 40 foreign experts have won the award.

#### **43 CAS research projects honored with national S&T awards (CAS, 2006-01-10)**



(Chuangxin-1, China's first experimental small satellite for data communications in Low Earth Orbit independently designed and built by CAS, received a second prize for S&T Progress.)

In the capacity of the lead research institution (or principal researcher), CAS receives 43 prizes from China's 2005 science and technology awards. The announcement was made at the Fourth National S&T Conference held on January 9 in Beijing.

Among the 43 prize-winning projects, 17 are honored with the second prizes of the National Awards for Natural Sciences, eight with the second prizes of the National Awards for Inventions, and 18 with the second prizes from the National S&T Progress.

A total of 314 projects received the 2005 national S&T awards nationwide. Of them, 38 are the winners of the second prizes from the National Awards for Natural Sciences (first prize is vacant); 40 the winners of the National Awards for Invention (one first prize and 39 second prizes) and 236 the winners of the National Awards for S&T Progress (18 with the first prizes and 218 the second prizes). In addition, five foreign scientists received National Awards for S&T Cooperation.

### **HK scholars won prestigious national award (CAS, 2006-01-11)**

Scholars of the University of Hong Kong were conferred the 2005 State Science and Technology Award (SSTA) in recognition of the outstanding achievements in their own field, announced the university here Wednesday.

The awardees received the award at a prize presentation ceremony held in Beijing on Jan. 9.

Professor Sheung-tat Fan, Chair Professor of the Department of Surgery, and his liver transplant team comprised of Professor Chung-mau Lo, Dr. Chi-Leung Liu, and Dr. See-ching Chan, won the first-class award for the category of State Scientific and Technology Progress Award (SSTPA). This is the first time that an entry from Hong Kong is conferred a first-class award under SSTA. Professor Fan and his team's winning project, entitled "Adult-to-adult Right Lobe Live Donor Liver Transplantation", was recognized as a breakthrough in the relevant field.

Ever since 1996, Professor Fan and his team have striven to refine the surgical technique of live donor liver transplantation (LDLT) by innovating and developing the procedure of right lobe liver graft. Since then, right lobe LDLT has been widely adopted by numerous liver transplant centers around the world.

Professor Vivian Wing-Wah Yam, Chair Professor of the Department of Chemistry, was honored with the second-class award for the category of State Natural Science Award (SNSA).

"Molecular Design and Luminescence Studies of Transition Metal Complexes with Alkynyl- and Chalcogen-Containing Ligands", a research project undertaken by Professor Vivian Wing-Wah Yam has been recognized.

Professor Yam, who is a member of the Chinese Academy of Sciences, has devoted her research efforts to the molecular design and synthesis of novel luminescent inorganic and organometallic metal complexes that can serve as molecular functional materials.

The SSTA is one of the most prestigious awards in the fields of science and technology in the mainland. The awards aim to recognize citizens and organizations that are contributory to the scientific and technological progress activities.

### **China maps out strategic high-tech development for next 15 years (People's Daily, 2006-01-11)**

China will intensify its development of high technologies with strategic significance for next 15 years, Lu Yongxiang, President of the Chinese Academy of Sciences said Tuesday in Beijing.

"In the next 15 years, China will break the international monopoly on strategic high technology to ensure national security, and China will also probe and innovate in key international edge-cutting technology," Lu said.

Lu made the remarks when he is attending China's on-going Fourth National Conference on Science and Technology, the first national conference on science and technology in the new century held by the Central Committee of the Communist Party of China and the State Council.

Since 2003, China has organized experts to make the state's medium- and long-term development plan of science and technology. Lu acted as the panel head in charge of strategic high technology development and industrialization.

Lu explained that strategic high technology is that with key strategic significance, stressing that it reflects the state's innovative capabilities and is also the commanding point for the competition of international science and economy.

According to the medium- and long-term plan, China will use information technology to spur its industrialization, foster a new growth point in the areas of sustainable development including strategic energy and in high technology areas such as biology, and speed up to develop innovative capabilities in the areas involving national security like aerospace and laser.

"We'll choose some strategic high technology areas which have comparative advantages and make breakthroughs in these areas," he said, listing areas like information technology, biology, key materials, aerospace, nuclear, nanoscience and strategic energy.

In 1986, China launched a key national high technology research and development program known as Program 863. Since China's reform and opening-up policies were implemented, a series of policies encouraging the industrialization of high technology have brought the development of high-technology enterprises.

However, Lu pointed out China still relies on imported technology in this area for the lack of innovative capabilities in strategic high technology.

"Effective state investment in this area is far from enough and the state innovative system adapting to market economy has not been established," he stressed.

In the next 15 years, China will establish a monitoring system for international technology development, step up research and the industrialization of strategic high technology and raise more funds for it from either the state or private enterprises, he said.

### **Developing national innovation system on the basis of national conditions**

**(CAS, 2006-01-12)**

While building a national innovation system with Chinese characteristics, China should not blindly follow developed countries or simply negate its successful practice over the past five decades in the development of science and technology and the hard-earned S&T infrastructures and systems, much less to forget the basic national conditions that China will be in the primary stage of socialism over a long period of time, urges CAS President LU Yongxiang, who is also vice chairman of the Standing Committee of China's top legislature NPC. He made the remarks in an interview by Guangmin Daily on January 10 in Beijing.

Prof. Lu stresses that S&T undertakings in today's world are no longer an activity of individual scientists or inventors. Instead, they have become system engineering of the whole society. S&T development is not only a process of coordination and cooperation among S&T workers from different disciplines. More importantly, it needs even more support and guarantee from the whole

society in terms of system, investment, policy, culture and public opinions. A national innovation system is a precondition for our historic commitment to build China into an innovation-oriented country.

However, the national conditions should not be disregarded, Prof. Lu warns. While introducing a national innovation system with Chinese characteristics, we should give a full play to the leading role of the government, the basic role of market in the allocation of S&T resources, the principal role of companies, the key and leading role of national research institutions, the vital and basic role of universities. Importance should also be given to the development of various regional innovation systems noted their local characteristics and advantages and a network system of intermediary services. While embarking on a new path of innovation with Chinese characteristics, efforts should be made to closely link the knowledge innovation system with research institutes and universities as key elements and the technological innovation system with companies as a principal part. The practice of CAS Knowledge innovation program has also proved that China could absolutely develop its own innovation system by "basing on the national conditions while looking to the future."

