

Content

Science News from Chinese Media During the Period of October 2005

Collected and Compiled by the Helmholtz Beijing Office

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Office Report

October is always the best season in Beijing. In order to promote the national consumption, China has extended its October National Holiday for a whole week (two neighboring weekends are borrowed) for several years. Although more people have already recognized the inconvenient impact to their daily life, to their life and the on-growing international relationship, but the magnitude of sales record will surely defend this long holiday in the coming years.

The 2005/2006 Helmholtz-DAAD Scholarship has been released by the end of September. Our office did a good Chinese translation for the taste of Chinese students and circulated it per email and fax. Assisted by the mailing addresses kindly provided by our neighbor DAAD, letters with this info together with Chinese Helmholtz flyers were sent to more than 300 institutions, including all the prominent Chinese universities and the institutes from the Chinese Academy of Sciences. This year's scholarship marketing is obviously much effective and successful. Although it is clearly stated that DAAD Beijing Office should take the responsibility for submitting documents and make the pre-selection, alone our office have been inquired by over 100 students.

Under the initiation from the German Embassy, to commemorate the centenary of the scientific breakthroughs by Albert Einstein, GSI has co-organized a forum in Lanzou with the Institute of Modern Physics, which belongs to the Chinese Academy of Sciences. GSI has even paid for the attendance of about 50 DAAD-alumni from other provinces, except its own up to 12 experts, led by Prof. Henning, scientific director of GSI. This forum, altogether last 15 days, has been so nicely organized, it's seen as the high tide of series activities for remembering Einstein the genius. The successful cooperation between the partner institute GSI and IMP has been reviewed and made known to more people. More details in the media report: [Sino-German Collaboration in a rewarding way; GSI and its partner IMP jointly hold Forums in Lanzou for the Centenary of the Scientific Breakthroughs by Albert Einstein](#). A contract for Chinese R&D of super-conducting magnets for the FAIR project has been further discussed and finalized, it will be signed this year.

In the mid of this month, Prof. Thomas Brueckel and Dr. Harald Conrad from FZJ have been invited for a short visit in the Chinese Institute of Atomic Energy and the Institute of Physics, CAS. Both these two institutions belong to the richest and best equipped institutes in China. It is not surprising, when Prof. Brueckel returned an email with the statement: *"Der Besuch war durchaus sehr beeindruckend für mich: wie Sie erwähnen, sind beide Institute sehr gut ausgerüstet. Die wissenschaftlichen Arbeiten sind insbesondere am „Key Lab. for Magnetism“ international hochrangig."*

Between the 15.-23, Dr. G. Lincks and two more FZJ colleagues participated in China Education Expo. There are at least two large scale international education expos per year, every time the exhibition halls are fulfilled by young students. This is the at least the fourth time FZJ participated in the German University Delegation organized by DAAD.

Under the assistance of our office and the Sino-German Centre of Research Promotion, a video-conference was hold on the 17th afternoon, between the GKSS-Teltow colleagues Prof. A. Leindlein and Dr. D. Hofmann, and their Chinese counterpart Prof. Xuetao Pei. A discussion on the joint organization of Sino-German Workshop on Regenerative Medicine is done. It is agreed upon that this workshop should be hold in Beijing between the period of 03-07 April 2006.

Helmholtz Beijing Office

1 Science News

1.1 Energy

Chinese Super-efficient nuclear reactor set for trial

(China Daily, 2005-10-05)

Chinese scientists are planning super-efficient nuclear reactors that can maximize uranium burn-up and minimize waste in the generation of electricity.

If the first experimental reactor, set to be in operation by 2010, is successful, the technology could help relieve China's uranium supply problems as the country accelerates nuclear power plant construction.

China Academy of Atomic Science President Zhao Zhixiang said a team of scientists has already mapped a detailed plan to speed up research and utilization of the so-called next-generation fast reactors.

The new reactors are expected to burn 60-70 per cent of their uranium fuel - a conventional reactor consumes only 0.7 per cent of the uranium it is fed.

"This kind of reactor can greatly improve the efficiency of fuel burn-up, and we are trying our best to put the experimental reactor into use over the next five years," Zhao said.

Current reactors are only able to harness the power of 0.7 per cent of the radioactive isotopes found in natural uranium.

In the fast reactor, the process is optimized so that more of the previously untapped isotopes can be used to generate electricity, burning-up fuel at least 60 times more efficiently than in a normal reactor.

"We will have no concerns over fuel supply if such reactors are used to generate electricity commercially," Zhao said.

China started research into fast nuclear reactor technology in 1995 and invested 1.38 billion yuan (US\$170.2 million) into the construction of the experimental reactor.

"I hope an experimental reactor with a capacity of 200,000 kilowatts can be put into use by 2010," Zhao said. He added that construction of the reactor is close to completion but did not identify the site of the project under the High and New Technology Research and Development Programme of the Chinese Government.

He also said plans for a fast-reactor prototype are expected to be included in the country's medium- and long-term science and technology development blueprints.

The prototype reactor, with a capacity of 600,000 kilowatts, will be constructed and put into operation by 2020, Zhao said, adding: "After that, we will consider commercial operation of the reactor."

As China's economy keeps developing rapidly, demand for power also keeps increasing. To meet its growing energy demands, China has mapped out a national plan to increase nuclear generating capacity to 36,000 megawatts by 2020, up from 8,700 megawatts today. The proportion of national power output supplied by nuclear energy is expected to rise from 2.3 per cent now to 4 per cent.

A senior official from the National Development and Reform Commission told China Daily that

the country will have an even more ambitious plan to generate nuclear power after 2020.

"All the plans urged our researchers to develop our own core technologies for the reactors," said the official, who declined to be named. "And I personally believe the fast reactor will play a leading role during the 2040-50 period in China's nuclear plant construction."

Apart from fast reactor research, China has also made a breakthrough in gas-cooled nuclear reactors, which can generate considerably higher temperatures than conventional nuclear reactors, leading to a high power generating capacity.

Using helium as a coolant, the reactor, mainly developed by researchers from Tsinghua University, is also able to shut down and cool automatically in an emergency. Senior State Council officials have called for early commercial application of China's first gas-cooled nuclear reactor to help restructure China's energy supply strategy.

Most of the nuclear reactors currently in operation in China rely on technology imported from France and Russia.

Nation holds int'l symposium on solar energy

(Xinhua Net, 2005-10-13)

An international symposium was held in Lanzhou, northwest China's Gansu province, from October 12 to 13 on the topic of solar energy use in developing countries.

The International Symposium on Solar Energy in Developing Countries (ISSEDC) was attended by experts and officials from over 20 developing countries, including China, Pakistan, Egypt and Nigeria.

The purpose of the meeting is to share experience on development of solar energy and renewable energy, and to strengthen international exchange and cooperation.

"Developing solar energy is a complex and systematic project which calls for multilateral and bilateral cooperation," said Zhao Yongli, director of the China International Center for Economic and Technical Exchanges.

China has become a new training center for technical personnel of solar energy utilization in developing countries. To date, the Asia-Pacific Research and Training Center for Solar Energy, which is located in Yuzhong County of Lanzhou, has trained nearly 500 solar energy specialists from 72 countries.

The symposium was jointly organized by the United Nations Development Program (UNDP), the United Nations Industrial Development Organization (UNIDO), UNDP Special Unit for South-South Cooperation, and China International Center for Economic and Technical Exchanges. The symposium produced a "Lanzhou Declaration" Thursday, providing suggestions for developing countries in the field of future solar energy cooperation.

Major breakthrough in the "Indirect Coal Liquefaction Technology"

(MOST, 2005-10-24)

Recently, the "Indirect Coal Liquefaction Technology" passed acceptance check. This is a topic of the 863 energy sector in the Tenth Five-year Plan Period undertaken by Shanxi Research Institute of Coal Chemical Industry, the Chinese Academy of Sciences. This topic has achieved major breakthrough in the catalyst and slurry bed reactor pilot-scale experiment technology and has obtained over 20 patents.

The 750-ton pilot plant built up through this topic has realized 1500-hour stable operation and

produced a batch of synthetic crude oil product bulk sample. After processing of the bulk sample, the diesel oil product quality reached Euro IV Emission Standard, cetane value reached 75 and technical index attained international advanced level. This technological breakthrough laid a good foundation for the industrial application of the indirect coal liquefaction technology and is of far reaching importance to the clean and efficient use of coal in our country.

The third-generation technology (i.e. the slurry bed reactor) adopted by this topic is international advanced technology. Thanks to its strong processing capacity and good product adjustability, slurry bed is the technology of choice for indirect coal liquefaction.

China-US joint technology expo on nuclear security

(CRI, 2005-10-25)

Approximately 100 representatives from civilian nuclear facilities and research institutes throughout China and the US are in Beijing to attend the joint China-US Integrated Nuclear Material Management Technology Demonstration.

Aiming to promote the adoption of modern security practices and technologies at civilian nuclear facilities, the display shows established physical protection, nuclear material control and international safeguards technologies that provide a first line of defense against nuclear material theft, diversion and sabotage.

Administer of the US National Nuclear Security Administration, Linton Brooks said the team work between the Chinese and the American representatives is a model for future cooperative projects.

"This demonstration shows what we can accomplish working together. It's very impressive, and it sets the ground work for continued cooperation in material protection and other non-proliferation areas."

US to transfer nuclear reactor tech to China

(China Daily, 2005-10-26)

A senior US official Tuesday expressed repeated commitment to transferring nuclear reactor technologies to China. China has drafted ambitious plans to use nuclear power to alleviate growing energy shortages.

Administrator of the US National Nuclear Security Administration, Linton Brooks, told China Daily: "There is no reason why the (reactor) technology should not be transferred to a country like China."

Industry insiders said the commitment from Brooks, who is also undersecretary of the US Department of Energy, is expected to boost US nuclear power company Westinghouse's attempts to win a US\$8-billion contract to build four nuclear reactors at Sanmen in Zhejiang Province and Guangdong Province's Yangjiang.

So far, the Chinese Government has been busy reviewing bid application from the US company, France's Areva and Russia's AtomStroyExport.

Several high-level US officials have expressed interest in loosening controls over exports of nuclear reactor technologies to China. The controls have rendered Westinghouse unable to participate in China's nuclear reactor construction, despite the company having had a presence here for years.

An earlier report said that Westinghouse plans to sell its new AP1000 reactor, which is to be

approved by the US Nuclear Regulatory Commission by the end of the year.

China is considering picking one strong partner to help it build dozens of new nuclear plants over the coming years, as part of the plan to raise the country's nuclear power generating capacity fourfold by 2020 to 36,000 megawatts.

Brooks said the US will forge a partnership with China to enhance nuclear security capacity.

He said a week-long demonstration has been organized by his department and the China Atomic Energy Authority (CAEA) in Beijing, to prevent nuclear material theft, diversion and sabotage.

"The demonstration, which ends on Friday, is the first one we have held in China, and in fact the first one we have held outside the US," said Brooks.

CAEA Chairman Sun Qin said the demonstration is to promote the adoption of modern security practices and technologies at civilian nuclear facilities in China.

Brooks also said that the US does not conduct nuclear security co-operation with China at military level, despite "the great potential."

CAS Guangzhou Institute of Energy Conversion wins BlueSky award

(CAS, 2005-10-26)



After the strict scrutiny by an international jury, a system for biomass gasification and power generation developed by the CAS Guangzhou Institute of Energy Conversion (IEC) has been chosen as one of the eight winners of the BlueSky Award in 2005. The event was sponsored by the United Nations Industrial Development Organization and the International Technology Promotion Center for Sustainable Development in Shenzhen, in south China's Guangdong Province.

The BlueSky Award is a non-profit program for encouraging the utilization of renewable energy in developing countries worldwide. The project on biomass gasification and power generation by IEC was selected from the top 20 candidates who were invited from a slate of 127 applicants to present at the BlueSky Award proceedings as well as exhibit at the 2005 China High Tech Fair, the largest technology expo in China.

Other BlueSky Award winners included "A Hydrodynamic Screw System" from Germany, "Elaboration of Energy Efficient Solar Greenhouse" from Russia, "Development of Lipofuel" from Brazil, "Landfill Gas" from Canada, "Recycling Used Cooking Oil into Biodiesel" from US, and "Sweet Sorghum Breeding and Energy Conversion" and "Small Hydropower Electromechanical Technology" from China.

Energy is the focus of Sino-US governmental cooperation

(China Daily, 2005-10-27)

Experts will research Dalian, in Northeast China's Liaoning Province, and Los Angeles in the US to share their experiences of sustainable development.

The organizing committee of a Sino-US research project on the two cities' urban development yesterday signed an agreement with Dalian municipal government.

According to the agreement, the local government will provide the committee with their experiences of Dalian's energy strategy.

The committee will then provide constructive suggestions to the government on how to improve energy production and use.

The project is headed by academies of sciences and engineering from China and the United States.

John Watson, US representative of the project, said the research group aims to provide recommendations for Chinese and American policy makers.

"While doing the research, we can better share our information and learn from each other," he said.

Dalian has been given a Global 500 Best Environment award by the United Nations and a China Habitat Environment Prize by the Ministry of Construction.

But the city is still facing some problems.

Vice-Mayor Qi Yumin said that the city is increasingly dependent on external resources and has not done enough to develop renewable energy.

In addition to Dalian, the committee for the project has also chosen Huainan, a city in Anhui Province, and Pittsburgh in the US for comparative studies.

Cai Ruixian, with the Chinese Academy of Sciences (CAS), said the coal city of Huainan and the steel city of Pittsburgh are facing similar environmental problems.

Yan Luguang, also with the CAS, said Huainan, covering 2,000 square kilometres, produces 40 million tons of coal annually.

In 2010, the city is to become a national coal base with a capacity of 100 million tons of coal every year.

With 40 per cent of the coal set to be consumed locally, the city will face serious pollution problems if no effective measures are taken, Yan said.

1.2 Earth and Environment

R&D and industrialization of a new type of tail gas purification catalyst successful (MOST, 2005-10-09)

The research project of "R&D and Industrialization of New Tail Gas Purification Catalyst with Higher Rare Earth Content and Lower Precious Metal Content" recently passed the acceptance check. Initiated in the face of the intensifying threats to human health and serious pollution of the living environment caused by the tail gas discharged by the automotive vehicles and with the purpose of facilitating a successful Beijing 2008 Olympic Games and the smooth implementation of the national environmental policies, this Research Task is designed to develop and industrialize by Year 2004 a new type of tail gas purification catalyst with higher rare earth content and lower precious metal content satisfying the Euro III Standard by resorting to China's abundant rare earth resources and unique technical advantages in the research of rare-earth-based catalysts. Enjoying

high recognition by the National Government and the respective provinces and ministries, the Research Project has been inspected by a number of national leaders including JIA Qinglin, WU Guanzheng and LUO Gan during the course of implementation. The implementation agency of the Research Project has been defined as one of the “Achievements Industrialization Bases of the National Hi-tech R&D Program”.

Thanks to the unique and advanced “three-in-one” management mode adopted during the implementation of the Research Project that has fully integrated the efforts from the researching, manufacturing and application bodies, the R&D results were rapidly transformed into benefits. The new equipment independently designed and developed on the basis of the new processes and technologies as well as the automated production line of catalysts satisfying the Euro III Standard set up during the implementation of the Research Task became a full embodiment of innovative practices adopted in the aspects of overall planning, technological integration and system integration. This automated production line, an achievement with fully independent intellectual property right that guarantees the catalyst products are in compliance with the performance & conformity required in the Euro III Standard and widely applicable to various types of vehicles and fuels, provides a technical support to facilitate the wide application of and technological participation in the international competition of the homemade catalyst products.

Survey puts Qomolangma at 8844.43 meters above sea level (CAS, 2005-10-10)



The State Bureau of Surveying and Mapping (SBSM) announced in a press conference held on Oct.9 in Beijing that its new measurement of Mount Qomolangma, also known as Mount Everest, is 8,844.43 meters above sea level.

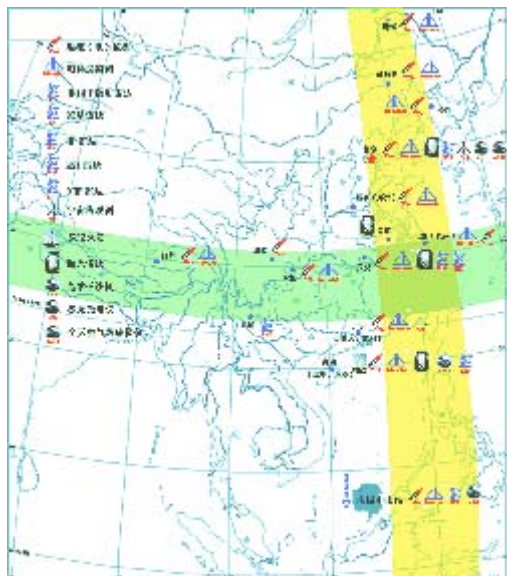
Chen Bangzhu, director general of SBSM said: "Authorized by the State Council, and on behalf of the State Bureau of Surveying and mapping, I now declare the official figures of the 2005 Qomolangma measurement. The peak's summit is 8844.43 meters above sea level, with an error margin of 0.21 meters. The ice cover on the top is 3.5 meters. The figure announced in 1975 will no longer be used."

The newly measured height is 3.7 meters shorter than 8,848.13 meters, a figure obtained from the previous measurement in 1975. However, the mountain is still the highest one in the world. The improved technology, such as the ice radar detector and advanced GPS system, has made the data of current measurements more precise, he added.

To help make the measurement, a scientific expedition was carried out in May by a team of Chinese experts, including those from CAS. By June 12, all field data had been sent to the SBSM's

Geodesic Survey Data Processing Center in Xi'an, the capital of Shaanxi Province for data processing and indoor analysis. Experts from CAS, the Bureau of Surveying and Mapping under the Headquarters of the PLA General Staff and Wuhan University were then invited to double-check the results.

**A major project on space weather monitoring gets the green light
(CAS, 2005-10-11)**



A CAS proposal on meridian space weather monitoring project (Meridian Project) has been approved recently by the Chinese government as a national major research project.