In order to build up such a system, the CAS president points out, many relations need to be straightened out. Of them, the relations between national research institutes and universities and between national research institutes and the business sector are two critical ones. "The relation between national research institutes and universities should be functionally complementary, competitive while cooperative, collaborative and interactive," he adds.

Both national research institutes and universities have a dual function of scientific research and talent training. But the primary and central objective for the former is to conduct research and for the latter is to train talented people. Regarding scientific research, national research institutions should carry out, in line with national strategic needs, the objective-oriented basic research, strategic high-tech innovation, system integration, and major studies concerning public welfare and harmonious and sustainable development of society. On the other hand, universities are more suitable for conducting curiosity-driven free exploration and applied research for economic and social development, so as to promote the in-depth development of scientific disciplines.

### **Innovation boosts national strength**

**(MOST, 2006-01-12)**

A landmark national conference on science and technology concluded Wednesday in Beijing with a vow to turn China an "innovation-oriented country" by implementing development guidelines. Participants at the three-day meeting were told that the State's medium- and long-range scientific and technological development programme should be followed to the letter to push forward the country's scientific progress.

The message was delivered by Premier Wen Jiabao on Monday and released by Xinhua last night. Wen's remarks echoed President Hu Jintao's call at the conference's opening ceremony to elevate China to the ranks of innovation-oriented countries in 15 years.

Since 2003, hundreds of experts have formulated the national medium- and long-term development plan of science and technology.

Wen said China's development depends on two forces: unswerving reform and opening-up, and scientific and technological progress and innovation.

He asked all departments concerned to carefully implement the scientific and technological

development programme, unremittingly follow the scientific concept of development and the strategies of rejuvenating the country by education and technology, and endeavour to push forward scientific and technological progress and innovation.

"Innovation is the soul of scientific and technological development and the engine behind national development; therefore, improvement in innovation is the primary choice for enhancing the nation's competitive force," he said.

To better implement the medium- and long-term scientific and technological development programme, reform of the country's scientific and technological system must be vigorously pushed forward.

In addition, strategies on how to innovate should be stipulated and implemented, he said.

### **Premier calls for building innovation-oriented nation**

**(MOST, 2006-01-12)**

Chinese Premier Wen Jiabao called for pushing forward the country's scientific progress and making endeavor to build an innovation-oriented country at China's Fourth National Conference on Science and Technology, which was concluded in Beijing on Wednesday.

Wen said China's medium and long-range scientific and technological development program, recently issued by the State Council, was the country's first overall scientific and technological plan since the beginning of the new century, the first medium and long-range scientific program under the condition of the socialist market economy, and a programmatic document for the country's coming 15 years of scientific and technological development.

He said in a speech made at a plenary meeting on Monday, which was held during the convention of the National Conference on Science and Technology, that the implementation of the medium and long-range scientific and technological development program is important to improving the country's competitive force.

China's development depends on two forces, he said: unswerving reform and opening-up, and scientific and technological progress and innovation.

He asked all departments concerned to carefully implement China's medium and long-range scientific and technological development program, unremittingly follow up the scientific conception of development and the strategies of rejuvenating the country by education and technology, and endeavor to push forward scientific and technological progress and innovation.

He said innovation was the soul of scientific and technological development and the motive power for national development. Therefore, innovation improvement is the primary choice for enhancing the nation's competitive force.

In a bid to push forward the country's scientific and technological development, five aspects should be paid attention to. First, technology development on energy conservation, water resources and environment protection should be given priority. Second, core technology and intellectual property in equipment manufacturing industry and information industry should be grasped. Third, development of biological technology should be beefed up. Fourth, the development of space technology and maritime technology should be enhanced. Fifth, research on fundamental sciences and frontier sciences should be pushed forward.

Wen said to better implement the medium and long-range scientific and technological development program, the reform on the country's scientific and technological system must be vigorously pushed forward. Strategies on how to make innovations should be stipulated and

implemented. Investment in scientific and technological sections must be increased and the training of scientific and technological personnel should be strengthened.

**China challenging US and Europe in scientific research: UNESCO report  
(People's Daily, 2006-01-20)**

Emerging Asian economies, led by China, are challenging world leaders North America, Europe and Japan in scientific research and development, said a United Nations report published on Thursday in Paris.

"The most remarkable trend is to be found in Asia, where gross expenditure on R&D has grown from a world share of 27.9 percent in 1997 to 31.5 percent in 2002," according to the 2005 Science Report, issued by the UN Educational, Scientific and Cultural Organisation (UNESCO).

Based on a wealth of data on science and technology development around the world, the report said the trend is largely driven by China, whose expenditure on R&D was 1.23 percent of its GDP in 2002, up from 0.83 percent in 1999, with priority given to information technology, biotechnology, and new materials technology, among others.

In 2002 China employed 810,000 researchers, 163,500 more than Japan, said the report written by an international team of independent experts.

The comprehensive introduction to the document highlighted that one of the new trends affecting science and technology worldwide is the new players' ability to make their mark on science and research, namely Turkey, China and a few others in Asia, Central and Eastern Europe.

Despite the challenge, North America still accounted for 37 percent of the 830 billion U.S. dollars world expenditure on R&D in 2002, slightly down from 38.2 percent in 1997. Europe also saw a diminishing share of the spending, down from 28.8 percent in 1997 to 27.3 percent in 2002. The remaining less than five percent were shared by Latin America and the Caribbean, Oceania and Africa.

The 2005 Science Report is the fourth one issued by UNESCO. It was last updated in 1998.

**Pool efforts to build up a national innovation system  
(CAS, 2006-01-23)**

The most critical factor in building an innovation-oriented country is to improve independent innovation capacity, says Prof. BAI Chunli, Executive Vice President of CAS.

Enhancement of the independent innovation capability is key to success in the effort to develop China into an innovation-oriented country. Scientific and technological personnel must be confident in their ability of making original innovations. On no account must we limit ourselves to following what has been done outside China and dare not to do things not yet done by foreign countries. The CAS executive vice president makes the remarks in an article on January 19 edition of *People's Daily*.

Prof. Bai stresses that an innovation-oriented country has the following characteristics. First of all, such a country takes scientific and technological innovation as the point of consideration. Second, its overall competitiveness is strong. Third, it has high indices for comprehensive measurement of innovation capacity, including the number of invention patents registered with major developed countries such as the United States, Japan and those in Europe, as well as the number of qualified engineers and scientists. Fourth, science and technology are responsible for not less than 70% of the economic growths achieved by such a country. Fifth, the country should have low dependency

on imported technologies. Sixth, the input for R&D should account for not less than two percent of the country's annual GDP.

Prof. Bai says that enhancement of the independent innovation capability is most pivotal to our endeavor to develop China into an innovation-oriented country. By "independent innovation capability," we mean three things. It means, first of all, original innovations in science and technology, which constitute the foundation and source of all other innovations. Then comes integrated innovation for development of key technologies, a process in which many technological innovations are integrated, culminating in the production of a new product. Third, it means re-innovation on the basis of acquiring and absorbing imported technologies.

He emphasizes that scientific and technological personnel in China must be fully confident in their own ability of making original innovations. On no account must we limit ourselves to following what has been done outside China and dare not do things not yet done by foreign countries. We must develop a set of innovation-based values. In fixing the orientation and targets for scientific and technological progress, we must take into full account the country's strategic needs and concentrate on the frontier fields of world scientific and technological development so that our innovations can truly serve the vital interests of our people. Enterprises should be given the main role to play in integrated innovation and innovations on the basis of importing and absorbing foreign technologies. This means that enterprises should be made the main investors and players in R&D while the main force for industrial application of research achievements.

To develop into an innovation-oriented country, Prof. Bai further points out, China should, first of all, strive to accelerate the reform of its scientific and technological system, in particular the development of a national innovation system. To achieve the purpose, it is necessary to bring into full play the leading role of the Government, the fundamental role of the market in distribution of the resources, and the role of enterprises as the main players in technological innovations. At the same time, there is the need to allow a still bigger role to national research institutions as the backbone force and leader of the entire state innovation system and let the universities be the foundation and a vital new force in the country's innovation-oriented endeavor. Work should be done to ensure joint effort and coordination among these forces to achieve the objective. Second, the Government, on its part, should attach still greater importance to the development of basic research, universally applicable technologies and key technologies. Third, more work should be done in energy, resources and environmental development. Four, protection of intellectual property rights should be strengthened. By this, we mean to abide by those international rules but more importantly, to place our own innovation achievements under sufficient protection. The initiative for independent innovations will be dampened in the absence of legal environment conducive enough to protection of intellectual property rights.

### **Foreign investors eager to move R&D into China**

**(People's Daily, 2006-01-24)**

Global business mammoths, which previously loathed binding requirements of technological transfer for direct investment in China, are now eager to move their research and development facilities to the world's biggest and most energetic market.

In response to the latest encouragement for advanced foreign know-how, many multinationals have made China one of their priority locations for research and development centers.

Dr. Li Wanlin, senior vice president of Siemens (China) Telecommunication Ltd., said in an

exclusive interview with Xinhua that establishment of Siemens China R&D centers is a vitally important strategy for the German company's future development.

"If we only manufacture and sell our products in China," said Dr. Li, "Chinese would never take us as trusted partners."

Moving R&D centers to China is not only an instrumental measure for shortening the duration from R&D to technology commercialization, but also a touchstone for our confidence of China's economic prospect, Dr. Li said.

Rich in highly qualified engineers, Dr. Li said, China has already developed their own edging technologies in many advanced fields, such as mobile telecommunications and servers.

Lu Zheng, a recognized economist who heads the Chinese Academy of Social Sciences Institute of Industrial Economics, said, "By attracting more and more localized foreign R&D centers, China substantively becomes higher in the hierarchy of global economy."

A Ministry of Commerce survey showed that by June 2004, multinationals, including GE, Intel and Microsoft, have set up more than 600 R&D centers in China, with expenditures of more than 4 billion U.S. dollars.

The establishment of these foreign-owned R&D facilities, with its employees flowing freely in the Chinese job market, stimulate technological upgrades of Chinese companies as well as help improve innovative capability of indigenous engineers.

Even for Siemens which is always optimistic about future of China's economy, the decision of moving their R&D centers to China was hard to make.

"Why do we need to transfer our R&D centers to China and what do we do without sufficient research and development capacity?" many senior German colleagues asked Dr. Li, who is German-educated but strongly supports the idea of the China-bound global re-deployment.

Getting go-ahead from Siemens top leadership, Dr. Li kicked off 1998 in Beijing the first Siemens R&D center, which collaborates with Datang, a leading Chinese company in mobile telecommunication, to work for third-generation standards for mobile telecommunication, or TD-SCDMA.

The Siemens center is now leading all others in developing new technologies based on the TD-SCDMA standards, which are masterminded by Chinese and may be prevailing in the huge Chinese market in years to come.

"Siemens headquarters have no longer satisfied with mandating peripheral R&D missions to the Chinese centers, but core and the most advanced technologies instead," Dr. Li said.

Siemens has now a total of four Chinese R&D centers in Beijing, Shanghai, Nanjing and Hangzhou, all in China's booming cities.

More than 1,000 Siemens engineers and specialists are focusing on network solutions, technological applications, hardware and software, and the most sophisticated technologies superior to the 3-G's.

According to statistics, Siemens applied in 2005 for about 5,700 patents, with a year-by-year increase of 15 percent and most of which were new inventions.

The good performance of innovation largely reflected the huge R & D investment in 2005, 5.2 billion euros which accounted for 7 percent of the company's total revenues.

"Innovation should not be carried out only by engineers. Every one might have new ideas every day," Dr. Li said.

The most innovative German company gradually schemed an innovation-friendly environment for

all its employees. Siemens prepares tens of millions of euros worth of innovation funds to finance 30 innovative ideas. Some of the 30 annual innovative ideas were commercialized into successful products.

The enthusiasm about innovation of Siemens and its peers spurred Chinese companies to allocate more money into R&D.

One of China's leading telecommunications infrastructure manufacturers, Huawei, spends annually 10 percent of its revenues in research and development, owning 1,028 patents.

Statistic showed that from 1991 to 2003, the R&D outlays of China's large and medium enterprises are between 0.4 percent to 0.8 percent of their revenues, much lower than the 3 percent rate in developed countries.

According to the state's medium- and long-term development plan of science and technology, China's overall R&D outlays are to reach 2.5 percent of its gross domestic product by 2020, and China encourages domestic enterprises to assume a key role in the innovation.