With the objective of making clear the patterns of catastrophic weather events in the space environment, regional characteristics of the environment above China's territory so as to ensure the flight safety of satellites, the project will set up a large-scale ground-based monitoring system composed of 15 stations along the longitude of 120°E and the latitude of 30°N. Scientists say it will contribute not only to the development of China's space science, but also to international cooperation in the field.

The 200-million-yuan project will be coordinated by the CAS Center for Space Science and Applied Research with the participation of researchers from such departments as CAS, Ministry of Education, Ministry of Information Industry, China Earthquake Administration, State Oceanic Administration, and China Meteorological Administration.

Spatial tech to help forecast natural disasters

(China Daily, 2005-10-12)

Chinese use the idiom "relying on heaven for food" to describe farmers in drought areas live at the mercy of heaven for rains.

As China has frequently been plagued by natural disasters, its people have always been encouraged to make great efforts to solve problems without divine intervention.

But now scientists are turning their eyes to the heavens to monitor natural disasters by using spatial information technology to make forecasts.

Spatial information refers to data collected by remote sensing and Global Positioning Systems (GPS).

Officials and experts believe this knowledge is crucial for decision-makers that need the latest reliable information about natural calamities if they are to choose the best course of action to deal with misfortunes.

When natural disasters such as flooding, typhoons and landslides occur, those on the spot usually cannot see a holistic picture of the destruction.

Disasters often destroy ground monitoring and telecommunications facilities, making it difficult for those on the scene to send information to central authorities.

Using traditional methods, it is very difficult to collect disaster-related information quickly.

"Spatial information technology could well overcome these problems," said Professor Li Jing from the National Disaster Reduction Centre of China.

Li, with officials and scientists from the United Nations Educational, Scientific and Cultural Organization, the International Institute of Spatial Information Technology and the Digital China Research Institute of Peking University, attended a workshop on the applications of spatial information technology for disaster prevention and reduction.

The workshop was organized as part of activities to mark the International Day for Disaster Reduction, which falls today.

"Spatial information technology is a very good tool to monitor natural disasters and simulate their development process," said Li.

Spatial information technology has unique advantages - it can observe any disaster-affected area and get reliable information in all weather conditions, according to Li.

China's remote sensing system is composed of three kinds of satellites, known as meteorological satellites, resources satellites and oceanic satellites.

"Although these satellites provide a lot of useful data for China's disaster monitoring and prevention work, the biggest problem is that the resolution of these data is not satisfactory," said Li. As a result, China has to buy certain data from companies abroad to serve its needs.

To solve the problem, China has decided to launch a constellation of eight satellites to get relevant data and warn of natural calamities.

According to Vice-Minister of Civil Affairs Jia Zhibang, three satellites of the kinds will be sent into space in the first half of 2007, with five more to join them by 2010.

They will create a network that monitors disasters and environmental changes in China as well as neighbouring countries.

The constellation is comprised of five systems, including a satellite carrying and launching system, monitoring and ground application systems.

The ground application system is expected to play a big role in monitoring such disasters as floods, droughts, typhoons, earthquakes, landslides, grassland and forest fires, pests and oceanic disasters. It is also expected to help officials evaluate and analyze damage, which is very important for post-disaster response.

Besides disaster prevention, the spatial information technology could also be used to help supervise the work of local officials, according to Ma Junru, president of the International Institute of Spatial Information Technology at the Ministry of Science and Technology.

When disasters happen, local officials either report false information such as reduced death tolls to higher authorities to evade punishment, or exaggerate economic losses to get more subsidies.

Data provided by spatial information technology is the best evidence with which to find out the truth, according to Ma.

China is a country that frequently falls victim to natural calamities.

Official statistics show that from 1989 to 1998, the average annual economic losses caused by natural disasters reached 157.7 billion yuan (US\$19.5 billion), accounting for 3.6 per cent of the country's annual gross domestic product.

The State Flood Control and Drought Relief Headquarters announced earlier this month that floods and landslides have killed 1,247 people and left another 331 missing so far this year.

Although satellite information has been used in China in disaster reduction efforts for two decades, the country is still frustrated by problems in this field.

The lack of a self-developed, high-quality satellite monitoring platform has bottlenecked the application of spatial information technology in China. The plan to launch the constellation of eight satellites by 2010 is expected to provide a solution, according to Li.

China needs to build a disaster reduction database to support the country's monitoring work. But time and investment are needed if progress is to be made.

As China's disaster prevention and relief efforts are handled by different government departments, they so far have not established an effective system for sharing disaster information.

Concerted efforts are needed to build an early warning system based on spatial information technology to reduce losses caused by natural disasters, said Li.

China, Netherlands co-op to protect ecosystem in Yellow River Delta

(Xinhua Net, 2005-10-18)

China and the Netherlands have launched a cooperation program to protect ecosystem in the Yellow River Delta, the second longest river in China.

The program, titled "The Yellow River Delta Environmental Flow Study", is the second scientific cooperation program of its kind between China and the Netherlands since 2003.

Government officials from the two countries signed an agreement on the program on Monday, one day before the second International Yellow River Forum, which is slated for October 18-21 in Zhengzhou, capital city of central China's Henan Province.

Lian Yu, vice director of the Bureau of Protecting Water Resources in the Yellow River Valley, said the Yellow River Delta has the biggest, youngest and best wetlands in north China.

As one of the most important places for migrant birds in Northeast Asia as well as the Asia-Pacific rim, the Delta has been put on both world and Chinese bio-diversity and wetland protection lists, said Lian.

However, a shortage of water has caused the frequent drying-up of the lower reaches of the Yellow River in recent years and posed a grave threat to the ecosystem at the estuary of the river, Lian said.

In the face of water deficiency and a contradiction in the supply and demand of water resources in the Yellow River valley, it was of great significance to conduct environmental studies so that Delta ecosystem security could be guaranteed, said Lian.

Statistics released by the Yellow River Conservancy Committee (YRCC) show that drying in the lower reaches of the river was reported in 21 of the 27 years from 1972-1998, resulting in river course shrinkages, a loss of non-human life and wetland shrinkage.

In 1999, the YRCC began to manage the water resources in the river valley by diverting water from other parts to feed the lower reaches of the Yellow River during non-rainy seasons, which has resulted in the environmental improvement along the river's lower reaches.

Bas Pedroli, head of the Dutch ecosystem expert team, said it was a difficult for experts from both countries to find out the exact quantity of environmental flow in the estuary of the river. An additional challenge was striking a balance between the security of the ecosystem on the Delta and economic interests potentially generated by the Yellow River.

Suo Lisheng, deputy minister of water resources, and Dutch Crown Prince Willem-Alexander, attended the signing ceremony.

China and the Netherlands signed a cooperation program called "satellite-based monitoring of water and river movement forecast in the Yellow River Valley" during the first International Yellow River Forum in 2003.

"Integrated Sand-fixation Technology" passed appraisal

(MOST, 2005-10-19)

Recently, "Sand-fixation Technology of an Integration of Ion Beam Vegetation Improvement and New Materials" passed the appraisal by an expert team. This technology is a research topic of the 863 Program undertaken by the Institute of Plasma Physics of the Chinese Academy of Sciences. The appraising team was made up of sand control experts from Grassland Research Institute of the Chinese Academy of Agricultural Sciences of Inner Mongolia and members of the 863 special topic expert team. The appraisal concluded: A new technology to fix sand by the comprehensive integration of plants, microorganisms and ion beam improvement has evolved from the study of the compatibility of biological groups and their interaction with the environment, a study that has improved the micro-ecosystem of the rhizosphere of sand-binding plants by using such new materials as water-absorbing resin and rare earth.

This research topic studied the "micro-environment cultivation technology system" for licorice root and the "technology system of planting dry land willow and sand willow stems for thermal-radiation prevention and moisture-preserving cultivation", which has brought about the advanced technology system that can protect and promote the growth of plants in the desert. Two years of application test in Kubuqi Desert has proved that this technology can increase the plant survival rate of licorice root, dry land willow and sand willow trees. It is reliable and practicable, very suitable for re-vegetation in the desert and sandy land. In a word, this research has put forward a new concept and new method for fixing and controlling sand. This technology is innovative in theory and has very good prospects in future application. So far there has been no document reporting this integrated technology system and this research is of advanced international standard.

China gathers mineral samples in Atlantic Ocean for the first time

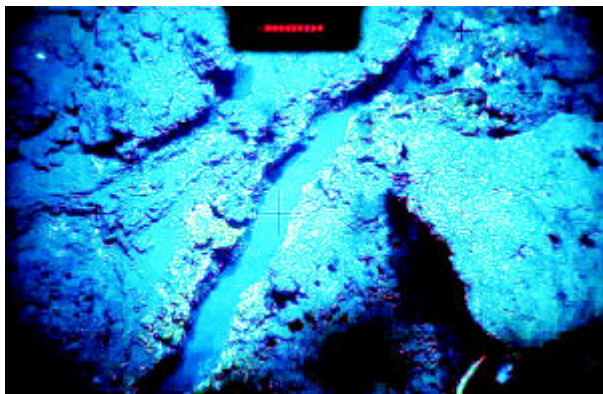
(People's Daily, 2005-10-20)

At 4:30 a.m. Oct 19, 2005 Chinese scientific exploration ship Dayang 1's grab took 200 kilograms of hydro-thermal sulfide onto its deck.

This is the first time that Chinese scientists have gathered mineral samples from seabed of the Atlantic Ocean.

Significant breakthrough in inflammable ice investigation

(MOST, 2005-10-21)



Geographical characteristics taken by underwater camera demonstrates existence of inflammable ice in the northern continental slope of South China Sea.

Significant breakthrough was made in the investigation of natural gas hydrates (also called inflammable ice) in the South China Sea, as announced on October 19, 2005 by Guangzhou Marine Geological Survey of the Ministry of Land and Resources in south China's Guangdong Province. Through five years' investigation, researchers have initially identified distribution and quantity of inflammable ice reserve in the northern continental slope of the South China Sea. They have also demarcated specific target drilling areas. Those data are of far-reaching significance to China's exploration and exploitation of substitute energy for petroleum and natural gas.

World experts diagnose for Himalayas flooding

(Xinhua Net, 2005-10-23)

More than 60 experts from various organizations and countries gathered at a seminar in the capital of Tibet Autonomous Region here Sunday to seek solutions to floods in the Himalayas Mountains. Floods may incur serious loses to the people in China's Tibet and in the lower reaches of the rivers originating from the Himalayas region if no measures are taken to curb the natural disaster, said Gabriel Campbell, director of the International Centre for Integrated Mountain Development (ICIMD).

Mountain flooding has been one of the major natural disasters that plague southwest China's Tibet, with the Himalayas to the south, said Dorji Cering, vice chairman of Tibet.

The official said that the Chinese government has paid great attention to the prevention and treatment of the calamity and Tibet is drafting a plan on the prevention and control of the flooding. The experts, from the ICIMD, World Meteorological Organization, China's National Meteorological Bureau, and eight countries including Afghanistan, Bangladesh, India and Pakistan, will focus their discussions on the management and assessment of the risks of floods, disaster control, flooding forecast and some other areas to improve the scheme of regional flood management.

Scientists finish measuring 8th largest desert

(Xinhua Net, 2005-10-24)

China's eighth largest desert, the Kumtag, measures 22,917.2 square kilometers, according to scientists who have just returned from a month-long expedition across the Kumtag.

This is the first time for Chinese scientists to measure the exact size of the Kumtag, which is

located between Lop Nur in Xinjiang Uygur Autonomous Region and Dunhuang of Gansu Province and sandwiched between two mountain ranges: the Tianshan Mountains on the north and Altun Mountains on the south.

A team of 15 scientists participated in the expedition, the first full-scale scientific expedition across the desert, said Wang Jihe, a researcher with Gansu Provincial Sand Control Institute and head of the expedition.

The scientists, representing Gansu Provincial Sand Control Institute, Chinese Academy of Forestry Science and Lanzhou University, walked more than 5,000 kilometers across the desert and used remote sensing satellite images, coupled with results of field surveys, to work out the precise area of the desert, said Wang.

They also collected more than 500 samples of desert animals and vegetation and at least 1,000 first-hand geological data, discovered two stratum sections that have proven valuable to scientific research, and provided evidences to support further study on the desert's geological conditions, soil, vegetation, climate changes and changing river and lake systems.

Underneath the Kumtag's sand and rock, the scientists found clear signs of a vast dried-up lake. Wang said the team collected more than 100 samples of the stratum and hoped further analysis into the samples may tell how the rise of the Qinghai-Tibet Plateau induced climate changes in the arid northwest, how Kumtag came into being and how Lop Nur, once a vast lake, kept shrinking and dried up entirely in 1972.

The expedition team also spotted 25 wild two-humped camels, a critically-endangered species, in the central part of the desert. According to Ma Muli, a forestry official in Jiuquan city of Gansu, Kumtag is home to about 260 of the camels. "Most of them have moved here after the Lop Nur dried up," said Ma, who is also guide for the expedition team.

Very little is known about the Kumtag, whose name means "sand hill" in Uygur. As its name suggests, the desert has the toughest natural conditions in northwest China's arid region.

Chinese scientists observe ocean-bed images

(People's Daily, 2005-10-25)

The ocean-bed of the Atlantic, appearing to be desert, wasteland, barren waste and terraced fields, has been brought clearly before eyes of scientists on-board Chinese scientific survey ship "Ocean No. 1" through screen. With deep-sea shooting system, Chinese scientists have observed the 3,000-metre deep ocean-bed of Atlantic for the first time on Oct. 23.

"Ocean No. 1" is China's first ship on a mission of round-the-world ocean scientific and survey expedition. Currently, "Ocean No. 1" is now berthed at 15 degree N 45 degree W, less than 1,000 sea miles off Bermuda and Bahama Archipelago.

Scientists explain seasonal deterioration of lake water

(Xinhua Net, 2005-10-25)

Chinese scientists claimed that they have discovered the cause of seasonal water quality deterioration in lakes.

Seasonal deterioration of water quality in lakes is an inevitable result of the coupling of the effect of oxidation of organisms deposited at the bottom of the lake and pollution caused by human beings, Wan Guojiang, a research fellow with State Key Lab for Environment and Geochemistry of the Chinese Academy of Sciences, announced here on Sunday.

Many countries, including China, have reported sudden serious deterioration of water quality and the death of a large number of fish in a couple of days since the 1970s. In China, such cases have been reported in Beijing, Guizhou, Guangdong and Hubei.

Wan and his research team started probing lake water environments in the 1970s. They focused on the relationship between deposits at the bottom of the lake and water in the 1980s and they furthered their research on the oxidation of deposits and its effect on water quality in the 1990s. They named the sudden deterioration of water quality "black tide".

Wan and his colleagues studied water samples taken from the lakes of many countries around the globe and cooperated with foreign research agencies to conduct related research.

Wan said black tides often occur in lakes during autumn.

Research shows that during autumn, organic matter at the bottom of lakes begins breaking up under the effect of microorganisms, causing oxygen deficiency at the bottom of the lake, a drop of PH levels, and an increase in the concentration of nitrous acid radicals. Vicious circles intensify oxygen deficiency in water and the spread of sulphide turns water black and fetid, Wan said.

However, water quality turns for the better in two or three months, with the balance of oxygen consumption and the recovery in the water and the transportation of water currents, said Wan.

Wan said during the course of water quality changes, human activities such as discharge of industrial and domestic waste can cause the formation of black tides.

Thousands of scientists to jointly explore polar regions

(Xinhua Net, 2005-10-26)

Thousands of scientists from 50 countries will kick off a joint exploration on polar regions from March 2007 to find out possible relevance between changes occurring in polar regions and global climate.

The International Polar Year (IPY), co-sponsored by World Meteorological Organization (WMO) and International Council for Science (ICSU) has attracted more than 1000 research proposals, according to Dr. David Carlson, director of IPY international program office, who was in Suzhou of east China to attend the 28th General Assembly of International Council for Science.

More than 70 projects of 50 countries have been confirmed by ICSU, at least 25 of which will involve Chinese scientists, Carlson told Xinhua, "Chinese scientists are essential participators and cooperators in exploring polar regions."

"If we want to take polar research to the next level, for example, understanding the implications of melting ice caps for ocean circulation, for different societies and economies, and how human activities contribute to these changes, we need scientists working across disciplines and international boundaries," Carlson said.

Shen Aimin, associate professor of China Association For Science and Technology (CAST) said polar regions are a barometer of global climate and environmental changes.

A special committee promoting IPY has been established in China to encourage Chinese scientists participation, Shen said, China will explore both poles within IPY's projects.

Further research of the regions would help people spell out the deep-seated causes of such disasters as hurricanes and tsunamis devastating Asian and Pacific areas, he said.

Also the unique natural environment of polar regions could provide impossible conditions in mid and low latitudes for scientists to probe into studies on earth's core as well as observation on the sun and outer space, Shen added.

A Chinese polar vessel will begin her next arctic trip from Shanghai, which is expected to arrive at the Chinese first arctic exploration station and carry out researches on arctic climate, ocean and glacier. The Chinese scientists will also share and exchange data with international cooperators.

The Chinese participation to IPY also includes the exploration on antarctic ice cap which has already been launched since the beginning of this year. The Chinese scientists will take the exploration every other year until 2010.

China established its first antarctic exploration station in February 1985. A Chinese exploring team successfully set steps onto Dome A of the South Pole on January 9 this year and build up the first man-made automatic aerograph there.

The IPY is the second international joint exploration on polar regions sponsored by ICSU since the last one in 1957. The IPY will focus on residents, atmosphere, ocean and space of polar regions from March 2007 to March 2009.

China to build its third Antarctic station at Dome-A

(People's Daily, 2005-10-27)

China will start its 22nd scientific exploration in South Pole on Nov. 18, 2005, according to Polar Research Institute of China.

At the same time, the establishment of China's third station for scientific explorations in South Pole will be put on the agenda. The third station will be at Dome-A.

The period from 2007 to 2008 has been set as International Polar Year.

China is going to build its third station in the Antarctic area at the opportunity of the polar year to make Chinese voice louder in this field, said Zhang Zhanhai, head of the Institute.

Through international cooperation, it is hoped that a deep ice core of 350 to 500 meters be drilled and the climate record of the earth 1.2 million years ago be re-constructed.

With Dome-A, China also expects to form an area with advantage in scientific research.