### **China's S & T human resource tops the world**

**(China News, 2006-01-31)**

China's total technical and scientific human resource at present has reached 32 million, research staff resource reaching 1.05 million, taking up the first and second spots worldwide, respectively.

In addition, research shows that although China's per capita GDP was still around the US\$1,000 level, its combined scientific and technical index is equivalent to levels of countries with per capita GDP between US\$5,000 to \$6,000.

The Ministry of Science and Technology told Xinhua News Agency.

"These human resources cannot be matched by any other country, and are also the biggest advantage in the unique path taken by China towards its development into a modern nation." said Minister of Science and Technology Xu Guanhua.

It was learned that after the hard work of several generations, China has built a relatively satisfactory scientific learning environment and laid an important foundation for the path towards building a country of innovative development.

China has possessed a certain degree of ability to innovate. In important research and development arenas such as biology, nanometer technology and aerospace, China has fought its way to the top of the world's ranking. In modes of innovation, China has changed from single project research to strengthen its combined innovative transformation based on important products and new industries. In innovative structure, China is using the reform of technological institutions to breakthrough towards promoting innovative structure building for the entire nation.

## 4 China's International Science Cooperation

### **China to further open sci-tech industry for national defense**

**(China News, 2006-01-06)**

Commission of Science, Technology and Industry for National Defense (COSTIND) spokesperson Jin Zhuanglong said today that China would further open up its science, technology and industry for national defense and actively carry out international exchange and cooperation.

Jin said that the further opening-up is a major task for this year. COSTIND will bring its two institutions, China National Space Administration and China Atomic Energy Authority, into full play, carry out nuclear deterrence, arms control and nonproliferation missions, and prepare for the establishment of Asia-Pacific Space Cooperation Organization. At the same time, COSTIND will team up with foreign parties to develop technologies and products in the military industry field, strengthen introduction of key technologies, increase investment in digestion and absorption of introduced technologies, and perfect the absorption-to-innovation mechanism.

Jin indicated that China's science, technology and industry for national defense had made remarkable breakthroughs in international exchange and cooperation in 2005. China signed an inter-government cooperation agreement with the European Space Agency and the Asia-Pacific Space Cooperation Organization Convention with Bengal, Indonesia, Iran, Mongolia, Pakistan, Peru and Thailand; its space industry re-entered the international commercial launch center and signed contracts to export one satellite to Nigeria and another to Venezuela, breaking the zero mark in satellite export history; Xinzhou-60 feeder planes realized mass production and signed formal contracts to export 15.

In addition to the aforesaid achievements, China signed inter-government cooperation agreements with more than ten countries during the 10th Five-Year Plan period (2001-2005), established a sound nonproliferation export control mechanism, and fulfilled international nonproliferation duties. Chashma Nuclear Power Plant, China's first export project to Pakistan, has completed the first phase and commenced production, while the second phase is under construction.

Beijing-headquartered Asia-Pacific Space Cooperation Organization would be established and begin operation this year, which will be a significant step towards the international stage.

### **CAS to further cooperation with Italian nuclear research center**

**(CAS, 2006-01-13)**



CAS Executive Vice President BAI Chunli met with President of the Italian National Institute of Nuclear Physics (INFN) Roberto Petronzio on January 10 in Beijing.

During the talks, Prof. Bai recollected with satisfaction the long-term cooperation between CAS and INFN. He spoke positively about the collaboration between the two sides in the fields of high energy physics, nuclear physics, particle physics, astro-particle physics, information technology and space physics. He said that he hopes to see novel progress in the fields through joint efforts.

Prof. Petronzio said he very much agrees with Prof. Bai's view on the bilateral ties and express hopes to extend the cooperation to such new fields as space science experiments and archeology by means of science and technology.

After the talk, the two leaders signed the cooperation agreement between CAS and INFN on behalf of the two institutions.

### **China, EU to cooperate in developing next generation Internet**

**(People's Daily, 2006-01-13)**

China and the EU signed on Jan.12 a joint statement concerning the strategic cooperation on high-speed network infrastructure and its application.

The statement, signed between Chinese Science and Technology Minister Xu Guanhua and a EU official, signifies that China and the EU have started full-scale cooperation on the research and construction of next generation Internet.

According to the statement, China and EU will set up advanced network high-speed connection above 2.5Gbps in order to support cooperative researches in relevant technological areas.

An official with the Ministry of Science and Technology said the cooperation agreement would boost cooperation between China and the EU at various levels, provide multiple choices for China in its broadband Internet connection with the world, reduce cost of international cooperative R&D and exchange as well as raise overall level of cooperation between China and the EU in science and technology.

### **EU to help China bridge digital gap**

**(China News, 2006-01-14)**

China and the European Union (EU) on Friday officially launched a cooperative project to help China enhance on-line government services.

The EU-China Information Society Project, running from July 1 of 2005 to June 30 of 2009, is funded by both sides, with 18.75 million U.S. dollars from the EU and 8.75 million dollars from China.

This project aims to promote Chinese economic and social reform through information society development and to help bridge the digital gap between developed areas and less developed ones, said Viviane Reding, EU commissioner for information society and media.

Five cities have been chosen as demonstrations of this project, including Chengdu, in central China's Sichuan Province, Baotou, in north China's Inner Mongolia and Yantai in east China's Shandong Province.

Governments of the selected cities will improve on-line service networks, such as emergency health response systems and public service systems, said Reding.

In the project, government officials will be trained with advanced experience from the EU, she said.

The State Council Informatization Office (SCITO) and the EU delegation of the European Commission, representing each side of the government, are taking charge of the project.

In China, 96.1 percent of government departments at the state level and 81.3 percent of local governments have started portal websites, according to a recent report released by the SCITO.

However, most of the websites lag behind in terms of on-line services and lack public participation, said Zhang Xianghong, senior vice-president of a consulting company under the China Center for Information Industry Development (CCID).

"Participation is the real goal of e-government," said Reding.

### **China Signed the First Cooperative Memorandum on the R&D of Carbon Dioxide Sequestration Technology**

**(MOST, 2006-01-16)**

Recently LIU Yanhua, Vice Minister of Science and Technology and visiting Sir David King, Chief Scientific Advisor of the British Government signed in the Ministry of Science and Technology the "Memorandum of Understanding Between the Ministry of Science and Technology, PRC and the Department of Environment, Food and Rural Affairs and Department of Trade and Industry, UK on the First-phase Cooperation in the R&D of Carbon Dioxide Sequestration Technology for Zero Emission in the Use of Coal". Being the first agreement of international cooperative project regarding the R&D of carbon dioxide capture and storage technology in our country, it marks the official kick-off of the innovative research work led and organized by the state in this area.