China to start 22nd Antarctic expedition in Nov

(China News, 2005-10-27)

The China-UK seminar on scientific research in polar regions revealed that China's icebreaker "Snow Dragon" will depart from Shanghai on November 18th for the Zhongshan Station in Antarctica to carry out China's 22nd Antarctic expedition, which aims primarily to collect meteorites in the Grove Mountains.

88 scientists will board the "Snow Dragon" icebreaker to Antarctica to carry out a series of missions including the 2005-2006 Grove Mountains program. The Grove Mountains Area is located in the ice-capped hinterland of the Princess Elizabeth Land in east Antarctica, between China's Zhongshan Station and Dome A. It is reputed as the most beautiful and spectacular area in Antarctica. China took the lead in finding that this area congregates meteorites and has collected 4,480 pieces of meteorites there. Upon completion of this expedition, China is expected to outrun the US and become the second largest country in terms of meteorites collection.

In the following few years, China will invest US\$64 million in elevating its scientific research capability in polar regions, including building a new station in Arctic, renovating the existing Zhongshan and Great Wall stations in Antarctica, upgrading equipment of "Snow Dragon" and adding new supplementary facilities, and building a dock for research ships in Shanghai. At present, the UK infuses a budget of 40 million pounds in Antarctic research annually while China's

is only around one fifteenth of that of the UK.

World-renown environmental journal to set up Asian office in Beijing

(CAS, 2005-10-31)

Environmental Science & Technology (ES&T), a prestigious journal published by American Chemical Society in the field of environment science and technology, will set up its Asian Office in Beijing in 2006. ES&T Associate Editor JIANG Guibing, research professor from the CAS Research Center for Eco-Environmental Sciences, is in charged to establish the office.

Covering various aspects of the environment and its protection by scientific and engineering and political means, ES&T was considered the essential resource by environmental scientists, researchers, and engineers across the world. Headquartered in Washington DC in US, the journal has set up a regional office in Europe.

Greenhouse effect occurred 5,000 years ago: archaeologists

(Xinhua Net, 2005-10-31)

It is common sense nowadays that excessive carbon dioxide in the air caused by excessive lumbering leads to global greenhouse effects.

But a team of archaeologists from China and the United States is saying that the greenhouse effect started about 5,000 years ago, much earlier than people might expect.

This is the conclusion reached by a group of Chinese and US archaeologists based on research on the relics excavated from the ruins of a Neolithic site in Rizhao City, east China's Shandong Province, over the past ten years.

The joint archaeological team of experts from Shandong University and US scholars began its survey at the ruins of the ancient Liangcheng Town in suburban Rizhao in 1995, focusing on the relationship between plants and human activity.

They collected wood samples from the site and did research on 21 pieces of waterish logged timber and three pieces of charcoal. Archaeologists found that the wood excavated at the site were mostly the remains of burning or construction activities.

"Prehistoric human beings probably burned wood in cooking, lighting, molding pottery and even bronze smelting, while large quantities of relics of ancient housing facilities indicate that people of that time lumbered much to build houses," said Kuan Fengshi, head of the Archaeological Research Center of the Shandong University and a member of the excavation group.

The team also deduced that prehistoric human beings used plants for other purposes, such as curing diseases, making furniture or tools and feeding animals, but these plants were hardly preserved and found.

Luan concluded that the remains of plants and trees at the site showed that prehistoric humans had started lumbering and that the increase of carbon dioxide therefore probably started before the industrial age.

The traditional view was that human beings affected the environment little in ancient times and that it was not human beings but climate change or catastrophes that promoted or vanquished ancient cultures.

"What we have found has refuted the conception," said Luan.

1.3 Health

Super server for bioinformatics developed

(Xinhua Net, 2005-10-05)

The Beijing Genome Institute and the Computing Technology Institute under the Chinese Academy of Sciences (CAS) have developed, through combined efforts, a super server for bioinformatics.

Xu Zhiwei, deputy director of the Institute of Computing Technology who leads the research project, said the super server, coded as 4000H, is specially designed for bioinformatic research.

"With comparatively low cost," Xu said, "we have achieved high performance of the super server."

The system has 90 central processing units and 10 special accelerators, which ensure the performance capability of more than four trillion times per second.

The researchers have also developed a series of software which is suitable for bioinformatics.

The super server has already been employed in the precise mapping of rice genome and the draft mapping of silkworm genome.

The research team has applied for three invention patents, with one being granted, and gained four software invention registrations.

CAS scientists find bats carry SARS-like virus

(CAS, 2005-10-09)



An international consortium headed by CAS researchers has identified that the Chinese horseshoe bat is healthy carriers of a virus that is very closely related to those causing SARS (severe acute respiratory syndrome). Their work was reported online on Sept. 29 by *Science* magazine. The findings support an independent study with similar results by Hong Kong scientists, which is reported by Sept. 27 issue of *Proceedings of the National Academy of Sciences*.

The outbreak of the deadly SARS epidemics in 2002 and 2003 infected more than 8,000 people in 26 countries across the world, causing 774 deaths. Earlier studies on the epidemics showed that masked palm civets could be a natural host for the virus.

Prof. Shi Zhengli from the CAS Wuhan Institute of Virology (WHIOV), Prof. Zhang Shuyi from the CAS Institute of Zoology and their colleagues noticed in the research that bats have proved to be a natural host for viruses of some major animal-borne infection diseases, which could be infective to both humans and animals.

Started from March 2004, the research team has collected samples of the blood serum, throat and

faecal swabs from 408 bat individuals in four regions across China, which falls into nine species in six genera in three families. Examinations at both labs of IOV in Wuhan and Australian Animal Health Laboratory (AAHL) demonstrated that four species in the Horseshoe Bat (*Rhinolophus*) genus have SARS virus antibody and genes. One of the species, Great-eared Horseshoe Bat (*Rhinolophus macrotis*) showed more than 70% positive rate of antibody against the SARS virus. Sequencing analyses indicate that the homology between SARS-like virus and human ones reaches 92%.

However, scientists are quick to point out that the difference between the two is critical for the cross-species spreading of the virus. That is to say, the SARS-like virus in bats may not be contagious to humans.

Zoologists argue that insectivore bats including horseshoe bat are natural enemies for many pests in agriculture and forests, and play an important role in keeping the ecological system balance. It is normal and the result of the evolution for wild animals, such as bats, to carrying various viruses. It is not wise to kill bats in large number because of the discovery. Bats decrease may cause increase of mosquitoes, for instance, that could lead to the outbreak of such infectious diseases as dengue fever. During their studies, scientists strictly abide by the international animal protection rules and do their best to reduce harm to the bats. After obtaining fecal and blood samples, the scientists released the bats into the wild or returned them to their original habitats.

A new antiarrhythmic agent developed by CAS scientists (CAS, 2005-10-13)



In cooperation with colleagues from the China Pharmaceutical University over the past 15 years, researchers from the Shanghai Institute of Materia Medica (SIMM), a pharmaceutical research arm of CAS, have developed a new injection of acehytisine hydrochloride as a natural medication against heart rhythm disorders. The drug was officially approved on August 22, 2005 by China's State Food & Drug Administration (SFDA) as a new and marketable pharmaceutical for clinical therapy.

The development of the new injection was based on a diterpene alkaloid extracted from Guanbaifuzi (*Radix Aconiti Coreani*), an herb used by physicians of the Traditional Chinese Medicine for ages. Based on the studies on extract of the plant, SIMM scientists discovered a new natural compound that could treat patients with cardiac rhythm disorders.

A series of pharmacological studies prove that the alkaloid is a bioactive diterpenoid capable of inhibiting ventricular fibrillation and ventricular tachycardias induced by hypercalcemia, coronary artery ligation, and aconitine, as well as suppressing acetylcholine induced atrial flutter and fibrillation in the canine models. In addition, it inhibits the Na⁺ influx in guinea-pig ventricular myocytes. In human clinical trials, electro-physiological assays indicate that it can prolong the conduction time in intra-atrium, atrioventricular node, His-Purkinje System and ventricles, which might be the major mechanism of its anti-arrhythmic action.

On Feb. 23, 1995, the new drug was approved to enter clinical tests by China's Ministry of Public Hygiene. In the Phase I, trial results showed that the drug could be well-tolerated and caused less adverse event in 27 healthy volunteers. The PR interval prolongation was observed and Intraventricular conduction delay was also found among the same volunteers. Phase II and Phase III trials showed some encouraging results as follows: the drug's efficacy against ventricular premature beats is 85.7% and its effectiveness in the treatment of paroxysmal supraventricular tachycardia is 78.1%. The figures manifest the administration of the drug is both safe and efficacious with few side-effects in cases of handling these heart rhythm disorders.

The research project has been supported by various funding channels including the key S&T projects financed by SAM (State Administration of Medicine) in the national 7th Five-year Plan period (1985-1990), the National Program for Innovative Drugs and TCM Modernization, a special R&D projects for the national 10th Five-year Plan period (2001-2005).

CAS-MPG Partner Institute for Computational Biology opens (CAS, 2005-10-14)



CAS President Lu Yongxiang and MPG President Peter Gruss attended the opening ceremony for CAS-MPG Partner Institute for Computational Biology held on October 13 in Shanghai.

Under the CAS Shanghai Institutes for Biological Sciences, the institute is a joint non-profit research institution jointly founded by CAS and the Max Planck Society (MPG), Germany. By adopting operation mechanisms of Max Planck Institutes, it will endeavor to build a platform combining theoretical and experimental research, explore key issues in the biological sciences on the basis of mathematics, statistics, and computer science, and educate young scientists in the field of computational and theoretical biology.

China reports 126,808 HIV cases (China News, 2005-10-15)

By the end of June 2005, China has reported 126,808 people infected with HIV, including 28,789 AIDS patients.

The death toll of HIV/AIDS had reached 7,375, according to Hao Yang, deputy head of the disease control department with the Ministry of Health on Friday.

Hao revealed the figures at a press briefing on the preparation of a government-organized evening show, as publicity of the 18th World AIDS Day which falls on December 1.

In March this year, vice health minister Wang Longde said that by the end of 2004, China had reported 106,990 people infected with HIV, including 23,955 patients, but the figures only accounted for 12.7 percent of the total infected.

This year's World AIDS Day highlights participation of governments, organizations and individuals in fighting HIV/AIDS, said Hao, noting that the Chinese government has been exerting efforts in the fight.

The evening show, initiated by the Ministry of Health and jointly held by a group of government departments, will stage around November 25. Each of the annual shows in past three years have had sound effect, he said.

Some international organizations also have sponsored the show, including the United Nations Children's Fund, the World Health Organization and the Joint UN Programme on HIV/AIDS.

Experts estimate that China now has 840,000 people infected with HIV including 80,000 AIDS patients. The number of people living with HIV/AIDS in China is predicted to exceed 10 million by 2010 if no strong measures are taken.

China's breakthrough in R&D of therapeutic drugs for asthma (MOST, 2005-10-16)

An original anti-asthma drug, included in the list of National Class 1 New Drugs, jointly developed by Shenyang Pharmaceutical University and a number of other organizations was awarded with the approval for clinical test on drugs by the State Food and Drug Administration on August 18, 2005 and is ready to enter the phase I clinical test. This project was supported by the topic of biological information technology of the biology and modern agricultural technology sector under the National 863 Program in the "10th Five-year Plan" Period. With powerful and durable asthma-reducing effect, the drug enjoys smaller untoward reaction and higher safety than the other drugs of the same kind and could be developed into a National Class 1 New Drug with independent intellectual property right.

With an incidence of 1-4% and affecting more than 13 million patients in China and leading to a yearly death roll of 7,000 to 8,000 people, asthma has become one of the important respiratory diseases in China causing serious threat to the physical and intellectual integrity of the Chinese people. The successful development of the new drug, a piece of good news to the numerous asthma patients, will produce excellent social benefits and considerable economic benefits with a yearly production value of 200 million RMB and a profit payment and tax turnover of 62 million RMB solely on the domestic market after it is introduced to the market.

Having carried out the application procedures for the Chinese domestic patent and PCT international patent respectively in 2001 and 2002, this new drug has also registered 6 other patent applications in the U.S., Europe, Japan, Russia, India and Hong Kong and has acquired the patent right in Russia and thus opened a door of opportunities to the international market.

Rice's salt tolerance gene cloned by CAS scientists
(CAS, 2005-10-18)


(NIL(*SKC1*) seedlings (R) are more tolerant to salt than Koshihikari (L) under salt stress (125 mM NaCl for 32 days). It indicated that the QTL *SKC1* is involved in salt tolerance.)

In cooperation with US colleagues, CAS researchers have made significant progress in their studies into functional genes for key agronomic traits by cloning *SKC1*, a salt-tolerant functional gene of rice and making clear its biological functions and mechanisms. This pioneering work, which was reported in the Oct. issue of *Nature Genetics* (37: 1141-1146), is believed to hold promise to improve the output of the crop plant in this country.

With the population explosion, socio-economic development and the changes in natural conditions, agriculture production is facing challenges from a number of unfavorable factors, such as water shortage, soil salinity and land desertification. To address the problems, stress tolerance, the ability of the crops to tolerate unfavorable environmental conditions such as drought, salt, flooding or cold has become a key research issue in the world.

Stress tolerance is a complex agricultural trait controlled by a combination of genes called the quantitative trait loci (QTL). So, to clone these genes is of vital significance to regulate the genetic mechanism and hence breed the improved variety. Yet, the related genetic mechanism is utterly complicated and to obtain the cloned individuals is very difficult. Although quite a number of labs in the world are engaged in this work but remarkable results are still few, and there is no report on the successful cloning of QTL responsible for stress tolerance.

After many years of hard work and on basis of their previous work on mapping *SKC1*, the rice QTL that maintains K⁺ homeostasis in the salt-tolerant variety under salt stress, a research team led by Prof. Lin Hongxuan with the National Key Laboratory of Plant Molecular Genetics at the CAS Shanghai Institute of Plant Physiology & Ecology has been successful in cloning the gene. The *SKC1* can effectively controls and balances the content of Na and K elements in the part of rice shoot growing above the ground and prevent excessive poisonous hydronium from accumulating in stem and leaves under salt stress.

Funded by both the central and Shanghai governments, Lin and his 13 researchers and students spent the past five years carrying out the project, which they say is a important achievement in the country's agricultural development.

Functional analysis shows that *SKC1* is regulating the long-distance transfer of the ions, and

capable of maintaining homeostasis between the K ion and Na ion in the rice's shoot when suppressed by soil salinity. The homeostasis features high content of K ion and low content of Na ion, so that the rice's growth can endure higher content of salinity in the farmland.

In order to further clarify the gene's functions, the research team led by Prof. Lin jointed hands with a group headed by Prof. Luan Sheng from the University of California, Berkeley to conduct the functional analyses of the gene's electric physiology. They discovered the gene's encoding a protein transported Na⁺ is not responsible for direct transfer of the K ion and the latter's change in its content comes from the competition of Na ion. The protein is located on the surface of the cellular membrane and its bio-activity in a high salt-tolerance variety is stronger than that in a salt-sensitive variety.

On the basis of the discoveries, scientists can speculate the gene's working mechanism as follows: under the salt stress, the above-ground stems and leaves of a rice plant can accumulate a great number of Na ions, which will be forced to come back to the root by that SKC1 functions in the re-circulation of Na⁺ from shoots to roots. In this way, the toxicity caused by the Na ions may be neutralized and hence the rice is able to endure more salinity in the soil.

The research result is of wide application potential in breeding rice cultivars featuring the salinity tolerance. The Nature Genetics reviewer says that the paper is noted for its rigorous approach of the technology. It will not only be interesting to plant biologists and agronomists, but also sparks interest from biologists in the evolutionary course of the ion-transport system and how it can play a role in a complicated eukaryotic organism.

This discovery could have significance for China's food security because more 8% of its fields have high levels of salt. The work is one of outstanding research results in China's exploration of rice's functional genomics for important agricultural traits, says Prof. Han Bin, director of the CAS-run National Center for Gene Research. "It is of extra-ordinary academic significance and bright prospects in its application of improving rice salt tolerance for coming years."

China develops new anti-cancer drug "Endostar"

(People's Daily, 2005-10-21)

A new type of anti-drug "Endostar", which restrains tumors by cutting nutrition supply to them, has been successfully developed recently.

Experts said "Endostar" is world's first anti-cancer drug that contains endostatin. The successful development of Endostar signifies China has become an advanced country in developing anti-tumor medicine. "Endostar" has been ratified by the State Drug and Food Administration. The drug has won a patent in China and applied for two international patents.

A Sino-US joint workshop on chronic diseases held in Shanghai

(CAS, 2005-10-21)



Jointly organized by the CAS Institute of Nutritional Science (INS) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in US, a workshop entitled Healthy People 2020 -- Alcohol, Obesity and Diabetes was held from Oct 12 to 14 in Shanghai. CAS Vice President Chen Zhu spoke at the meeting on Oct 13.

More than 50 scholars in the fields attended the meeting, 24 of them gave plenary presentations at the meeting. NIAAA director Ting-Kai Li and INS director SHI Xianglin each gave keynote lecture entitled "The Diversity of Alcohol-Nutrition Interactions-Opportunities for International Collaborations" and "Ethanol generates reactive oxygen species and induces angiogenesis," respectively.

Speakers at the workshop also included INS researchers, NIAAA intramural and extramural scientists, and representatives from the National Heart, Lung, and Blood Institute, the National Institute on Diabetes and Digestive and Kidney Diseases, and NIH's Division of Nutrition Research Coordination.

The meeting is hailed as an example of collaboration between NIAAA and INS to increase cooperation in the fields of biomedical and behavioral sciences research regarding alcohol as well as related research training.

Beijing steps up bird flu surveillance

(China News, 2005-10-23)



(A vendor passes a duck she has just butchered to her daughter at her poultry stall in Beijing. China's capital has stepped up its efforts to combat bird flu by sending inspectors to farms, households and migratory bird sanctuaries to enforce disease prevention controls.)

China's capital Beijing has stepped up its efforts to combat bird flu by sending inspectors to farms,

households and migratory bird sanctuaries to enforce disease prevention controls.

The stepped-up veterinary checks came after China reported its first outbreak of bird flu in more than two months, on a farm in its northern Inner Mongolia region, where 2,600 birds died, with 91,000 others culled.

Chinese leaders have warned the country faces a "grave" threat from avian influenza, as both Asia and Europe fight to contain the deadly virus.

Officials in Beijing have begun checking chickens, ducks, geese and even carrier pigeons being raised as pets in the city to make sure they are properly vaccinated or isolated, the Beijing Youth Daily reported.

So far, some 98 percent of the poultry raised on Beijing's farms have been vaccinated, and officials hope to increase the rate to 100 percent in the coming days, the report quoted city agricultural officials saying.

Poultry markets, slaughterhouses and zoos will also be monitored, and special attention will be paid to farms near sanctuaries for migratory birds, which are believed to have brought bird flu to several countries.

In Beijing, security was to be stepped up at airports, bus and train stations and at border crossings to prevent birds from infected areas reaching the capital, said the report.

City officials were also taking steps to ensure there is an adequate stockpile of vaccines and disinfectants.

President Hu Jintao and Premier Wen Jiabao have issued a directive for an all-out effort to prevent the spread of the virus, amidst fears of a global pandemic after Russia, Romania and Turkey all confirmed new outbreaks.

World Health Organization officials in Beijing said although China had strong political determination to tackle the problem, and had stepped up monitoring efforts, more needed to be done at the local level.

Disease prevention officials in Beijing and other Chinese cities face a tough task, as it is common for families to raise poultry for their own consumption.

Residents of Beijing, especially in the older "hutong" alley neighborhoods, often keep their small flocks in cages in their yards, balconies or just outside their front door.

Chickens and ducks were still on sale at small sidewalk markets in the capital.

Southern China's Guangdong province said it would set up a surveillance system to detect animal diseases quickly and prevent the spread to humans, the Beijing Youth Daily said in a separate report.

Guangdong was the location for the first outbreak of the pneumonia-like Severe Acute Respiratory Syndrome (SARS) in November 2002, which triggered a global health crisis, causing nearly 800 deaths worldwide.

China has battled at least four outbreaks of bird flu this year, although there have been no human infections so far.

**China to limit HIV cases to 1.5m by 2010
(CRI, 2005-10-23)**



China will take measures to ensure that by the year 2010, the number of people infected with HIV does not exceed 1.5 million, Xinhua quoted a Chinese health official as saying on Saturday.

Dai Zhicheng, the head of the Chinese Association of STD/AIDS Prevention, and also the National Experts' Committee on HIV/AIDS under the Ministry of Health, made these remarks at an international seminar on sexually transmitted disease in the southwestern Chinese city of Chongqing.

Experts estimate that China now has 840,000 people infected with HIV including 80,000 AIDS patients. Dai Zhicheng says that the number of people living with HIV/AIDS in China could exceed 10 million by 2010, if strong measures are not taken to control the spread of the disease.

The expert noted that the Chinese government attaches great importance to the treatment and prevention of HIV/AIDS, with dozens of billions of Yuan allocated over the last few years.

In order to curb the spread of HIV/AIDS, China has begun a campaign to promote the use of condoms and safe injection practices, as well as providing care for AIDS patients. The government has offered free check ups and medical treatments for sufferers, as well as providing free schooling for their children, Dai Zhicheng added.

It is reported that a test program which treats HIV/AIDS carriers with traditional Chinese medicine has seen some preliminary clinical achievements. According to the State Administration of Traditional Chinese Medicine, since China launched the program last August, eleven provinces and municipalities have signed on.

In contrast to Western-style drugs that can have many side effects and are very expensive, the cost of traditional Chinese medicine for use in the treatment of HIV/AIDS is relatively low, and there are fewer side effects reported.

The World Health Organization says that over one-third of the people living in developing countries lack access to essential medicines.

As China has fully integrated traditional medicine into its health care system, the provision of safe and effective traditional medicine therapies could become a critical means to increase access to HIV/AIDS treatment.

The first international seminar on sexually transmitted disease is co-sponsored by the Chinese Association of STD/AIDS Prevention and the Chongqing Association of Science and Technology. It has attracted over 300 participants from the US, Germany, Australia and other parts of the country. The participants will exchange ideas and information about the latest developments in the

area of sexually transmitted diseases and on new technologies and treatments.

Nation to legislate for organ transplant

(Xinhua Net, 2005-10-24)

China is drafting a law on organ transplant to regulate the growing operation, a senior health official said in Changsha Sunday.

"It's high time that China takes legislative step in organ transplant," said Vice Minister of Health Huang Jiefu at a forum on organ transplant held in Changsha, capital of central China's Hunan Province.

Huang said that although significant technological progress has been made in organ transplant, problems still remain.

China will set up a special committee to draft regulations for organ transplant and work out technical standards for institutions that perform the operations, Huang said.

A nationwide network will also be established to improve the transparency of organ donors, according to the official.

In 2004, China registered nearly 2,600 cases of liver transplant and about 6,000 cases of kidney transplant, making itself the world's No. 2 following the United States in terms of the number of operations.

China will learn from other countries in the legislation of organ transplant, said Huang, who will attend such a conference to be organized by the World Health Organization in the Philippines next month.

Chinese researchers find the cause of leukemia

(People's Daily, 2005-10-27)

World-renowned haematological journal *Blood* has published on its website the findings of a research group with the Second Hospital Affiliated with the School of Medicine of Zhejiang University, in east China's Zhejiang Province.

The group found that leukemia is caused by the human gene PTPN11, encoding Shp2, and their discovery has drawn wide attention from the world medical circles.

Leukemia, or blood cancer, is a common but destructive malignant tumor in human hemopoietic system.

The incidence of leukemia is the highest among tumor diseases among the youth.

According to Dr. Xu Rongzhen with the Department of Hematology of the hospital, the research group analyzed leukemia patient cell samples, leukemia cell systems of multiple types of people as well as the PTPN11 sequence in the blood cells of normal people. They also studied the expression of Shp2 tyrosine phosphatase and their function system.

They found PTPN11, encoding Shp2, shows abnormal distribution and over-expression in leukemia cells.

In normal blood cells, Shp2 protein is in cytoplasm, but in leukemia cells, that are elevated in large number into the inside plasma membrane and nucleolus.

Such a location struck the researchers that Shp2 might become a new therapeutic target of leukemia.

Xu said, the finding will help provide new countermeasures for leukemia, but there is still a long way to go before producing an effective medicine.

Snail fever poses threat to public health**(Xinhua Net, 2005-10-29)**

A senior health official warned Friday that the number of snail fever patients in China has increase drastically in recent years, posing a threat to public health security.

Inadequate control of infection sources, severe outbreaks, people's unawareness of the disease and lack of prevention measures in some regions are the major problems, said Deputy Health Minister Wang Longde at a symposium here marking the 100th anniversary of the finding of China's first such case.

"We must clearly acknowledge that the situation in preventing the spread of the disease is quite severe," he noted.

Statistics from the Ministry of Health show that approximately 1.5 million heads of cattle live in the seven provinces where the outbreak of snail fever, or schistosomiasis, has been registered.

Both human and animal excrements, especially those from infected animals, have not been properly processed and led to water pollution, which is considered to be the main source of infection.

To take good control of the excrements is the best way to curb the spread of the virus from the parasitic worm, the official said.

Wang also attributed the spread of the disease to people's ignorance and inadequate education.

China registered 457 acute schistosomiasis cases in the first nine months of this year, a 35 percent decrease as against the same period last year, statistics from the ministry show. About 816 people were infected with the disease in 2004.

Carried by waterborne parasites, which can penetrate human skin and produce eggs in the liver to block blood flow, the disease can cause liver, urinary, lung and nervous system disorders.

Chronic patients suffer high fever, weakness of the limbs and severe stiffness of the joints.

Wang said that China's 11th Five-Year Program for National Economy and Social Development has put "improving the health condition for urban and rural residents" as an important goal.

Vice Premier Wu Yi will preside over a work meeting on preventing the spread of schistosomiasis in Jiangxi Province next year. China expects to put the disease under control by 2007, he said.

China and UK to support joint medical researches**(People's Daily, 2005-10-31)**

The outbreak of the avian flu now in many parts of the world has proved how important it is to forge a worldwide scientific collaboration, said both the British Ambassador to China Christopher Hum and Prof. Colin Blakemore, Chief Executive with the UK Medical Research Council, UK's principal publicly-funded biomedicine research organization.

Prof. Blakemore is leading MRC delegations on a visit to China after their tours to southeast Asia where the avian flu has caused 61 cases human death by Oct. 20. Their discussions with Chinese scientists involve the cancer research and emerging infectious disease, especially avian flu.

The MRC has signed two MOU with the National Natural Science Foundation of China (NSFC) and the Chinese Academy of Sciences and is in talks with the Chinese Academy of Medical Science.

Prof. Han Jianguo, Director-General of International Cooperation Bureau with NSFC, said the agreement would facilitate the cooperation between NSFC and MRC, including bilateral

workshops, joint China-UK research projects and personnel exchange programs.

He noted that joint China-UK experts' teams would review applications of collaborative projects and the IPR would be defined very clearly in the projects. He promised that NSFC would spare no efforts to encourage and help the cooperation between top Chinese and British scientists.

NSFC always gives priority to biotech and life science research. Prof. Han said all the increased funds of NSFC in 2004 went to health or health related researches. And Dr. Sun Ruijuan, a program director with the NSFC life science department, said that 70 percent of applications they have handled are for medical science or medical science related research and 45 percent of applications handled by NSFC are for life science projects which receive 37 percent of NSFC grants.

Its partnership agreement this time is part of the UK-China Partners in Science, a year-long program with more than one hundred activities across China to promote the mutual understanding and ties between Chinese and British scientists.

Like its fast-growing economy, China's scientific progress has also been recognized as remarkable internationally. An official with CAS said some twenty years ago it was difficult for Chinese scientists to talk to their foreign colleagues in English, but now the gap of language and way of thinking is no longer a problem. In some areas like nano-tech, China has edged into one of the leading countries in the world.

1.4 Key Technologies

Development of high-performance composite inorganic antibiotic materials (MOST, 2005-10-12)

Recently, breakthrough has been made in the research of "High-performance Composite Inorganic Antibiotic Materials", a research project of the new material sector under the 863 Program.

The series of composite high-temperature inorganic antibiotic materials successfully developed through this research can be applied to the production of various antibiotic ceramics (such as building porcelain, household china and sanitary porcelain). The unique formula and fabrication technics have solved the technical difficulty of preparing anatase TiO₂ sol-gel under low temperature. It can be widely applied to the surfaces of plastics, wood products, ceramics and glass, endowing them with the functions of antibiotics and photo catalytic decomposition of organic contaminants and noxious gas. The composite photo catalyzing antibiotic material excited by visible light overcomes the deficiency that the photo-catalysis of TiO₂ can only be excited by ultraviolet light and will find wide application in the decomposition, purification and disinfection of noxious gas indoors and at places without ultraviolet light.

The inorganic antibiotic material and applied technology developed by this project team possesses independent intellectual property rights, high performance price ratio, evident technical superiority, broad market prospects and satisfactory social & economic benefits.

A new GaAs-based long wavelength laser diode developed by CAS scientists (CAS, 2005-10-14)



Researchers at the CAS Institute of Semiconductors (ISCAS) have made significant progress in their work on a new generation of the GaAs based long-wavelength laser device. Recently they have developed the world's first 1.586 μm GaInNAsSb/GaNAs/GaAs single quantum well laser diode under continuous-wave operation mode at room temperature.

As a result of rapid development of the processing amount of data information through internet in recent years, the demands for high-speed and large-capacity optical-fibre telecommunication networks are going up drastically. In comparison with InP-based laser devices now available on the market, the GaAs-based near infrared materials feature a lower cost, better characteristic temperatures, stable properties and simpler photonic integration. So they become ideal for developing the new generation of multi-purpose opto-electronic devices. However, extending GaInNAs(Sb) beyond 1.4 μm has become a challenging task due to a the large number of defects created while growing these highly strained metastable alloys with high nitrogen contents.

With the support from the several national and CAS S&T programs, a joint research group headed by Dr. NIU Zhichuan at the National Laboratory for Superlattice and Microstructure and the State Key Laboratory for Integrated Opto-electronics affiliated to ISCAS has been successful in developing a GaInAsN(Sb)/GaNAs/GaAs quantum well edge emitting laser diode at 1.586 μm under continuous-wave operation at room temperature.

The researchers started their work on the successful development of 1.3 μm GaInNAs/GaAs quantum wells grown by molecular beam epitaxy technique. Through optimization of Nitrogen incorporation amount and introducing Sb element and overlapped layers of GaNAs, the emitting wavelength of GaInNAsSb/GaNAs/GaAs quantum wells was expanded up to 1.586 μm . At the same time, annealing processing was carried out so that the crystal quality of the quantum well was greatly improved and reached the technical requirements for making the laser diode.

This is the first report of a GaAs based laser diode with lasing wavelength longer than 1.55 μm at room-temperature under continuous wave operation. Its performances, such as threshold current density less than 2.6kA/cm² and the output power higher than 30mw, demonstrated better results than the studies of GaAs based 1.5 μm devices reported from other international groups. The success proves the feasibility for all-round application of the GaAs-based long wavelength devices to the waveband between 1.2 μm and 1.6 μm , presenting a bright prospect in the application and industrialization of the devices in optical telecommunications.

Long-life rare earth light-storing luminescent material developed (MOST, 2005-10-15)

Recently, a new type of long-life rare earth light-storing luminescent material and the preparation

technology were successfully developed. As a new type of functional luminescent material, the high-efficiency light-storing self-luminescent material and the various products made of such material are efficient, energy-saving and environment-friendly and boast of high luminance, long glow time, excellent stability, strong medium agreement and extremely extensive application. Such technology has been widely applied in the luminous printing ink products used in the industries of silk-screen printing and plastic and ceramic products and an industrial chain has taken shape and further promoted the development of the traditional industries of China. The appearance of the new types of metal safety signs that succeeded the existing plastic safety signs as well as the successful R&D and application of the luminescent place name signs and luminescent-reflecting place name signs in the field of general direction signs become the precursor of a wide market application.

China develops new material for making disposable injectors

(People's Daily, 2005-10-19)

Chinese scientists have recently developed a new material called polyolefin thermoplastic elastomer (TPE) to replace the traditional PVC for making disposable syringes.

Unlike the widely used PVC syringes, the new TPE products do not contain any additive or small molecular compounds which can pose a hazard to patients.

The new syringes also beat the PVC in cost of production.

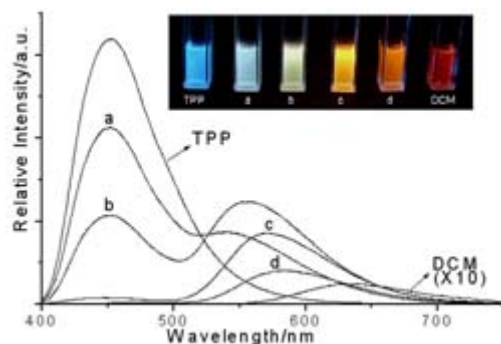
National authorities for medical device supervision and quality control said the new syringe has performed well in clinical tests and met all national and international standards.

The new device is being jointly developed by the Changchun Research Institute of Applied Chemistry under the Chinese Academy of Sciences, and the Shandong Weigao Group Medical Polymer Co. Ltd., with a three-year grant from the National Natural Science Foundation of China and the Department of Science & Technology of Shandong Province.

China consumes over 5 billion disposable injectors every year. Experts said that with improved safety and lowered production costs, the new TPE syringe has enormous market potential and will have a positive effect on China's medical device industry.

Doped organic nanoparticles with tunable emission

(CAS, 2005-10-20)



Tunability of emission color is of great importance in the development of organic light-emitting materials and devices. Recently fluorescent organic nanoparticles have inspired growing research interests because of their variability and flexibility in materials synthesis and nanoparticle preparations as well as high potentials in the application of optoelectronic materials and devices.

Its applications could range from a simple (solid state) LED to, possibly, a flat-panel display for a television set, depending on the physical properties of the structure (such as its lifespan, temperature quenching behavior and luminescence intensity).

On the basis of their previous research work on nanoparticles from a series of pyrazoline compounds, Prof. YAO Jiannian and colleagues at the CAS Institute of Chemistry have successfully prepared 4-(dicyanomethylene)-2-methyl-6-(p-dimethyl-aminostyryl)-4H-pyran (DCM), a red emission materials widely used in EL devices, doped 1, 3, 5-triphenyl-2-pyrazoline (TPP) nanoparticles with DCM as the acceptor and TPP the donor. This work has been published in the recent issue of *journal Advanced Materials*.

The researchers have observed in the nanoparticles the highly efficient energy transfer dominated by the Förster resonance mechanism as well as tunable emission from blue to red dependent on the DCM doping content. The energy transfer and the red-shift of the emission of DCM caused by the aggregation of itself are supposed to be responsible for the tunable emission. The polymer films with doped nanoparticles dispersed in showing tunable emission have been prepared successfully giving an experimental demonstration of emission tuning in the practical forms. Other than tuning emission by size, the work provides an alternative way, both facile and effective, to control the emission of organic nanoparticles by employing the doping technique and this is likely to be interesting to the researchers in the areas of optoelectronic materials and devices.

AMD transferred its core technology to China

(China News, 2005-10-26)

Advanced Micro Devices, Inc. (AMD), the second largest computer chip manufacturer behind only Intel in the globe, officially signed an agreement with China's Ministry of Science and Technology (MOST), with a commitment to license its core technology of computer chips to the Chinese government for the first time.

AMD licensed its X86 microprocessor design technology of computer chips this time. X86 technology is the innermost and most adaptable platform for personal computers (PC) and has been utilized in 99% of PCs in the world at present. This technology has also been widely applied to chips in other electronic consumer goods such as cell phones and digital TVs.

After the agreement was signed, AMD will open up all the processes of research, development and production of X86 technology to the Micro Processor Research and Development Center of Peking University, the technology empowerment department appointed by MOST. This technology will be shared among various major research organizations and computer manufacturers.

AMD's President and CEO Hector Ruiz pointed out that in a very short period of time, probably in one year, China will be able to apply this technology to electronic consumer goods or computers and manufacture a variety of products, just as the way that DNA does.