The Memorandum stipulated that, from now on until 2008, the British government will provide free of expense 3.5 million pounds to help China carry out the preliminary R&D of the carbon dioxide sequestration technology.

### **Thai S&T officials visit Institute of Electronics**

**(CAS, 2006-01-20)**



Prof. YIN Hejun, director of the CAS Institute of Electronics (IOE), met with visiting Thai Minister of Science and Technology, Dr. Pravich Rattanapian, on January 18 in Beijing.

During the meeting, Prof. Yin extended a warm welcome to Dr. Rattanapian and recalled the recent visit of Her Royal Highness Princess Maha Chakri Sirindhorn, who spoke highly of the S&T exchanges and cooperation between the Thailand and China. Thai high-ranking officials had made three trips to IOE over the past one year. Prof. Yin briefed the Thai visitors on the recent development of his institute and showed them its research labs and achievements.

Dr. Rattanapian appreciated the hospitality of Prof. Yin, saying he is confident about the further S&T cooperation between the two countries.

**China to launch French-made broadcast satellite****(Xinhua Net, 2006-01-20)**

The China Great Wall Industry Corp.(CGWIC), the country's satellite launch service contractor, and China Satcom signed a deal Friday on the launch of a French-made broadcast satellite.

According to the deal, CGWIC will, through the China Academy of Launch Vehicle Technology under the China Aerospace Science and Technology Corp., provide the launch service for China Satcom, the owner of the satellite.

The satellite, which will be manufactured by French company Alcatel Alenia Space, is expected to be lifted into space in 2007 atop a Chinese-made rocket Long March 3B from the Xichang Satellite Launch Center in southwest China's Sichuan Province.

With a designed life of 15 years, the satellite, known as "ChinaSat 6B" Radio and TV Satellite, will be fitted with 38 transponder, allowing easy reception of up to 300 television programs across China, southeast Asia, Pacific and Oceania.

China's Long March rocket carriers have been used to offer 24 international commercial satellite launch services since 1990, involving 30 satellites and six payload services.

The rocket carriers have been enjoyed a reputation of high reliability thanks to their record of 46 successful consecutive launches since Oct., 1996, including the country's two manned space launches.

China Satcom, or the China Satellite Communications Corporation, is one of the country's six telecommunications operators in China.

Alcatel Space, a wholly owned subsidiary of Alcatel, is the world's third largest satellite manufacturer and the largest in Europe.

**China to hold the 48th IEEE meeting on decision and control****(CAS, 2006-01-26)**

After discussion and vote, a decision was made at the 2005 Executive Committee Meeting of the IEEE Control Systems Society (CSS) in Spain that the 48 IEEE CSS Conference will be held in China in 2009. The General Co-Chairs of the meeting will be Prof. GUO Lei, president of the Academy of Mathematics and Systems Sciences under CAS and Prof. John Baillieul of Boston University and current president of IEEE CSS.

The IEEE CSS was founded in 1954 with over 10,500 members all around the world. It is internationally recognized as the premier scientific and engineering organization dedicated to the advancement of the theory and practice of systems and control. Its annual meeting is the most reputed conferences in control and systems science in the world. Although usually held in US, it convenes once in every four years in other countries. It will be the first time for a developing country to hold the meeting.

## 5 Miscellaneous

### **China shares hybrid rice breeding know-how with the world**

**(People's Daily, 2006-01-04)**

"Father of hybrid rice" Yuan Longping said he believed that an output of 900 kilograms per mu (roughly 666.67 square meters) would be materialized for the third stage of his team's research program.

Actually there has been a case of an output of more than 980 kilograms per mu on a trial base. By 2003 China had grown 4.5 billion mu of hybrid rice since the country began to popularize the breed in 1976. That has brought additional rice harvest of 400 million ton to farmers.

Yuan said at least 20 countries were making research or had planted hybrid rice and trial projects in Southeast Asia, South Asia, South America and Africa were very successful. In [Vietnam](#) where 600,000 ha. of land grew hybrid rice in 2003, yields per hectare was 40 percent higher than conventional rice harvest. In the case of the Philippines' 3,000 ha. of hybrid rice field, the unit output reached 8.5 tons which doubled the yields of local variety.

Yuan noted that China would not perform permanent IPR protection for this technology bringing boon to the whole human being. To benefit more people in the world, China has opened its "three-line hybrid rice breeding technology".

### **More Chinese studying abroad return to make career**

**(People's Daily, 2006-01-06)**

China has witnessed a rise in the number of students who completed their study abroad and returned for their own career, as the country's rapid development has created a good stage for these talented professionals, a senior education official said in Shanghai Friday.

More than 900,000 Chinese students have gone abroad for study since the founding of New China in 1949, and more than 200,000 of them have returned, accounting for one fourth of the total, said Zhang Xinsheng, vice minister of education.

"Currently, returned students have outnumbered those who chose to study abroad," said Zhang, but he did not elaborate.

Zhang attributed the increase in the number of returned students to the government's favorable policies toward them.

According to him, a number of national research funds, scholarship award programs have been set up to create a better environment for returned scholars and elite talents to carry out research and open up businesses, said Zhang.

"We will continue to improve the environment for returned students, who, with the further economic and social development in the country, will find a larger stage to play at home," he said.

### **Over 7000 Chinese awarded with a national scholarship studying abroad last year**

**(People's Daily, 2006-01-06)**

Starting yesterday, people who want to seek government funds to study abroad can apply through a newly launched online system for the 2006 National Scholarship.

Hopefuls can log on at [www.csc.edu.cn](http://www.csc.edu.cn) to get the application form. About 7,000 people this year will receive the fund to cover all or part of their expenses abroad, the China Scholarship Council (CSC) has announced.

Eligible applicants should have at least a bachelor's degree and work at colleges, government departments, public institutions, research centres or enterprises for at least two years.

Postgraduate and doctorate students in college are also eligible, according to the scheme.

Cao Guoxing, director of the International Co-operation and Exchange Department with the Ministry of Education, said more postgraduates would be offered the scholarship this year.

"The National Scholarship is to aid excellent students or experts who have financial difficulties," he said at a recent meeting. "Priority will be given to applicants that major in fields that the country is weak at."