Vice Minister of Science and Technology Ma Songde indicated that as China is competitive in terms of labor force as well as cost, it may be able to develop computers of lower price with chips developed on the basis of absorbing the introduced technology.

Huge research data exchange via global high-speed net

(Xinhua Net, 2005-10-31)

Researchers from the Chinese Academy of Sciences (CAS) Institute of High Energy Physics

exchanged huge scientific data with their Italian counterparts via the Global Ring Network for Advanced Applications Development (Gloriad).

The huge data, collected at the Yangbajing Observatory for space radials, could not be transmitted through the prevailing Internet.

The Hong Kong Open Exchange Portal (HKOEP) witnessed such a kind of huge data transmission in the past year.

Chen Wei, a senior engineer at the CAS Computer Network Information Center who oversees construction of the HKOEP, said here Monday that the portal has already been linked with research networks in Japan, Taiwan and the Republic of Korea. It is scheduled to connect other nets throughout the world.

In addition to three Gloriad founders, China, the United States and Russia, the HKOEP program was joined by the Republic of Korea, the Netherlands and Canada in September.

Gloriad, expected to be an important platform for research for the Next Generation Internet (NGI), is proposed as a 10-gigabit-per-second optical network around the Northern Hemisphere. The ring begins in Chicago at the Starlight facility, funded by the U.S. National Science Foundation, crosses the Atlantic Ocean to the Netherlight facility in Amsterdam, continues to Moscow and the Russian science city of Novosibirsk, goes on to Beijing and Hong Kong, and then crosses the Pacific Ocean to complete the circuit in Chicago.

Chen estimated that basic research in many areas would benefit from Gloriad, such as natural disaster forecasts, human genome mapping, exploration of outer space, earthquake monitoring, and high-energy physics.

Gloriad was developed from a U.S.-Russian program of NaukaNet, which provides Russian scientists access to the NGI in the United States. In reciprocity, American researchers could also be linked to high performance Internet service in Russia.

The CAS, China's top scientific research institution, also views Gloriad as a vital step toward a Chinese NGI, coded E-Science project, which is scheduled in 2006.

1.5 Structure of Matter

Sino-German Collaboration in a Rewarding Way

(October 10, 2005, Lanzou)

A speech given by Dr. Xie Ming, deputy director of IML, on the GSI co-founded DAAD-Alumni Session during the Forum for the Centenary of the Scientific Breakthroughs by Albert Einstein,

Dear Dr. Keune, Dr. Schmidt-Doerr, Colleagues and Friends

The meeting of Chinese Alumni to Germany takes place here in Lanzhou today. First of all, please allow me, on behalf of the Institute of Modern Physics as the local host, to extend our warmest welcome to all of the participants in the meeting. Lanzhou is the capital of Gansu Province, one of the underdeveloped areas in China. Despite its wider and wider opening and rapid development it can not yet be compared with most of the other big and medium-sized Chinese cities. The gathering today is a remarkable event for our Gansu Province.

Our Institute of Modern Physics (IMP), affiliated to Chinese Academy of Sciences, was founded

in 1957 and focuses mainly on basic research in heavy ion physics and its related interdisciplinary sciences. The accelerator physics and technology as well as the applications of nuclear technology are developed accordingly. The National Laboratory of the Heavy Ion Accelerator in Lanzhou (NLHIAL), as one of the four Chinese national laboratories with large-scale facilities was established at IMP and plays the role as an organization for trans-institutional cooperative studies.

The main research facilities at IMP are: the Heavy Ion Research Facility in Lanzhou (HIRFL) including two cyclotrons, the Radioactive Ion Beam Line (RIBLL), ECR ion sources, electron accelerators etc. The HIRFL-Cooling Storage Ring abbreviated as CSR with two ring accelerators as one of the key national scientific projects is currently under construction and will be completed in near future.

At present IMP is mainly involved in studies in the following fields:

1. Nuclear physics with secondary ion beams, including the studies of nuclear structure and properties of the nuclei near drip line.
2. Exploration of the existing limits of nuclei, including the synthesis and studies of the new nuclei near proton drip line and the super-heavy element region as well as the studies of the nuclear structure at high spins;
3. General form of nuclear potential and EQS of nuclear matter
4. Physics of swift heavy ion collision with atoms, molecules, clusters and solids emphasizing on the highly charged heavy ion atomic physics and material sciences.
5. Biologic effects of heavy ion irradiation and heavy ion cancer therapy.
6. Accelerator physics and technology of high current beams, electron-cooling, cyclotron and synchrotron etc.

IMP carries out wide exchanges and collaboration with Chinese and foreign institutions. In addition to 16 collaboration agreements of Chinese Academy of Sciences with foreign countries concerned with IMP, there are 6 long-term scientific cooperation agreements between IMP and the noted foreign research centers and quite a few agreements with domestic institutes and universities. Germany is the country, with whose universities and research centers we have had the most and most satisfactory collaboration and exchanges since the beginning of China's opening to the outside world in late 70s years last century. Quite a few German institutions such as GSI, HMI, Max-Planck Institute of Nuclear Research in Heidelberg, Koeln University, Juelich research center, Frankfurt University and so on, have become our scientific collaborative partners, with which we have had effective collaborations.

I believe, there is no doubt, that our cooperation with GSI for over 25 years has been proven the most successful one in Sino-German scientific collaboration. According to our statistics, since 1980 our institute has sent 168 person-time to visit German research centers and universities, among them 122 to GSI while we have received totally 185 German scientists, of those 87 person-time from GSI. In past 5 years, for the cooperation on construction of our CSR project, we sent 84 person-time visiting scholars to Germany, of those 62 to GSI while received 76 German scientists, of those 55 person-time from GSI.

In particular, it is worth mentioning, that both German Embassy and DAAD played important role in promoting our cooperation with Germany. For instance, the former German ambassador to China Dr. Fischer visited IMP in 1987 and delivered useful electronic devices donated by Volkswagen-Foundation. The scientific counselor Dr. Keune, the former counselor Dr. Abel and others helped us a lot to solve problems. This time, right at the recommendation of the German

Ambassador, IMP and GSI jointly organize the Einstein Forum to be opened tomorrow. Unfortunately, his Excellency the Ambassador for other important engagement cannot come to Lanzhou as expected. I would like to ask Dr. Keune to convey our thanks to the ambassador for his initiation of this Einstein Forum held in Lanzhou. My colleagues and I look forward to the pleasure of welcoming the ambassador in Lanzhou at his convenience in future. DAAD supported a number of my colleagues in past years and some of them have grown up to leading scientists and institute directors. I would like to take this opportunity to express our gratitude to German Embassy and DAAD. We faithfully look forward to your further advises and support for our cooperation with Germany.

My colleagues and I share the view that we have benefited a lot from the cooperation in the following aspects.

1. Through the exchange and collaboration, we have been quite well informed of the international advancement in the relevant research domains and we have learned a lot about advanced science and technology in international frontiers.
2. Exchanges and collaboration helped us to have solved part of our critical problems, especially in construction of the large scale facilities.
3. In exchanges and collaboration, our young research fellows grew up quickly and some of them have already become leading scientists and are praised both by domestic and foreign experts. We should admit that international cooperation is really a rewarding way to bring up scientific and technological talents.

Meanwhile, our visiting scholars have also contributed a great deal to success and development of the institutions they visited. The performance and contribution of most of them were spoken highly by their German hosts.

It is of great importance that such a bilaterally beneficial collaboration promotes the prosperity and healthy and stable development of the relevant researches in even larger extend. Our cooperation with German scientists on CSR project in China and the international project FAIR to be set up in Germany can be viewed as a convincing example. For construction of CSR in past years German colleagues supported and helped us a great deal and for the FAIR project now Chinese colleagues have been playing active role in return. As I know, our Ministry of Science and Technology has made decision to sign the Memorandum of Understanding next month so that China will be one of the cooperative partners for FAIR project. In the workshop to be held in the following days you will learn much about what my colleagues and German scientists have succeeded in construction of CSR project and what they will do for FAIR in coming years. You will find that international cooperation is indispensable both for CSR and FAIR.

I myself belong to the Chinese Alumni to Germany. I was first jointly invited by Professor Lindenberger, former director of HMI in Berlin and Professor R. Bock of GSI, to work in both institutes from 1988 to 1989. 10 years later, I was invited by Dr. H. Zeitraeger, the administrative director of GSI, to work in GSI for another half a year in 1999. What I mostly benefited from my visit to Germany is the management of research centers. Under guidance of Prof. Lindenberger, Prof. Bock and Dr. Zeitraeger I learned a lot about management of German institutes. I read some of their regulations and had interesting discussions with them. At the arrangement of Dr. Zeitraeger I once worked in different administrative divisions at GSI and made investigation on spot. Such advanced study I did in RIKEN, Japan as well. After my return I keep in contact with them for continuing exchanges of views and experiences. Now I serve as the deputy director

general of the Institute of Modern Physics and I think it is one of my advantages that I on the one hand have learned some of the advanced management of institutes and on the other hand I have attached importance to investigating our local conditions so as to make use of the merits of other countries in accordance of our own conditions. My experience proves that international cooperation is a rewarding way for improvement both of research and management.

I would like to put forward the following suggestion. This time, German Embassy and DAAD kindly provided the alumni with such an ideal chance, so that we may get to know each other. I think this is just a starting point. I hope that both German Embassy and DAAD can further promote the contacts and exchanges of the alumni in different ways.

Finally, I wish our meeting great success and wish you all a pleasant stay in Lanzhou. If my colleague at IMP and I can help you anyhow, please just let us now.

Thank you.

1.6 Transport and Space

Successful launch of China's second manned spaceship (CAS, 2005-10-13)



China's second manned spacecraft Shenzhou-6 blasted off on Oct. 12. It is the first multi-manned and multi-day spaceflight of the country.

While the spacecraft was jointly designed and manufactured by Chinese Academy of Space Technology and Shanghai Academy of Space Navigation, both being subordinates to China Aerospace Science & Technology Corporation, the apparatuses onboard the spaceship for scientific experiments and applications in the space was developed by institutes under CAS and the Ministry of Information Technology.



(Shenzhou-6 Capsule)

As the most remarkable aerospace activity in China this month, a lot of Chinese media has publicized a great bulk of information to describe this perfect flight with two man on board for almost 5 days. Here we recommend the script from China's Xinhua News Agency (Xinhua Net). For more information, please refer to:

<http://www.xinhuanet.com/english/2005s6/index.htm>

New weather satellite ready for production

(Xinhua Net, 2005-10-11)

The development of Fengyun-3, China's second generation of sun-synchronous orbit meteorological satellites, has been completed at Shanghai Aerospace Bureau (SAB) and it is now ready for production, according to PLA Daily on October 7.

Since the launch of the country's first meteorological satellite in 1988, seven have been sent into space and all of them -- four sun-synchronous FY-1s and three geostationary FY-2s -- have been developed by SAB.

Currently, FY-1D and FY-2C are in orbit and provide information for daily weather forecasts in China. Compared with FY-1, FY-3 will be equipped with nine new instruments to make it more effective and powerful. It will be capable of conducting multi-spectrum and 3D global scans under all-weather conditions, which should greatly improve Earth observation and atmospheric monitoring.

The resolution of its cloud map will reach 250 meters, and some specifications will reportedly exceed US models.

The development of FY-4, the next generation of geostationary satellite, is also underway at SAB. Its scanning speed will reach 12,000 kilometers per second, its observation scope will be almost one-third of the Earth and it will take only 15 minutes to generate a panorama.

As a key development and research base of aerospace technology, SAB has been involved in over 10 launches of satellites, spacecraft and rockets in recent years.

The propulsion module, power supply system and monitoring and control communication system of Shenzhou V, China's first spacecraft, and Long March 4B rocket were all developed by SAB.

China makes breakthrough in building "space ecological chain"**(Xinhua Net, 2005-10-15)**

Chinese scientists are endeavoring to develop a regenerative environment-control and life-support system for manned space flight, so as to create a "space ecological chain" for long-time human survival in space.

According to Chen Shanguang, chief designer of the Taikonaut (Chinese term for astronaut) system under China's manned space program, Chinese scientists have made breakthrough in such key technologies as water and oxygen regeneration and the absorption of carbon dioxide.

Chen said the task of space environment-control and life-support system is to create, in an enclosed environment in a spacecraft or on a planet base, an atmospheric environment similar to that on the Earth, so as to ensure that men can live healthily and work efficiently in space or on a planet base.

The system is classified into three categories, namely non-regenerative, physical-chemical regenerative and biological regenerative ones. Under the third category, photosynthesis of green plants are used to create an "ecological chain" to ensure the regeneration of oxygen, water and food for a human to live in space.

To eventually realize long-term manned space flight, particularly to build lunar and Mars bases, man should only hinge upon a biological regenerative system of environment control and life support, Chen said.

China witnesses great leaps in maritime space tracking**(Xinhua Net, 2005-10-16)**

China's maritime space tracking technologies have achieved substantial progress over the past 27 years and reached the advanced levels in the world, an official in charge of the operation said Sunday.

The maritime space surveying and controlling operation, which has been tracking China's second manned spacecraft Shenzhou-6 since the lift-off on Wednesday, has made a number of breakthroughs since it was initiated in 1978, according to Jian Shilong, director in charge of the program.

China is able to carry out maritime measuring and controlling on objects at sea, under the surface of water, on international satellites, and manned spacecrafts, said Jian.

However, during the initial stage, China was only able to measure and control objects at land, on the surface of water, domestic satellites and unmanned spacecrafts, he recalled.

The operation, equipped with four "Yuanwang" tracking ships, has accomplished some 50 key scientific researches and tasks with no hitches or failures for the past 27 years.

The "Yuanwang" ships have involved in China's past five Shenzhou space flight missions during 1999-2003, conducting measuring and controlling operations including the orbit transfer, attitude adjustment, video and audio transmission for China's first manned spacecraft Shenzhou-5 in 2003.

The tracking ships have accomplished designed tasks, including orbit maintenance for the record-making Shenzhou-6, despite rough sea weather on Friday and Saturday.

The four ships boast advanced technologies in terms of the functions and precision of measuring and controlling, automatization and reliability, said Jian.

The ships and some 20 surveying stations on land jointly build up China's space telemetry network.

China's No.1 lunar probe being developed**(People's Daily, 2005-10-17)**

To carry out deep space exploration with a lunar probe will be the inevitable choice of China's space program, a senior space scientist said Monday morning.

The lunar probe program will be accomplished in three steps, namely lunar orbiting, lunar landing and return from the moon, Xu Dazhe, deputy general manager of China Aerospace Science and Technology Group Ltd., said at a press conference of the State Council Information Office.

"The corporation is participating in the research and development of the Chang'e-1 lunar probe and related launch vehicle," Xu said.

He added that "Development of Chang'e-1 lunar probe is now well under way as planned."

Tang Xianming, director of China Manned Space Engineering Office, said the lunar probe program is mainly undertaken by the nation's aerospace agency. Independent from the current manned space program, the lunar probe program is another branch of China's space exploration, Tang added.

Shanghai to build 1st low-speed maglev line**(China News, 2005-10-24)**

China's first low-speed maglev experimental program has attained approval of relevant authorities and commenced construction at Lingang New City, Nanhui District, Shanghai. According to experts, China's first low-speed maglev line is likely to be built in Shanghai after the experimental program.

Sources from Lingang New City's management committee revealed that the low-speed maglev line will adopt the form of flyover and serve as an express passenger transportation system. China's first low-speed maglev experimental program is located at the southwest of Lingang New City and is about 1.4 kilometers in length. The program will depend on domestic researchers for technology, equipment and trains and other indispensable facilities.

Experts said that low-speed maglev is more environmentally friendly in that it causes much less noise than maglev and is well adaptable in highly-populated areas. It is faster than light rail with a speed nearing 100 kilometers per hour. The US and Japan are actively developing low-speed maglev technologies at present. The world's first low-speed maglev line has actually been put into operation during the Expo 2005 Aichi, Japan.

Insiders revealed that when the low-speed maglev technologies are mature, they will be first applied within Lingang New City or in the No. 11 rail transportation line which is in the stage of programming.

Satellite observing Beijing sent into orbit**(Xinhua Net, 2005-10-28)**

A high-performance earth observation satellite to be used to observe Beijing was successfully sent into its preset orbit Thursday afternoon, an official with the Beijing Municipal Science and Technology Committee has announced.

The "Beijing-1" satellite blasted off at the Plesetsk satellite launching center of Russia at 2:52 p.m. (Beijing Time) Thursday, the official said.

The satellite is expected to send back remote sensing pictures of Beijing about 20 days later.

The pictures of Beijing will serve Beijing's urban planning, ecological environment monitoring, key projects monitoring and land utilization purposes. The satellite is also entitled to monitor the environment of Beijing during the 2008 Summer Olympics Games, the official said.

The "Beijing-1" macro-satellite weighs 166 kilograms with an expected life expectancy of over five years in orbit. It is circulating in a low Earth orbit 686 kilometers above the earth.

The satellite was developed jointly by a Chinese company and Surrey Satellite Technology Limited (SSTL) of Britain. Beijing Landview Mapping Information Technology Co., Ltd. is in charge of the daily operation and the management, reception and disposing of data sent back by the satellite.

Representatives from China and Britain watched the satellite's launch on Thursday.

2 News from Universities

CUHK establishes space research institute

(Xinhua Net, 2005-10-05)

The Chinese University of Hong Kong (CUHK) has launched an inauguration ceremony for its space and earth information research institute and the completion of the first phase of its satellite remote sensing ground station.

The building of the satellite remote sensing ground station, an important installation for the university's research institute, won the support of the Ministry of Science and Technology and the Hong Kong Special Administrative Region (HKSAR) government.

After the operation of the satellite remote sensing ground station, Hong Kong could strengthen its monitoring of weather, environment and natural disasters in Hong Kong, southern China and the surrounding areas.

The station could also help reduce the life and property losses may be brought about by natural disasters as landslide, earthquake, tsunami and typhoon.

The establishment of the satellite remote sensing ground station indicated that Hong Kong has entered a new phase of Hong Kong's development in the field of remote sensing.

Early in 1997, the CUHK and the Chinese Academy of Sciences jointly established a lab of earth information science. With the support of the Ministry of Science and Technology, the Hong Kong base of National Remote Sensing Center was established in 2000.

Xu Guanhua, minister of Science and Technology, attended the ceremony.

China's on-campus graduate students to top 2 million by 2020

(People's Daily, 2005-10-25)

China will have 2 and 2.6 million on-campus graduate students by 2020, about twice the present figure and twice as many as the total trained over the past 23 years.

About 220,000 of these students will be studying for a doctor's degree, said sources attending the annual conference for deans of graduate schools over the weekend at Fudan University in Shanghai.

A draft blueprint for China's postgraduate education development 2006-2020 was submitted for deliberation at the conference, according to which China will build 100 high-level training bases and help 30 domestic universities attain international fame by 2010.

On this basis, China will train a large number of senior professionals who can contribute greatly to the country's scientific and technological development, says the draft blueprint.

It says China will work to improve the overall quality of graduate students, particularly their creativity, practical skills and ethics.

Graduate students have proven an important force in China's scientific research as 70 percent of the vital research findings that affect our way of life are reported at graduate schools and involve graduate students.

Experts at the conference agree that China faces the critical task of improving its postgraduate education system because the country needs high-caliber professionals to sustain its fast-growing economy, particularly now that a growing number of international education institutions are competing for straight-A Chinese graduates.

3 Innovation Management

MOST minister Xu's speech on the development of bioeconomy in China

(MOST, 2005-10-01)

1. Biological technology and industry have already made significant contributions to China's economic and social development.

In the last 20 years, China's biological technology and industry have already scored considerable achievements that have captured world attention, such as follows:

There have been constant major breakthroughs in the basic research of life sciences and biotechnology and the innovative ability in biotechnology is advancing rapidly. China has participated in the international Human Genome Project and has completed 1% of the sequencing work and 10% of the HapMap Project task.

The biological technology and industry of agriculture have made significant contributions to guaranteeing grain safety and increasing the farmers' income. The successful breeding and popularization & application of hybrid rice and super rice have raised grain output by a wide margin. Tissue culture technology and embryo biotechnology have accelerated variety renewal for animals and plants. Planting of transgenic and pest-resisting cotton itself increases the annual income of the farmers by over 5 billion RMB.

The biological technology and products of medicine have played an important role in improving the health standard of the people. China produces and uses the largest amount of vaccine in the world. Biotech products play an indispensable role in eradicating and controlling such major infectious diseases as smallpox, black death and infantile paralysis. The first gene therapeutic drug in the world was born in China and over 170 biotech drugs and vaccines have entered the stage of clinical research, which will make new contributions to further improving the health standard of the people.

Industrial biological technology and industry are continuously growing and have made great contributions to upgrading and reforming traditional industries and raising production efficiency. China is one of the first countries to use traditional biological fermentation technology. China's output of traditional fermentation products such as edible vinegar, soy sauce, beer, alcohol and monosodium glutamate ranks first in the world.

The innovation system of biological technology and industry is gradually taking shape and the innovation ability is rapidly advancing. According to preliminary statistics, China possesses approximately 200 key biotechnology laboratories backed by the government and over 30,000 R&D workers. There are about 500 biotechnology enterprises over the country with a total of 50,000 employees. Over 20 biotech parks have been built in Beijing, Shanghai, Guangzhou and Shenzhen. In the past 5 years, just the input of the central government into the R&D of the biotechnology sector exceeds 12 billion RMB.

2. We should strengthen independent innovation and push forward the new S&T revolution.

This year, the S&T work is entering a new stage of rapid growth. China's "2006-2020 National Medium and Long-term S&T Development Plan" is about to be promulgated. We will treat biotechnology as one of the most important fields of future S&T development in China and as a strategic high-tech field that will most likely take the lead in realizing leapfrog development in the next 15 years so that the biological technology and industry of China will be the first to join the world advanced rank and lead future economic development.

In the development of biological technology and industry, we will hold to the guiding ideology of "Develop High Technology and Realize Industrialization" and make efforts to accomplish the four fundamental changes: first, change from following the world to strengthening our own independent innovation and improving our independent innovation ability in earnest; two, change from single technological breakthrough to combining single technological breakthrough with multiple technology integration and speeding up integration innovation; three, change from basing ourselves upon domestic market to opening up both domestic and international markets and expanding industrial scale and market size; four, change from R&D technology accumulation to the harmonious development of R&D and industrialization, improving the industrial competitive capacity and benefit and pushing forward the development of bioeconomy.

The strategic development concepts for the next 15 years are: to realize the leapfrog development of biotechnology and facilitate the new S&T revolution and turn China into a strong biotechnology power; to accelerate the industrialization of S&T results and to make bioindustry one of the pillars of the national economy.

3. The strategic directions and focal points of China's biotechnology and industrialization in the next 15 years

In the next 15 years, the development of China's biological technology and industry will firmly cater to the demand of the comprehensive construction of a well-off society and S&T development itself and practically solve the bottleneck problems restricting the economic and social development. The basic direction of development is: catering to the major technological demands of economic development, grain safety, population health, energy security, environmental improvement and biosafety and solving the bottleneck problems restricting our economic and social development. The focal points of future biotechnology and industrialization development are as follows:

In overcoming our weakness in innovative ability, we will aim at the leading sectors of life science and biotechnology and mainly strengthen innovation and breakthrough in the frontier technologies such as genome and proteomics.

Aiming at the objectives of guaranteeing grain safety and increasing agricultural benefit and farmers' income, we will mainly strengthen the R&D and industrialization of super rice, transgenic animals and plants, biological pesticide, biological fertilizer and degradable mulching film.

Catering to the needs for protecting people's health and upgrading the medical industry, we will vigorously develop new diagnostic techniques and reagents, vaccine and drugs for such major infectious diseases as AIDS, hepatitis and tuberculosis, reinforce the development of new types of biological diagnosis & treatment technology and drugs for tumor, Cardio-/Cerebrovascular disease and diabetes and speed up the modernization of traditional Chinese medicine and drugs.

In light of the urgent need for upgrading the traditional industries and biological technology & industry of our country, we will enhance the R&D and industrialization of biological catalysis, biological materials and biological chemical industry.

To cope with the problem of fossil energy shortage, we will develop biomass energy such as fuel ethanol, biological diesel oil and biomass gasification power generation and actualize partial substitution of fossil energy. To cope with the problem of environmental pollution, we will vigorously develop new types of biotechnology for preventing and controlling water contamination and solid pollution. To cope with the problem of ecological fragility, we will vigorously develop the biological technology for rehabilitating the ecology.

We will build up and improve the system to protect the diversity of biological resources of our country, make the best of our rich biological resources and cultivate burgeoning industries.

4. We will push forward the development of bioeconomy and cultivate new economic growth points.

In the next 15 years, the Chinese government will go all out to accelerate the development of bioeconomy. I want to emphasize a few key measures:

Firstly, we will carry out the talent strategy in order to build an international top-grade talent force. We should firmly establish the notion that human resource is the first resource, formulate corresponding policies and regard the introduction of top-notch talents as the key and breakthrough point for upgrading the overall level of biotechnology and bioeconomy. We will gradually build up a research and development force dominated by leading scholars in respective branch of learning, research backbones and high-level experiment and operation staffs, and develop a team of compound management talents and S&T oriented entrepreneurs who not only possess the S&T knowledge but also know the demand of market and industrial development.

Secondly, we will implement the patent and standard strategy to open up both domestic and international markets. We should accelerate original biotechnology innovation to obtain a batch of patents with independent intellectual property rights and try our best to rid our country of the small quantity of invention patents and the low patent utilization ratio. We will draw up internationalized product standard and quality control systems and upgrade the scale and level of international trade in bioindustry.

Thirdly, we will construct international top-grade R&D and industrialization bases. We shall not only support S&T projects, but also lay stress on the systemized construction of innovation bases and innovation ability. We will give priority to the construction of a batch of state laboratories and state key laboratories that are oriented towards the frontier sectors of life science and biotechnology, the construction of a batch of international top-ranking biotechnology innovation platforms, bases and national engineering research centers that are internationalized and standardized with certain scale, and the cultivation of a batch of demonstration enterprises that are able to participate in international cooperation and exchange. We will construct China's "biology valley" on the basis of the existing 53 high-tech development zones.

Fourthly, we will substantially increase the capital input for building and improving the multi-investment system. We will highlight biotechnology in our input into medium and long-term S&T development and mainly strengthen our support to original innovation, key technology and core technology R&D and the construction of basic facilities and generic technology platforms so as to gradually perfect the national biological S&T innovation system. We will gradually set up and improve the multi-channel investment mechanism and system that suits our national conditions and involves the whole society.

Fifthly, we will exert ourselves in reinforcing S&T innovation and accelerating the industrialization of biotechnology. First of all, we should target at the major frontier issues of life science and biotechnology and the critical and strategic core high-tech sectors and greatly upgrade our original innovation ability. Secondly, we will attach importance to the system integration and application of existing S&T results and substantially upgrade our integration innovation. At the same time, we shall take the initiative to introduce foreign advanced technology and experience and considerably increase our capability of digestion and absorption and re-innovation.

CAS and MPS administrators discuss science management**(CAS, 2005-10-12)**

Co-chaired by Prof. Li Zhigang, CAS Secretary-general, and Dr. Barbara Bludau, Secretary-general of the Max Planck Society (MPS), a bilateral CAS/MPS workshop on modern science administration was held on Oct. 10 and 11 in Beijing.

The meeting brought together high-level administrators from the both sides to have a face-to-face discussion on a variety of issues arising from the management of a science enterprise, including strategic planning, finance, personnel evaluation and architecture.

State S&T Program soft subject research better managed**(MOST, 2005-10-13)**

Recently, the Department of Development Planning of the Ministry of Science and Technology (MOST) printed and distributed the State S&T Program Research Subject Assignment Document: Class B (Tentative) in regard to the strategic studies and forward-looking research subjects in the State S&T Program. In the future, this assignment document must be signed in accordance with the relevant requirements, to ensure that separate accounts shall be kept for the project budget which shall be used for the specified purpose only and that the project task shall be completed in time.

CAS holds workshop for project managers of developing countries**(CAS, 2005-10-14)**

An International Training Program for Project Administrators of Developing Countries opens on Oct. 12 at Graduate University of CAS (GUCAS) in Beijing. The training course is attended by more than 10 S&T experts and administrators from Mongolia, Viet Nam, Laos, DPRK, Myanmar, and Pakistan. Assistant Director of the CAS Bureau of International Cooperation Li Junxiong and Assistant President of GUCAS Shi Yong were present at the opening ceremony and delivered speeches.

Lu: we have an obligation to translate words into actions**(CAS, 2005-10-21)**

In his capacity of CAS president and co-chair of the the InterAcademy Council (IAC), Prof. Lu Yongxiang delivered a speech at opening ceremony of the 28th General Assembly of International Council for Sciences (ICSU) held on Oct. 18 in Hangzhou.

During his speech, Prof. Lu said that last month the leadership of ICSU and IAC joined together with other international scientific, engineering, and medical organizations to issue a statement to the Heads of State and Government meeting at the United Nations General Assembly, arguing that stronger worldwide S&T capacities are necessary to allow humanity to achieve the UN Millennium Development Goals -- reducing global poverty and related challenges.

Three major messages of the statement are: First, a concerted global effort among the world's scientists, engineers, and medical experts is needed to identify successful strategies and to help implement effective programs. Second, sustained progress in reducing poverty and related problems will require strengthened institutions for science, technology, and innovation throughout the world, including in each developing nation. Third, the world's scientific, engineering, and medical communities are committed to work together to synergy implement the urgent actions to reduce global poverty, illiteracy, hunger, discrimination against women, unsafe drinking water and degraded environments and ecosystems.

"Here at this ICSU General Assembly," urged Prof. Lu, "we have an obligation to translate our own words into actions, and put in place an effective strategic plan of action."

He called on the international scientific community to use the combined strengths and breadth of our international organizations to better understand and begin to solve the many great global challenges of our time.

"We can broaden international networks of expertise to enable all nations to identify best practices and institute evidence-based policies and programs for addressing national challenges. We can encourage our local scientific and technological communities to enforce solve local problems, thus enhancing the role of civil society in improving public welfare."

He noted that the IAC is a multinational organization of science academies created to mobilize the world's scientists, engineers, and medical experts for providing knowledge and advice to national governments and international bodies, notably the United Nations and the World Bank. In 2004 at the United Nations, the IAC released its first report, presenting a strategy for building worldwide capacities in science and technology. A second IAC report, commissioned by the U.N. Secretary-General and published in June 2004, addressed science and technology strategies for improving agricultural productivity and food security in Africa.

Prof. Lu highlighted the critical global issues that future IAC studies will also address: fostering global transitions to sustainable energy systems, preserving the world's natural areas through better scientific management, enhancing the contributions of women to science, and identifying more effective measures of scientific and technological progress. The IAC Board will also sponsor special projects to promote capacities in science and technology in all regions of the world, he stressed.

"In all these efforts, IAC will be a reliable partner with ICSU and other international organizations in working together to make a difference for the world. The opportunities before us are momentous."

In his speech, the CAS President also acknowledged the new challenges that China has to face in its development, such as relieving bottlenecks in resources and energy, reducing the degradation of the eco-environment, improving a balanced development between economic growth and social progress, between the eastern region and the western region, and between the poor and the rich.

He said that to build harmonic society and the sustainable development, China needs close cooperation with international partners to make progress in science, technology, and innovation

capacity; and to share the new knowledge and experience for a common, better future. He believed that the 28th general assembly of ICSU will provide a grand forum for these important issues.

China to implement special aid program for post-doctorates

(People's Daily, 2005-10-25)

The Ministry of Personnel will carry out the "National Special Assistance Program" for Post-doctoral researchers. This is learned from a national post-doctoral work conference held recently, according to the overseas edition of People's Daily on October 24.

"In line with the program, a batch of excellent post-doctoral researchers with development potentials and strong innovation awareness will be selected to work in the areas of energy, resources, environment, agriculture, information, life, space, ocean, nanometer and new materials. The program will assist them in research projects of fundamental, frontline and original nature, said Zhang Bolin, minister of personnel, at the national work conference.

By 2010, the enrollment of post-doctoral research personnel will reach about 8,000 and the number of mobile research stations for the personnel will increase by about 30 per cent compared with that of the present, and the number of post-doctoral workstations for scientific research will be up 50 per cent. A comprehensive service platform for post-doctoral researchers based on Internet will be set up as soon as possible. In addition, returned overseas students and excellent foreign doctors will be actively attracted to do researches in the stations.

ICSU urges decision-makers to pay attention to science

(Xinhua Net, 2005-10-22)

The 28th General Assembly of the International Council for Science (GA of ICSU) approved a new initiative that challenges science to do more to cope with natural disasters.

The ICSU's natural hazards initiative, focused on using science to prevent natural hazards from becoming catastrophic events, will begin with the establishment of a multi-disciplinary planning committee of scientific experts who will design a plan of action to be implemented over the next three years.

Gordon McBean, head of the ICSU Scoping Group on Human-Induced Environmental Hazards said, "We can't actually stop hurricanes or tsunamis. But if we bring together the right mix of research work that integrates disciplines and find a better way to plug these insights into the policy-making process, we can avoid a lot of unnecessary human and economic losses."

McBean noted that scientists have already provided strong evidence that natural disasters are a growing threat and have offered advice for specific action that can be taken to reduce exposure to harm. For example, years before Katrina struck, scientists had provided detailed analyses of the shortcomings of the New Orleans levee system and the dangers posed by the loss of surrounding wetlands.

"We have found a lot of evidence showing policy-makers at times act in ignorance or simply disregard relevant scientific evidence of what's needed to prepare for or prevent devastation from a natural, predictable event like a hurricane," McBean said. "Why do we continue to see land use practices around the world that clearly boost the risks of floods, wildfire, and landslides? Why are we not making better use of satellite data to anticipate vulnerabilities?"

"Most of the time, relevant scientific information tells governments things they don't want to hear," Professor Richter told Xinhua,

"If you ask governments to change what they are doing and spend lots of money on something, you have to convince not only the government but the public as well," he added.

An ICSU report shows that between 1900 and 2000 recorded natural disasters rose from 100 to 2,800 per decade, with most of the events being weather-related. The report notes that natural hazards now kill, injure or displace millions each year and cause great economic loss. In 2004 natural disasters caused US 140 billion dollars in damage. Events in 2005 are, unfortunately, likely to dwarf that number.

"We need to find new ways to communicate science to decision-makers so that they understand how to integrate scientific evidence into their political and policy processes," McBean said.

"A strong component of this initiative will focus on linking scientific advances to end-users, which include local, regional and national governments and also development agencies and those providing humanitarian assistance," he said.

ICSU's 28th GA opened Tuesday in Suzhou in east China's Jiangsu Province with more than 230 participants from 63 countries and regions. China hosted the 22th GA of ICSU in Beijing in 1998.

Chinese minister elected as IAA academician

(Xinhua Net, 2005-10-29)

Jean-Michel Contant, secretary general of the International Academy of Astronautics (IAA), announced here Saturday that Chinese Minister of Science and Technology Xu Guanhua, a remote-sensing expert, to be elected academician of the international non-governmental academy. Xu, also academician of the Chinese Academy of Sciences, is among the six Chinese scientists and technologists to be elected as new IAA academicians. The rest five are Lin Jin and Zhu Yilin, both senior research fellows with China Aerospace Science and Industry Corp. (CASIC), Zhang Qingwei, CASIC general manager, Yu Hefeng, senior research fellow with the Aerospace Medical Engineering Institute, and another CASIC senior research fellow Guo Baozhu, who is a corresponding IAA academician.

Since its founding on Aug. 16, 1960 in Stockholm, Sweden, the IAA has brought together the world's foremost experts in the disciplines of astronautics on a regular basis to recognize the accomplishments of their peers, to explore and discuss cutting-edge issues in space research and technology, and to provide direction and guidance in the non-military uses of space and the ongoing exploration of the solar system.

Till now, the IAA has a total of 1,221 academicians representing 75 countries and regions throughout the world.

At a meeting of Chinese IAA academicians, Contant said that China has achieved greatly in aerospace science and technology since 1985, which help promote Chinese scientists' reputation globally. The IAA now has 48 academicians from China, including five corresponding academicians.