They include telecommunications, advanced agricultural technology, life science, materials science, engineering science, applied social science and environmental science.

Deadline for applications is March 10, and successful applicants have to sign contracts to guarantee they come back to China after finishing studies.

The Sino-British Merit Scholarship and Sino-French doctorate programme will be further promoted this year as part of the National Scholarship.

Ministry figures show that 7,000 Chinese got the National Scholarship last year, up 75 per cent over the previous year.

Cao reiterated that it is China's consistent policy to encourage students to study abroad and students are welcome back after finishing their studies. He revealed that 18,098 out of 22,031 people who were funded by CSC have returned to China after they completed their studies overseas since 1996.

Nearly one-fourth of the 900,000 Chinese students who had been abroad for studies have returned.

### **Hi-tech zones account for half of revenue of China's hi-tech industry (People's Daily, 2006-01-08)**

The national hi-tech zones now account for half of the revenue of China's hi-tech industry and 65.4 percent of the nation's high-tech companies, sources with the Ministry of Science and Technology (MOST) said in Beijing Saturday.

The national hi-tech zones constitute an important part of the national Torch Program, which aims to boost the hi-tech industry and the economy. In 2004, the high-tech zones' shares in the industrial added value of hi-tech products and the export earnings of the whole nation increased by 3.8 percentage points and 6.4 percentage points, respectively, from those for the year 2000.

MOST said among 5,482 ongoing projects of the Torch Program, a total of 1,273 were launched in the national hi-tech zones; such projects scored 200 billion Yuan (about 25 billion US dollars) in sales revenue in 2004. The sales revenue of new materials amounted to 65.2 billion Yuan (around 8.1 billion US dollars), ranking the first, followed by those of mechanical-electronic products, electronics and information products, bio-technology products and energy products.

Among all the hi-tech companies, joint-stock ones scored the highest sales revenue, accounting for 77.5 percent of the total.

### **Tour the Great Wall with 3D technology (China News, 2006-01-09)**

The China Academy of Social Sciences will join hands with the Great Wall Association to replicate the image of the Great Wall with three dimension technologies and put the image on internet, deputy General Secretary of the Great Wall Association Zhang Ji said on Sunday.

"The image of the Great Wall will be finely made and netizens will have a clear view of the wall from its starting point, Shanhaiguan Pass, to its termination, Jiayuguan Pass, where the Great Wall was originally made in the Qin dynasty and rebuilt in the Ming dynasty", said Zhang.

He added that at present, they were preparing to take a navigational picture of the wall, which will involve an investment of 200 million yuan.

After the website is finished, people will see the earth rotating when clicking the website. If one clicks on the location of the Great Wall, the earth will move closer and one gradually see a white line running through the northern part of China. That is the Great Wall.

As a visitor on website, one can tour the Great Wall with a perspective as closely as a normal tourist. Spending one day or two, one can "walk" through the Great Wall and get some information about the mineral resources and economic development status nearby.

Zhang said in order to achieve this visual effect, they would need to use advanced technologies such as navigational sensors, national geographic information system and the GPS system. This equipment would allow them to collect detailed information about the Great Wall. After analyzing and processing, the data would be used to create a 3D image of the Wall, which would later be posted on internet.

For some parts which were already destroyed and could not be displayed on the picture, researchers will study the soil element of the location to identify its archeological age.

### **Chinese lack participation in environmental protection**

**(China News, 2006-01-10)**

The environmental protection and livelihood index of the Chinese public, the first index about environmental protection in Mainland China compiled by China Environmental Culture Promotion Association under guidance of the State Environmental Protection Administration, shows that the Chinese people pay close attention to environmental protection but lack participation.

The 2005 annual report on the environmental protection and livelihood index of the Chinese public was published early this year. This hundred-mark system-based index shows that the figure for 2005 was 68.05, implying that the Chinese people are much concerned about environmental protection but inactive to get involved.

The index manifests that the Chinese people well recognize the importance of environmental protection but have some mistaken concepts. The public pay increasingly closer attention to environment-related issues from macro environmental pollution to micro environmental events in various regions, such as the water pollution in Songhua River and the anti-leakage project in Yuanmingyuan Park. The public's concerns also cover a wider range. The degree of people's recognition of macro environmental issues, such as pollution, garbage disposal and sewage disposal, has reached above 80%. The survey also finds that people clearly understand the four major pollution sources and believe air pollution caused by industrial production is the most serious issue.

The index indicates that the public lack initiative to participate in environmental protection. Although people have enhanced their consciousness and knowledge about environmental protection, their participation in this field is not satisfactory. Most people are all mouth and no action. What should draw more attention is that a majority of people do not know how to participate in when encountering concrete environmental issues.

**China in urgent need for research oriented enterprise: survey****(Xinhua Net, 2006-01-11)**

China is in urgent need for research-oriented enterprises, whose research and development input should take up over nine percent of sales revenue, a survey said here Wednesday.

The survey done by the Chinese Ministry of Science and Technology said that research oriented enterprises, usually with small investment, can make profits with innovative technology instead of merely hinging on marketing and sales.

Wu Lebin, a science and technology policy expert, said that research-oriented enterprises would have a great potential if provided with independent intellectual property rights.

The survey, nevertheless, showed most Chinese entrepreneurs and enterprises have not scored the true value of the research and development. They are still focusing their eyes on marketing and pricing, which leads to the cost for business operation far exceeding that of research and development.

Economic growth in the future will rely mainly on scientific and technological advancement, Wu noted, and China still lacks "intermediate" research institutes in spite of possessing many excellent research universities and state-run laboratories.

The best model for a research institute is Bell Labs in the United States, he acknowledged.

Some insiders, however, said that Bell-like research institutes have already emerged in China with the reform in the sphere of science and technology. Yet experts suggested China cultivate 200 Bell-like institutes to boost the nation's science and technology sector.

Wu said the core of Chinese enterprise competitiveness will lie in basic science research, therefore enterprises should turn their eyes toward technological innovation.

**Linux int'l standard testing lab settles in China****(Xinhua Net, 2006-01-13)**

The world's second Linux international standard testing lab was set up in China's capital of Beijing on Friday.

Sponsored by China's Information Industry Ministry, the lab was jointly established by China Electronics Standardization Institute(CESI) and Intel Corporation.