Chen Zhu meets with laureate of CAS Albert Einstein Professorship

(CAS, 2005-10-31)



CAS Vice President Chen Zhu held talk with Prof. George Stark, a recipient of the CAS Albert Einstein Visiting Professorship, on Oct 26 in Beijing.

Prof. Chen gave Prof. Stark briefing on the recent development of biological science in China, stressing that China will further strengthen its scientific research and international cooperation in the field of biological medicine.

Prof. Stark was elected into the US National Academy of Sciences in 1987 and became a fellow of the Royal Society (London) in 1992. He visited the CAS Institute of Zoology from Oct. 20 to 27 in Beijing in the capacity of the CAS Albert Einstein Visiting Professorship. He also gave a lecture on molecular biology at the Graduate University of CAS on Oct. 26.

4 China's International Science Cooperation

Galileo Operation Franchise Conference convened in Beijing

(MOST, 2005-10-08)

The Galileo Operation Franchise Conference jointly sponsored by Galileo Joint Undertaking (GJU) and National Remote Sensing Center of China (NRSCC) and undertaken by China Galileo Industry (CGI) convened in Beijing on September 19 to promote the concept of Galileo Operation Franchise and make preparations for the Galileo operation in China. Some experts believed that this conference marked a new stage in China-Europe Galileo Project cooperation.

Following the signing of the political agreement between China and Europe and the technical agreement between NRSCC and GJU, China became the first non-EU member to participate in the Galileo Project with a commitment of 2 hundred million Euro. Presently, in addition to China, Israel, Brazil and India also got involved in the Galileo Project.

It is described that Galileo Operation Franchise is an important stage of the Galileo Project. The primary mission of this stage is to carry out global Galileo system operation and service, and to obtain commercial profit.

China and France jointly kicked off the scholarship program for joint cultivation of doctors

(MOST, 2005-10-14)

With a view to building up a close and lasting S&T partnership between China and France, the two countries jointly kicked off the joint doctor cultivation scholarship program, which mainly supported the priority cooperative areas defined by the two governments, involving biology and biotechnology, medical science, environment, material science, mathematics, information science, agronomics, telecommunications, electronics, aviation & space aeronautics, chemistry, energy, geoscience and cosmology.

The prize fellow of this program can choose to work for a Chinese doctorate, French doctorate or Sino-French double doctorate. The method of teaching will be alternate training by China and France and joint instruction of the doctoral thesis.

GSI and its partner IMP jointly hold Forums in Lanzou for the Centenary of the Scientific Breakthroughs by Albert Einstein

A 15-day series of activities organized by the Institute of Modern Physics (IMP), CAS and the Gesellschaft fuer Schweronenforschung (GSI) convened in Lanzhou of Gansu Province, China to celebrate the Einstein Year 2005 on October 11. Mr. Yang Zhiming, the vice-governor of Gansu Province, made the welcome address. The director of IMP, Prof. Zhan Wenlong, the director of GSI, Prof. Henning, and the Science Counselor of German Embassy, Dr. Keune, gave their presentations. The academican of CAS, Prof. Shen Dingchang, and Prof. Kiesling from the Institute of Physics of MPG made the academic reports on the research idea of Einstein. Some 400 persons participated the opening ceremony and the following forum.

There were further 11 GSI colleagues, including Prof. Angert, Dr. Zeittraeger, Eickhoff, participated in these activities. Over 70 DAAD-alumni in Physics have also been invited and gathered for a meeting. Dr. Keune from the embassy, Dr. Schmidt-Doerr from DAAD and Dr. He from the Helmholtz Beijing Office have all given a presentation, while Dr. Xie Ming from IMP and Dr. Klepper from GSI reviewed the history of the friendly cooperation in the last 25 years.



According to the advice of the ambassador of the German Embassy in China, IMP and GSI jointly organized the Einstein Year forum, since the two institutions have achieved a lot in the international scientific cooperation and communication, which are regarded as the apotheosis of international cooperation between the two countries by the governments of both sides. The series of activities include, Opening Ceremony, Einstein Forum, Alumni Meeting of Chinese physicists who have ever studied and worked in Germany, physics research exhibition, international cooperation exhibition of IMP of CAS, public opening day of HIRLF, and the following workshops such as, International Heavy-ion Accelerator Workshop, international advisory committee meeting of HIRFL-CSR, and International Heavy-element Workshop.

**Sino and UK botanists join hands for plant conservation strategy
(CAS, 2005-10-17)**



A joint research symposium on plant conservation with associated formal and informal discussions on science for plant conservation was held on Oct. 15 and 16 at the CAS Kunming Institute of Botany in the capital of southwest China's Yunnan Province.

Under the theme of the conservation of plant biodiversity and the sustainable use of its resources, the meeting was attended by 15 British botanists from the Royal Society, Royal Botanic Garden in Edinburgh, Royal Botanic Gardens, Kew, and London Natural History Museum; and 20 or so Chinese scientists from major botanic gardens and plant research institutes across the country. Also present at the event were British consuls-general in Chongqing and Guangzhou, high-level officials from CAS bureaus of life sciences and international cooperation, as well as CAS Kunming Branch.

The symposium involved 25 speakers from both sides, focusing on such issues as understanding and documentation of plant diversity, its conservation and sustainable exploitation, its education

and awareness promotion and capacity building.

As part of UK-China Partners in Science, the event was organized by the CAS Kunming Institute of Botany and the CAS Institute of Botany in Beijing under the sponsorship of CAS, NSFC and Royal Society.

China and Europe talk about strengthening cooperation in scientific research

(MOST, 2005-10-18)

With a view to bettering China-Europe cooperation in scientific research under the intergovernmental framework, Mr. Francesco Fedi, Chairman of "European Cooperation in the Field of Scientific and Technical Research" (abbreviated as COST) visited the Ministry of Science and Technology on September 23, 2005 to talk about strengthening cooperation in the areas of telecommunications, biology and information technology.

Established in 1971, "COST" aims to guarantee the leading position of Europe in scientific research in the world through reinforcement of European S&T cooperation and interaction and give full play to the overall role of each European nation.

Second Sino-Australian S&T workshop held in Beijing

(CAS, 2005-10-19)

Co-sponsored by CAS, the Australian Academy of Sciences (AAS) and the Australian Academy of Technological Sciences & Engineering (ATSE), the second Sino-Australian S&T Workshop was held from Oct. 9 to 12 in Beijing. CAS Vice President Chen Zhu, AAS President Jim Peacock and ATSE President John W Zillman were present at the conference.

More than 50 scholars from universities and research institutions of the two countries attended the workshop. They held discussions on the development of such fields as plant biotechnology, animal biotechnology, nano-medicine and nano-biotechnology, nano-materials technology.

The workshop was jointly initiated by CAS President Lu Yongxiang and Mr. Brendan Nelson, Australian Minister for Education, Science, and Training. The first session of the workshop was held in 2004 in Melbourne under the theme of sustainable development.

CAS and University of Melbourne agrees on a research center for water resources

(CAS, 2005-10-19)

On behalf of their respective organizations, Prof. Fu Bojie, director-general of CAS Bureau of Science and Technology for Environment, and Prof. Frank Larkins, Deputy Vice-Chancellor (Research) of the University of Melbourne, signed on Oct. 9 in Beijing a memorandum of cooperation agreement for the establishment of Sino-Australian center for water resources in 2005. CAS Vice President Chen Zhu and President of the Australian Academy of Sciences Jim Peacock were present to witness the ceremony.

Officials discussed Sino-US cooperation in the sector of climatic change

(MOST, 2005-10-26)

On October 20, 2005, Vice Minister LIU Yanhua met with visiting James Connaughton, Chairman of the Council on Environmental Quality and Director of the White House Office of Environmental Policy. The two sides earnestly discussed the US initiative for establishing the "Asia Pacific Partnership on Clean Development and Climate" and the cooperation between China

and US in the sector of climatic change and exchanged extensive views on how to carry out substantial cooperation.

Mr. Connaughton gave a briefing on the progress of the US new initiative and US policies, actions adopted and results achieved in terms of climatic change control, highlighting the formulation of rational policies, use of mature technology and market motivation and improvement of energy efficiency.

Vice Minister LIU Yanhua welcomed the US proposal in principle, pointing out that China is about to enter its Eleventh Five-year Plan period and this is a good opportunity for the two sides to carry out cooperation. He said that controlling climatic change is the common wish of all countries and the key is to take actions. He further pointed out that as a powerful nation in both economy and science & technology, US should offer funds matching its position and push forward technology transfer. Vice Minister LIU Yanhua also emphasized that we should place stress on environmental protection and develop appropriate technologies while developing our economy, in which respect China has its own characteristics.

The two sides also exchanged ideas on signing the memorandum of understanding on bilateral S&T cooperation in climatic change.

A Sino-Japan workshop on laser fusion held in Sichuan (CAS, 2005-10-27)



Jointly organized by the CAS Shanghai Institute of Optics and Fine Mechanics (SIOM), the Laser Fusion Research Center of the Chinese Academy of Engineering Physics, and the Institute of Laser Engineering at Osaka University, Japan, the 2005 Workshop on Ultrahigh Density Plasma Production, Application and Theory for Laser Fusion was held from Oct.9-13 in Jiuzhaigou, southwest China's Sichuan Province. Co-chair of the workshop LIN Zunqi, a CAS member from SIOM, made the opening speech on Oct. 9.

More than 70 scholars in the fields attended the workshop, 53 of them made their presentations at the plenary, technical parallel and poster sessions. CAS member HE Xiantu delivered two keynote lectures entitled "the Status of Inertial Fusion Energy Research in China" and "the Acceleration and Collimation of Relativistic Electron Beams in Circularly Polarized Intense Laser-plasma Interaction" respectively.

The workshop is one of the meeting series of the China-Japan Core-University Program (CUP) on Plasma and Nuclear Fusion. Since its inauguration five years ago, the program has gone very well, making important contributions to laser fusion development on ultrahigh density plasma production, application and theory in the world.

The meeting provided an international forum for the most recent and advanced issues concerning laser fusion theory, experiment and driver development based on CUP. In addition, this workshop summarized the past five year progress of the CUP and foresee the collaborative activities in the upcoming five years. The workshop also promoted the Korea-Japan-China Tri-lateral collaboration in the same area.

**Chinese Humboldtians brought together at a rally in Beijing
(CAS, 2005-10-28)**



The 2005 Conference for Chinese Association of Alexander von Humboldt Fellows was held on October 14 to 15 at the Sino-German Science Center in Beijing.

Chaired by CAS President Lu Yongxiang, who is also president of the Association, the conference will bring together nearly 300 Chinese Humboldt fellows and their German colleagues. Also present at the meeting were Mr. Volker Stanzel, German Ambassador to China, Dr. Georg Schutte, General Secretary of the Alexander von Humboldt Foundation of Germany, Prof. Ho Zah-wei, honorary president of the Association, Mr. Thomas Schmidt Dorr, director of the Sino-German Science Center, and Prof. Wei Yu, former minister of education and vice president of the Association.

With the theme of economic growth and the environment, the conference touched upon various subjects ranging from natural and social sciences to humanities. About 20 invited lectures were given at the conference. Prof. Lu Yongxiang and Prof. Wei Yu delivered a keynote speech on innovation and development, and scientific literacy and sustainable development, respectively.

The Alexander von Humboldt Foundation is a non-profit organization for the promotion of international research cooperation. It enables highly qualified scholars not resident in Germany to spend extended periods of research in the country and promotes the ensuing academic contacts. Since 1930, Chinese Humboldt fellowship awardees have reached about 1,000 in total number. In recent years the average annual number of Chinese Humboldt recipients is about 80. The Chinese Association of Alexander von Humboldt Fellows was established in 1994 with a membership of 800.

As a get-to-together for such a community of outstanding scholars, the meeting has received support from such institutions and governmental departments as CAS, National Natural Science Foundation of China, Ministry of Education and Alexander von Humboldt Foundation of Germany.

5 Miscellaneous

CAS website for popular science wins World Summit Award (CAS, 2005-10-08)



Virtual Science Museums of China (VSMC), a web-based public science education project run by CAS, has been honored with the United Nations' World Summit Award (WSA) in E-science category.

It was among the 40 final winners selected in a process of intense evaluation at the WSA Grand Jury Meeting held from 3 to 10 September in the Kingdom of Bahrain. More than 1,300 website/projects from 168 countries across the world participated in the contest in 2005.

The award will be presented as the world best at the WSA Gala on 16 November, 2005 in Tunis, during the second phase of the UN World Summit on the Information Society (WSIS).

Organized by the International Telecommunication Union, WSA aims to help bridge the digital divide and is held within the framework of WSIS, a global project initiated by the United Nations Industrial Development Organization (UNIDO) at 2003.

The WSIS awards comprise eight categories: E-Learning, E-Business, E-Entertainment, E-Culture, E-Government, E-Health, E-Science, and E-Inclusion™ a category for the least developed countries.

Opened in Oct. 1999, VSMC is the first and largest cluster of virtual science museums in China. With 60 museums in Chinese and 11 in English, its daily visit rate at present reaches up to 30,000. It is a multi-media web site that builds up a virtual society between scientists and the public, with easy and interactive scientific contents. It transforms professional scientific knowledge into contents that can be easily shared and appreciated by the rank and file through making it easier to understand, more amiable to receive and fun to play with. It creates equal opportunities for individuals at all walks of life to share scientific information, participate in the world of science and communicate with scientists.

Information exchange on patented technologies (MOST, 2005-10-09)

At the invitation of Changchun Municipal Government, a delegation from the University of California, San Diego visited relevant enterprises of biological medicine and optoelectronics information of Changchun on September 7 to exchange information on the patented technologies of such high-tech sectors as biotechnology, information technology and optoelectronic technology. Changchun Science and Technology Bureau organized 20 enterprises and research institutes for

discussion and exchange with the delegation from San Diego. Dr. Alan Paau, Assistant Dean of the University of California, San Diego and Director of the Technology Transfer Office made a briefing on projects of biotechnology, optoelectronics and information. The enterprise representatives expressed great interest in the patented technologies of the University of California and hoped to conduct cooperative development of related patents. TANG Xiaoming, Deputy Secretary-General of Changchun Municipal Government and Director-General WAN Zhaibin and Deputy Director-General XUE Chunzhi of Changchun Science and Technology Bureau participated in the talks.

Changchun Science and Technology Bureau will make the most of this opening-up and exchange platform and endeavor to introduce a batch of first-rate international patented technologies into the enterprises of Changchun so as to push forward the development of high-tech industries and the product internationalization process.

Nearly 5,000 obtain postgraduate degrees at CAS this year (CAS, 2005-10-09)



A total of 4,891 candidates received their postgraduate degrees at the Graduate University of CAS (GUCAS) in 2005. This was announced at the GUCAS graduation ceremony held on Sept. 28 at the Yuquan Campus in western suburban of Beijing.

Among the 2,307 who have completed their PhDs at CAS this year, there is a Dr. Ghulam Rasul from Pakistan. He is the first ever international student who has received a doctoral degree at the Academy.

Joint survey conducted on endangered wild camels (Xinhua Net, 2005-10-13)

A team of 14 Chinese and foreign zoologists began Thursday a 20-day probe of the wild Bactrian camels in a nature reserve for the critically-endangered creatures in northwest China's Xinjiang Uygur Autonomous Region.

"The probe will focus on the number of wild camels and the ecological environment in which they live at the Kumtag Desert and northern Arjin Mountain, two places in the Lop Nur Wild Camel National Nature Reserve in southeastern Xinjiang," said Zhang Yu, deputy head of the management center of the nature reserve.

John Hare, founder and chairman of the UK-based Wild Camel Protection Foundation (WCPF), Yuan Guoying, a research fellow with the Xinjiang Uygur Autonomous Regional Environmental Protection Institute, and two other experts from Mongolia are among the investigators in the

group.

The wild Bactrian camel, or *Camelus bactrianus*, a two-humped ancestor of domesticated camels, are now only found in their native habitat in the harsh deserts of northwest China and Mongolia. There are approximately 800 left in the world, of which about 400 live in the Lop Nur nature reserve, with an area of 780,000 square kilometers in Xinjiang.

The wild camel has been labelled "critically endangered" according to the International Union for Conservation of Nature and Natural Resources (IUCN), and is now in China's wild animals top protection list.

The current survey is jointly organized by the nature reserve and the WCPF, and will end in early November.

Initiation of the fourth batch of "Olympic Special S&T Projects"

(MOST, 2005-10-14)

Through feasibility study and expert appraisal organized by relevant localities and departments, the fourth batch of "Olympic Special S&T Projects", part of the S&T Program in the Tenth Five-year Plan, was approved officially by the Ministry of Science and Technology for initiation.

14 topics including "Study on the Improvement of Collective Ball Event Athletic Sport Standard" were on the list of successful candidates. The total fund for this batch of projects amounted to 1.54 hundred million Yuan, of which 30 million Yuan was state allocation. Eight departments and organizations were entrusted to organize, implement and manage these projects. They are General Administration of Sport, Ministry of Information industry, General Administration of Quality Supervision, Inspection and Quarantine, China Meteorological Administration, Chinese Academy of Sciences, Beijing Municipal Commission for Science and Technology, Beijing Organizing Committee for the Games of the XXIX Olympiad, and 2008 Project Construction Headquarters Office.

In accordance with the general plan of Beijing Olympic construction and the overall plan and schedule of "Olympic S&T (2008) Action Plan", arrangement of the fourth batch of Olympic Special S&T Projects", part of the S&T Program in the Tenth Five-year Plan, highlights and embodies three key points: (I) to make active preparations for the 2008 Olympic Games with the emphasis laid on the study of those physical strength and skill sport events in which our country has the advantage of winning the gold medal; (II) to plan the key technology solution and application demonstration for the Olympic Village, Olympic venues and Olympic Games organization & management information service in light of the demand of current Olympic project construction and Beijing Olympic Games organization and management and entrust such work with the construction proprietors and powerful research units; (III) to strengthen the technological development related to the key areas of Beijing Olympic Games municipal support construction so as to provide technical support to the Olympic Games.

China, US SMEs seek wider cooperation space

(Xinhua Net, 2005-10-14)

An essential part of the national economy, small and medium enterprises from both China and the United States are seeking more space for cooperation in an attempt to reduce frequent trade frictions between the two nations.