"It will help promote Linux education and awareness among Chinese IT companies and cut the cost of homemade Linux Operating System (OS)," said Mo Wei, director of CESI, adding that the lab will provide statistical evidence for the forthcoming national Linux standard.

Linux is a free computer operating system which supports multiple users, tasks and processes. Featured with complete openness, the system allows the running of a maximum number of hardware.

The major task of the Beijing-based lab is to set a unified standard for Chinese software developers, said Mo.

At present, several domestic software companies such as Beijing's Red Flag Software Co. Ltd. and Shanghai Standard Software Co. Ltd., have passed the Linux international test.

"The reason why we chose Beijing for the lab is that China has achieved remarkable progress in the research and development of Linux OS," said Jim Zemlin, president of Free Standards Group (FSG).

**Chinese made compulsory curriculum in English school****(People's Daily, 2006-01-17)**

Brighton College, an independent school in southern England's East Sussex, will be the first English school to make Chinese a compulsory language subject starting from September.

Brighton College said in a news release late on Monday that Mandarin Chinese will join French, Spanish and Latin as a core language for 13-to-18-year-old pupils.

Head teacher Richard Cairns said he will join the first classes in September to learn the subject himself.

"One of my key tasks is to make sure pupils at Brighton College are equipped for the realities of the 21st century," said Cairns.

He said around a dozen native Chinese speakers are currently studying at the college.

"I very much hope they will be able to help our native Sussex boys and girls get to grips with what I imagine to be a rather challenging experience," he said.

"I have also agreed to join the first Mandarin Chinese class... I think it is the best way for me to show the pupils how important I regard this new addition to our core curricula," Cairns said.

**BMW to award 500 Chinese college students in five years****(People's Daily, 2006-01-17)**

BMW will award 500 outstanding Chinese college students in poor economic conditions in five years, with a total fund of 2.5 million yuan (around 312,500 U.S. dollars).

BMW and the Soong Ching-ling Foundation, a social welfare organization named after the late Chinese leader Soong Ching-ling, Monday signed an agreement on the establishment of the foundation.

Yu Guilin, vice-chairman of the Soong Ching-ling Foundation, said the awarded students will be selected from the engineering-related departments of 10 prestigious Chinese universities. "We are expecting young students with innovative spirit and research achievements."

"This move will also encourage and attract more foreign business firms to participate in the construction of Chinese educational, cultural, scientific and technological sectors," Yu said.

Echoing Yu's remarks, Dr. Chrind Stark, CEO of the China Branch of BMW, said BMW saw a great potential market in China in recent years. To support China on personnel cultivating is not only conducive to Chinese economic and social development, but also helpful for BMW to better emerge into the Chinese society.

According to Stark, BMW has initially decided the first group of 100 Chinese university students to be awarded this year.

Since its founding in 2003, the Soong Ching-ling Foundation has seen a rapid increase of donation exceeding 60 million yuan (7.5 million U.S. dollars) for poor university students.

**China's netizen population tops 111 mln****(China News, 2006-01-17)**

The China Internet Network Information Center (CNNIC) has recently published the 17th China Internet Development Statistic Report, which said that by December 31, 2005, China's netizen population had reached 111 million, 17 million more than 2004. The report said that Chinese netizens now accounted for 8.5% of the country's total population, however, it was still far below the world average of 15.2%.

The report showed that broad band had become a major form of internet logging. The total number of IP addresses in Chinese mainland now ranks third in world. Chinese people's expenditure on internet exceeded 100 billion yuan and over 30 million netizens once used BitTorrent protocol to download softwares.

At the same time, online payment is rising to become a major form of payment. However, the report also showed that there remained a big gap for China's internet development among urban and rural areas, and between east and west regions. The following is a list of key data included in the 17th China Internet Development Statistic Report.

### **China's Top 10 S&T advances in the news for 2005**

**(CAS, 2006-01-19)**

Under the joint auspices of CAS, the Chinese Academy of Engineering (CAE) and the editorial office of the newspaper *Science Times*, the top 10 S&T news stories in China in 2005 have been elected by 570 CAS and CAE members. The event was participated in by celebrated Chinese scientists including CAS President LU Yongxiang and CAE President XU Kuangdi.

CAS Executive Vice President BAI Chunli and CAE Vice President DU Xiangwan made commentaries and answered questions regarding the developments at the press conference to announce the election results on January 16 in Beijing.

1. The successful mission of China's Shenzhou-6 manned space flight. At 4:33 am on Oct. 17, the spaceship safely touched down and its two astronauts FEI Junlong and NIE Haisheng walked out of the capsule after a 115-hour and 32-minute earth-orbiting flight. The mission completed China's first space scientific experiment with human participation in its real sense. The feat marks another monumental achievement in China's manned space exploration.



2. The completion of the track-laying work for the Qinghai-Tibet Railway, the highest-elevation railway in the world. To accomplish the task, Chinese scientists, engineers and construction workers had overcome many grave difficulties and technical snags such as the permafrost basement, frigid and oxygen-deficient climate and fragile ecosystem. The rapid and highly effective construction of the rail line is a major engineering feat in the world's history of railway construction. On last October 15, the first cargo trains full of materials needed for the regional reconstruction in Tibet arrived in Lhasa, capital of the Tibet Autonomous Region.



3. The successful development of China's first 64-bit high-performance and general-purpose micro-processor Godson-II. Its single- and double-precision floating-point operation speed is measured as high as two billion per second and one billion per second, respectively. Its peak operational frequency is 500MHz and power consumption is between 3 to 5 w, far lower than its counterparts overseas in this aspect. Under the joint sponsorship of the Ministry of Information Industry, the Ministry of Science and Technology, CAS and Jiangsu Province's government, an industrial base has been established for the manufacturing of Godson chips.



4. China's expeditionary team succeeds in scaling the summit of the Antarctic ice-cap. At 3:16 am on January 18 Beijing Time, Chinese scientists reached the highest point of Antarctica's inland ice-cap at 80°22' South Latitude and 77°21'11" Eastern Longitude and 4,093m above the sea level after a 1,200km trek. In line with the plan, a station for scientific observation will be built up there as a platform for monitoring the local climate and environment, radar-surveying of the ice thickness, high-precision GPS positioning and comprehensive meteorological observation. This was a momentous exploit in the human history of surveying the Antarctica, enabling China to surmount a new stage in this aspect.