The small and medium-sized enterprises from China and the United States should further intensify

an all-around cooperation in future for there still remains vast space for the collaboration, said Craig Allen, counsellor of the US embassy to China here Friday.

The official made the remarks at the founding ceremony of the Wuhan Office of the Sino-US international partner network program, which is launched as a bridge between the small and medium enterprises from the two countries for exchanges and communication.

According to the latest survey by the US-China Business Council (USCBC), companies from the United States, especially those of small and medium sizes, have benefited from China's entry into the WTO.

Today US companies enjoy much more chances of market access than five years ago, said Allen. Generally speaking, China has lowered its taxes on the imported goods by nearly 40 percent and lifted the import permission system and quotas in many fields. US companies are currently allowed to put their capital in many China's industries, which were forbidden in the past.

China became the third largest exporting market for the United States during the first six months of this year.

In 2004, the Sino-US trade exceeded 230 billion US dollars, increasing by nearly 50 times as against 1949.

The bilateral trade keeps growing at a rapid speed since China was accepted as a WTO member in 2001.

The official said China's overspeed export growth brings about huge unfavorable trade balance to the United States, which amounted to 80.3 billion US dollars in 2004.

"This triggered a series of trade friction, especially in the field of textile," said Allen, adding that it has already drawn great attentions from the governments of both sides.

"The problem is many China's enterprises do not know what they should sell to the United States and the same is true with their US counterparts."

In both China and the United States, the small and medium enterprises contribute much to their national economy, said Gao Yan, vice chairwoman of the China Council for the Promotion of International Trade.

Though the trade between the two countries rapidly has been developing during the past few years, cooperation between their small and medium enterprises is insufficient, said Gao.

Along with the economic globalization, strengthening the connection and cooperation between the small and medium-sized enterprises in China and the United States will not only be conducive to alleviating the trade friction but also promoting the prosperity of the world economy, said Allen.

The China Council for the Promotion of International Trade signed a letter of intent with the US Department of Commerce and US Small Business Administration last year to boost the communication between the small and medium enterprises in both countries and to ease the trade friction.

This July, China and the United States signed a cooperative project memo, aimed to launch the Sino-US international partner network program in China's 14 cities.

Allen said US companies will acquire information from the offices in the cities so as to find their business partners in China.

"Hopefully the small and medium enterprises from both sides will further their cooperation through this program, so that the Sino-US trade will see an upgrade in various fields," Gao said.

Artificial cultivation of yew trees successful**(Xinhua Net, 2005-10-20)**

Botanists in northeast China's Heilongjiang Province has successfully cultivated yew trees, which have grown on the earth for about 2.5 million years.

The success makes it possible to increase the survival rate of artificially-cultivated yew trees and to extract anti-cancer substances from the rare plant, said Xie Ailin, an engineer with the Suiyang Town Forest Bureau of Dongning County.

Technicians with the bureau have been devoted to researching and cultivating yew trees since 1996.

The way they used to cultivate yew trees is cost-effective and can guarantee a survival rate of over 90 percent, said Xie, who refused to disclose details of the technology they used.

Using the new technology, more than 200,000 yew trees have survived, covering about 12 hectares.

As a kind of evergreen plant, yew trees are only found in dense forests in mountainous areas 2,500 meters to 3,000 meters above sea level. Under natural conditions, yew trees grow very slowly and are weak in reproduction. Many countries, including China, put yew trees under first-grade protection.

Currently, only about 25 million yew trees live on the earth.

China enrolls over 30,000 post-doctoral researchers in 20 years**(People's Daily, 2005-10-20)**

Since China re-established post-doctoral education in 1985, the country has enrolled a total of more than 30,000 post-doctoral researchers

Currently, there are more than 12,000 people working at post-doctoral stations.

China has developed its own post-doctoral system by learning lessons from developed nations in attracting, fostering and utilizing high-level young scientists.

Post-doctoral stations are set up by universities, research institutions and companies, where those who have graduated from their doctoral studies can continue their academic studies under the guidance of tutors.

At the post-doctoral level, researchers may acquire greater capabilities in research and innovation

and become team leaders in academic work in two to four years.

Over the past two decades, 1,363 post-doctoral stations have been set up at 343 higher learning institutions and research houses, while 1,018 post-doctoral stations are run by state-owned companies and hi-tech firms.

Center for Signal Transduction & Metabolomics opens (CAS, 2005-10-24)



The Center for Signal Transduction & Metabolomics (C-STM) has recently been established at the CAS Institute of Botany in Beijing. Its nameplate revealing ceremony was held on Oct. 14.

The general scope of C-STM is to answer fundamental questions on plant signal transduction in relation to plant development and defense, focusing on topics that have national strategic importance, says Prof. LIU Chunming, C-STM founding director, formerly senior scientist at Plant Research International, the Netherlands.

The research in these areas is not only important for plant biology, but also has great potential in agriculture, according scientists. Related applications includes modification of plant architecture, growth and fertilization behavior, flowering time, preventing pre-harvesting seed sprouting and pathogen attack, improvement of energy efficiency.

As one of the five research centers at the institute, C-STM aims to recruit several internationally recognized scientists to establish their research groups, conducting forefront research on plant signal transduction and metabolomics, At present there are three research groups at the center: a team on auxin signaling and developmental control in plants headed by Dr. HU Yuxin, formally working at Institute of Molecular Agrobiolgy and Temasek Life Sciences in Singapore; a team on peptide signaling and embryo initiation led by Dr. LIU Chun-Ming; and a team on metabolites and disease resistance headed by Dr. QI Xiaoquan, formally working at Sainsbury Laboratory in UK.

20-year fruitful development of CAS postdoc programs (CAS, 2005-10-25)



(Nobel laureate T.D. Lee makes a suggestion for a postdoc system in China during his meeting with Mr. DENG Xiaoping, then Chinese leader, in 1984 in Beijing.)

There was few, if any, ordinary Chinese people who could understand the term postdoc in 1984, when CHEN Hesheng, one of the first three postdocs China had ever had in history, entered the CAS Institute of High Energy Physics (IHEP) after having obtained his PhD at the Massachusetts Institute of Technology in US.

This pilot move at CAS was the prelude to the formal initiation of China's postdocs system in 1985. It is considered a milestone event in China's recent history of high-level professionals training after the resumption of college entrance examination in 1977, the restart of the master degree system in 1982, and the establishment of the doctoral system in 1982.

With an objective to attracting and training elite professionals, the novel strategy paid off 20 years later. Over the past two decades, the accumulated number of postdocs at CAS has reached more than 30,000, accounting 20% of the national total. Many postdocs have scored encouraging research achievements and become senior researchers or leaders of their research labs, enjoying more popularity and recognition in the academia and public. Among the postdocs at CAS, 84 won the national outstanding young scientists fund, 12 received the support of Changjiang scholarship, 128 are winners of the CAS *Bairen* Program awards, 2,400 are engaged as professors or research fellows, 25 honored with the title of National Outstanding Postdocs. For instance, Prof. Chen is now IHEP director, taking the helm of China's biggest and comprehensive fundamental research center with 6,500 physicists.

China to reserve 10,000 teachers for overseas Chinese teaching

(Xinhua Net, 2005-10-25)

China will set up a bank of 10,000 volunteer teachers to stand by for overseas Chinese teaching over the next five years, as part of an international Chinese teaching program launched by the Chinese government.

This was revealed by Ma Jianfei, deputy director of the National Office for Teaching Chinese as a Foreign Language.

Many countries have requested China to send Chinese teachers overseas, as there are close to 100 million non-Chinese using or studying Chinese and about 100 countries offering Chinese language courses, according to Monday's People's Daily.

The quantity of quality Chinese teachers sent overseas is lacking, Ma was quoted as saying.

Scientists honored by HLHL prize in 2005**(CAS, 2005-10-28)**

At the awarding ceremony by Ho Leung Ho Lee Foundation (HLHL) held on Oct. 14 in Shanghai, two CAS members, chemist XU Guangxian and mathematician GU Chaohao, each received S&T Achievements Prize with HK\$ one million (US\$ 128,200). CAS member CHI Zhiqiang, a pharmacologist from the CAS Institute of Materia Medica, and another 44 scientists were awarded S&T Progress Prize with HK\$ 200,000.

HLHL, the largest non-government foundation to award scientists in China, grants two annual prizes. The S&T Achievements Prize is awarded to those who have been working for promotion of S&T progress in China for long time, making significant contribution and achieving world-class achievements in their academic fields. The Science and Technology Progress Prize is awarded to Chinese scientists who made important inventions, discoveries or research results in natural sciences, especially in recent years.

A Glass Ceiling for Asian Scientists? Jeffrey Mervis reports

(Science, Vol 310, Issue 5748, 606-607, 28 October 2005)

Asian scientists are a major presence in U.S. biomedical research labs. So why do so few hold leadership positions?

Virologist Kuan-Teh Jeang always thought it strange that his employer, the National Institutes of Health (NIH), would celebrate Asian Heritage Week each year with a cultural fair. "We're not known for being great cooks or dancers. We're known for being great scientists," says Jeang about an ethnic group that, according to 2000 census data, comprises 14.7% of U.S. life scientists despite being only 4.1% of the nation's overall workforce. So last year, he and the NIH/Food and Drug Administration Chinese American Association launched a new tradition: inviting a distinguished Asian researcher to give a scientific talk.

This May, as Asian Heritage Week approached, Jeang and his colleagues had another idea: Why not use the occasion to examine the status of Asian scientists within NIH's intramural program? Jeang had already collected some disturbing numbers about opportunities for career advancement at NIH, and he was eager to see whether his numbers squared with an official tally by NIH officials.

To his chagrin, they did. Whereas 21.5% of NIH's 280 tenure-track investigators (the equivalent of assistant professors) are Asian, they comprise only 9.2% of the 950 senior investigators (tenured researchers) at NIH. And only 4.7% of the roughly 200 lab or branch chiefs are Asian. (For this story, the term "Asian" includes all scientists with Asian surnames, regardless of their citizenship or immigration status. The group is dominated by scientists of Chinese, Korean, Indian, Pakistani, or Japanese origin.) Within particular institutes, the numbers were even more sobering. As of this spring, just one of 55 lab chiefs at the National Cancer Institute, NIH's largest, was Asian. At the National Institute of Allergy and Infectious Diseases, where Jeang works, none of the 22 lab chiefs was Asian. To Jeang and others, the numbers point to a glass ceiling for Asian life scientists seeking to move up the career ladder. Asians are welcome in most labs, the numbers seem to say, and those who prove themselves can earn a permanent position. (Taiwan-born Jeang, who holds both an M.D. and Ph.D., came to NIH as a medical staff fellow in 1985 and was tenured in 1993.) But they shouldn't expect to enter senior management. "We feel that the field is not level," says Jeang, who has calculated that, at NIH's three largest institutes, Asians make up roughly 12% of

the eligible pool from which lab chiefs are drawn.

NIH isn't the only place with a glass ceiling, say some Asian life scientists. This summer, neuroscientist Yi Rao of Northwestern University in Evanston, Illinois, took a look at the leadership ranks of the two major professional societies in his field: the Society for Neuroscience (SfN) and the American Society for Biology and Molecular Biology (ASBMB). What he found was even more troubling than the NIH figures.

His snapshot showed that none of the 26 ASBMB council members was Asian, nor were any of the 193 members of the society's 11 standing committees. Asian scientists make up fewer than 4% of the 703-member editorial board at its top-tier Journal of Biological Chemistry (JBC), and none of the 21 associate editors with decision-making authority. Asians are equally invisible among the leadership ranks of the neuroscience society, Rao found. They hold only two of nearly 300 seats on 18 committees, and none of the 15 elected officer and councilor posts. Looking back, Rao found that only a handful of Asian scientists have ever held such elective positions in the society's 36-year history.

Rao says the message is clear. "However the phenomenon can be described, the underlying problem is discrimination," he wrote in July letters to ASBMB and SfN governing officers. "Chinese Americans tend to be quiet, partly because their voices and concerns are not listened to. But should that mean obedience and subordination forever?"

Senior officials at NIH, SfN, and ASBMB don't dispute the numbers, although some say they were surprised by them. "There's an appearance of a glass ceiling, which is troublesome," says Michael Gottesman, who heads NIH's intramural research program. "It makes you wonder if there's an inherent bias."

Looking for factors that might help explain the gap, he and others tick off the relatively recent arrival on the U.S. scientific scene of Asian scientists, language barriers, and cultural stereotypes that prevent Asians from being more aggressive in seeking promotions and honors. But in the end, they say, their organizations have an obligation to try to improve the situation. "The solution is straightforward. We need to make their accomplishments better known," says Gottesman, who met with Jeang and three other Asian scientists this summer to discuss how NIH could do better.

The stealth problem

For Rao, Jeang, and other Asian scientists, the recent data-gathering exercise confirms something they had long felt to be the case. "It's an unspoken truth," says neuroscientist Joseph Tsien of Boston University, who left China in 1986 for graduate school and later became a U.S. citizen. "We don't fall into the typical minority group because we're not underrepresented, especially in science. But you see so many [Asian scientists] at the bottom of the ladder and so few in the top ranks. ... It's a funny situation." In a letter this spring to NIH Director Elias Zerhouni that prompted NIH to gather the data, Jeang explains that "we want to disabuse you of the common mythology that Asians don't want to be leaders."

But the issue is also very complicated, says Yu Xie, a sociologist at the University of Michigan, Ann Arbor, who has studied both the behavior of scientists and the growing presence of Asians in U.S. society. "Often people look at statistics, and they jump to the conclusion that there has been discrimination," says Yu, who came to the United States from China in 1982 for graduate school. "I haven't seen any evidence that it is the case. It might be true, but we just don't know enough to reach a conclusion one way or the other." Indeed, several Asian scientists interviewed for this article say they haven't experienced any type of glass ceiling. "I personally don't feel that it applies

to me. But I'm not very sensitive," says Liqun Luo of Stanford University in Palo Alto, California, who earlier this year was named a Howard Hughes Medical Institute investigator.

Still, Luo says others have told him that the ceiling exists and that the issue seems to be on people's minds. A Stanford colleague contacted him after receiving Rao's letter, he says, and out of the blue, Luo says he was invited to be on SfN's program committee.

Neuroscientist Eve Marder of Brandeis University in Waltham, Massachusetts, who chairs the society's program committee, says she and the society's other officials believe strongly that all panels should have diverse representation. "It so happens that this year almost none of them do, and I recommended to the committee on committees that they be more proactive." She says she also suggested to Rao a tactic that has helped women rise through the ranks: "Forward us lists of people who are interested, so that nobody can say that they don't know any Asian scientists" who are willing and able to serve the society.

The head of the committee on committees, Irving Levitan of the University of Pennsylvania in Philadelphia, says he was "stunned" when he saw the numbers. "There is great consciousness about gender and underrepresented members," he says. "But frankly, we have not paid attention to Asian Americans because they are so visible in the lab."

For some ASBMB officials, the tone of Rao's message was as shocking as the message itself. "It was a very insulting letter," says Linda Pike of Washington University in St. Louis, Missouri. "He was accusing us of doing something that was awful and terrible and mean without bothering to find out why. You can't just look at the numbers."

In her reply to Rao, Pike explored a question often asked when the issue comes up: How many Asian scientists are truly qualified to hold leadership positions? "How many of the Chinese authors of scientific papers are in a position to serve on ASBMB committees?" she asked. "How many choose to return to their country, and how many seriously try to obtain faculty positions in the U.S.?" In addition, she noted that "a lack of language skills could put a faculty member at a severe disadvantage" in obtaining funding and, thus, building the track record needed to move up the career ladder. "While I sympathize with your concerns, there is much more that needs to be examined before diagnosing ASBMB as engaging in discrimination."

Even so, ASBMB is taking the charge very seriously, says president Judith Bond of Hershey Medical Center in Pennsylvania. Last month, Bond says, the society decided to invite "a Chinese-American member" of the JBC editorial board to become an associate editor, and the council plans to discuss the issue of a glass ceiling at its December meeting.

For Gottesman, inertia and a limited number of available slots are bigger obstacles to progress than the qualifications of Asian scientists. "The pool is getting bigger," he says. "But the average age of our lab chiefs is about 10 years more than it was 10 years ago. There's a need to turn those positions over more often." He says it's his job to remind the scientific directors to look at a broader spectrum of potential candidates for these jobs.

A glass ceiling doesn't mean that no individuals have risen to great prominence in the profession. Examples abound. In fact, some Asian scientists say that the critics have gone overboard in painting a bleak picture of the United States. "They are fighting for a good cause, but they are going to an extreme," says Mu-Ming Poo, a neuroscientist at the University of California, Berkeley, about those who claim that the data prove a glass ceiling exists. "The United States is the most tolerant society in the world, including China, for foreign scientists. In 10 years, Yi Rao will probably be holding one of these leadership positions, and so will many of his colleagues."

Indeed, many are anticipating a rosier future. It will come, they say, both because of the graying of the current generation of leaders and because Asian scientists will become more adept at learning how to get ahead. "This is America. And you need to embrace those qualities that are appropriate for success," says Victor Dzau, chancellor for health affairs at Duke University in Durham, North Carolina, who was born in Shanghai and educated in Canada and the United States. "It will require a conscious effort. But I would predict that the disparity will narrow as the next generation moves forward."

Jeang also believes that change is coming. Last year, he says, he was on the brink of leaving NIH when a senior colleague convinced him that history was on his side. "When I was growing up at NIH," the colleague confided to Jeang, "every chief of medicine and every director was a WASP. But all their right-hand men were Jewish doctors. Now all our right-hand people are Asian. It just takes time." That pep talk, plus a recent meeting with Gottesman, has persuaded Jeang that NIH means business. So he says he'll stick around and wait for a time when the disparity disappears.

6 Information for upcoming Workshops in December

2005 International Conference on Computational Intelligence and Security

Date: December 15 – December 19

City: Xi'an, Shaanxi Province

Contact: cis2005@mail.xidian.edu.cn

Abbreviations

- CAS** - Chinese Academy of Sciences
- MOST** - Ministry of Science and Technology
- CRI** - China Radio International
- CCTV** - China Central Television