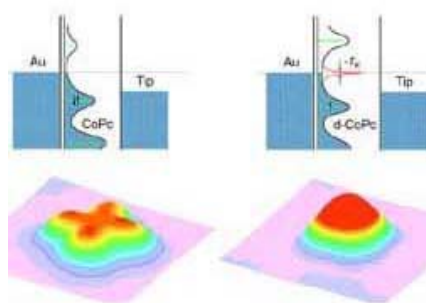


5. The publication of *Flora Reipublicae Popularis Sinicae*, the most voluminous compendium of plant taxonomy in the world. In comparison with its international counterparts, the 126-volume floral collection is noted for its largest number of catalogued plants and volumes as well as editing scholarship. It is the most comprehensive and systematic work as a national flora, including an

all-round, systematic and taxonomic summary of vascular plants in China (including ferns and angiosperms). It documents 31,142 floral species in 3,408 genera of 301 families with more than 50 million characters and some 9000 color plates.



6. Chinese scientists succeed in controlling the spin state of a single molecular for the first time in the world. With the aid of low-temperature ultra-high vacuum scanning tunneling microscopy, a research team from the University of Science and Technology of China carried out a delicate single-molecule manipulation on cobalt pigment element (cobalt phthalocyanine, CoPc), hence realizing the control over the magnetic state of a single molecule. For the first time in the world, they induced chemical reactions inside a single molecule, changing and controlling the physical properties in the molecule by making use of selective chemical reactions. The success provides a new and important approach for the development of single molecular devices and opens new horizons for future development of the subject. The development was reported in the journal Science.



7. China's re-measurement of the elevation of Mt. Qololungma (Mt. Everest) to be 8844.43m. China's State Bureau of Surveying & Cartography announced its latest figure on the altitude of the Mt. Qomolungma, the highest peak of the world: 8844.43m $\pm$  0.21m and the ice-cap on the peak is 3.5m deep. This pair of data should be the most detailed and most precision one among all similar data obtained by domestic and foreign mountaineering expeditions. In comparison the figures achieved in 1975, the mount's elevation is lowered by 3.7m. This surveying work reflects our country's technical level and authority in this aspect. It serves for showcasing China's national capacity in cartographic surveys and related level and further promoting the global exploration of earth sciences.



8. The successful accomplishment of China's continental scientific drilling. As a result of a four-year drilling operation, China's geologists drilled an explorative well with its depth up to 5,158m on the continental crust. Located in the Maobei Village, Donghai County in Jiangsu Province, the well will improve our understanding about the earth's crust. It is the deepest one among a dozen of similar projects International Continental Scientific Drilling Program now in operation.



9. The synthesis of novel hollow mesoporous silica spheres with uniform size and morphology. It is developed by Researchers from the CAS Shanghai Institute of Ceramics and could be used as "a tiny vehicle" that could carry drugs in human blood vessels and unload drugs only at therapeutic targets. With a diameter of only 200 nanometers, the vehicle can safely carry drugs and release them suspendedly at focuses targeted by physicians. So far, the researchers have completed the tests of using it to carry drugs for diminishing inflammation, pain killing and fighting cancer. The work was published at the Journal of American Chemical Society and the German journal Angew Chemical.

10. The creation of the top-resolution virtual man, dubbed No. 1 Male of Chinese Virtual Humans. The achievements were made by researchers from the Southern Medical University using a high performance digital camera with 22 million pixel and a resolution of 4040×5880. The data bank thus set up is with the highest resolution for 0.2 millimeters thick cutting in the world. The data bank is applicable to a wide spectrum of disciplines such as medicine, aviation, astronautics, TV manufacture, military and other sections of national economy.

**Chinese top-notch robots on circuit show**  
(Xinhua Net, 2006-01-24)



A nationwide circuit show on China's top-notch intelligence robots kicked off its first leg of exhibition on Sunday at the Three Gorges Museum in southwest China's Chongqing Municipality. A total of 28 robots were displayed on the exhibition, which varied in forms and functioned differently.



The exhibit was a showcase for the achievements made by the China Academy of Sciences, the organizing body of the exhibition, on its fruitful scientific researches in aspects of voice identification, visual identification, smart decision making, intelligent movements and interactive communications between humans and humanoids.

### **Alstom seeks larger profits through technology transfer**

**(People's Daily, 2006-01-25)**

Alain Berger, president of Alstom China announced in Beijing recently that the company will lend its full support to the construction of grand hydropower projects here in China.

So far Alstom has won the packet bidding of 16 300,000-KW pump storage power stations and cooperated with Dongfang Electronic Corporation in building the Heimifeng Hydropower station in Changsha, capital of south China's Hunan province.

Apart from netting huge profits from Chinese market, Alstom has also set its foot into the technology transfer of world advanced hydropower units. Currently Tianjin ALSTOM Hydro Co., Ltd has taken up some 20 percent share of the nation's total hydropower facility market.

### **Hazy days impede Beijing's blue sky goal**

**(China News, 2006-01-25)**



Mid-air suspending haze in Beijing for days made it more difficult for the national capital to achieve its target to have more blue sky days this year.

Beijing reported inferior air quality for nine days in a row from Jan. 14 to 22 and had serious air pollution on Saturday, according to the Beijing Municipal Environmental Protection Bureau.

Beijing reported only eight clear days in a 22-day period since the beginning of January this year.

The municipality had 21 blue clear days in Jan. 2005 and 19 days with blue sky for the first month of 2004, the bureau said.

The city government has set a target to have 238 blue sky days this year, but the present hazy days has made Beijing harder to attain that goal this year, said a source with the local environment protection bureau.

Meteorologists said the going-on hazy climate would continue in the coming week as there would be no cold front and no strong wind to arrive.

Beijing residents enjoyed 234 days with blue sky in 2005, five days more than in the previous year, according to a report released by the municipal environmental protection supervision center.

The blue sky days account for 64.1 percent of all days throughout 2005. This means Beijing had over fulfilled its objective of having 230 blue sky days, set at the beginning of 2005.

## 6 Information for upcoming Workshops in March

### 2006 International Liver Congress

**Date:** March 25 – March 28

**City:** Shanghai

<http://www.livercongress.org>

### 2006 International Mechanical Engineering Education Conference

**Date:** March 31 – April 04

**City:** Beijing

<http://imeec.cmes.org>

## Abbreviations

- CAS** - Chinese Academy of Sciences
- MOST** - Ministry of Science and Technology