Content

Science News from Chinese Media in February 2008
Collected and Compiled by the **Helmholtz Beijing Office**

1 Science News

1.1 Energy

Brilliant future seen for nuclear power in China
(Xinhua Net, 2008-02-13)

As one of the world's fastest growing economies and the second largest consumer of energy, China is looking more to nuclear power to better distribute its energy sources.

Shandong in East China is one example of how this shift is playing out: There are plans afoot to build three nuclear power plants in the province, two in Weihai and one in Yantai.

The plants are expected to house five reactors with a combined capacity of more than 4,000 mW. Once these plants are finished, Shandong will become an important nuclear power base for the country.

Statistics show that nuclear power has become the third most important power source in China.

There are currently 11 nuclear reactors in operation, with a total capacity of around 8,000 mW.

The country's nuclear power plants generated 62.9 billion kWh last year, representing an increase of 14.6 percent compared with a year earlier, according to the Commission of Science Technology and Industry for National Defense.

"China's nuclear power industry has experienced a transition from appropriate development to accelerated development," Han Wenke, deputy director of the Energy Research Institute under the National Development and Reform Commission (NDRC), said.

At present, nuclear power accounts for less than 2 percent in the country's total power generation.

The authorities plan to increase the country's nuclear power capacity to 40,000 mW by 2020, which would take the sector's share of the total power industry to 4 percent.

Worldwide, nuclear power accounts for 16-17 percent of all power generation.

In countries like France, nuclear power even accounts for around 80 percent of the industry.

All of China's existing nuclear power plants are located in coastal areas.

Coastal provinces such as Zhejiang, Fujian and Guangdong have all said they are preparing sites to host new nuclear stations.

Several inland regions have also taken part in the development of nuclear power.

Hunan, Hubei, Chongqing have all said they are planning to build China's first inland nuclear power plant.

Construction work started on Sanmen nuclear power plant in Zhejiang province in January.

With two 1,000-mW nuclear reactors using technology from the US-based energy company Westinghouse Electric Co, the plant represents the cutting edge in nuclear power.

Last year China finalized a contract with a consortium led by Westinghouse to build four nuclear power reactors, including two in Sanmen, one in Haiyang, and one in Shandong province.

Compared with earlier generation technology, reactors using third generation technology have longer operational lives and are safer.

Westinghouse said its equipment has been selected for at least 12 reactors in the US to be built over the next 10 to 12 years.

Last year China also signed an 8-billion euro ($11.6 billion) agreement with the French nuclear company Areva to supply two third-generation nuclear reactors for a project in Taishan, Guangdong

province.

Construction of the two reactors, each with a capacity of 1,700 mW, could begin fall of 2009.

Integrated development and recycled utilization of bittern and natural gas resources, urge scientists

(CAS, 2008-02-18)

Amid an upsurge of industrialization and urbanization, China's economic future is likely to be threatened by a shortage in national per capita resources, a fragile ecological foundation as well as the traditional economy of extensive development mode.

In western provinces of the country like Sichuan, Qinghai, Shaanxi and Hubei, which boast abundant bittern and natural gas resources, high energy consumption and pollution have been a bottleneck for the sustainable development of the local salt chemical industry.

Lately, under the auspices of the CAS Academic Divisions (CASAD), a taskforce, consisting of CAS Members and other experts, resorted to these regions and carried out various investigations. Based upon the circular economy principal, they propose a technical route for the comprehensive utilization of bittern and natural gas resources in a clean, energy-efficient and circular way, as well as a multi-functional system synthesizing both industries and their engineering, which will

1. Effectively reduce and even eliminate the wastes and pollutants using clean production technology;
2. Provide a heat-source for the evaporation, crystallization and separation of brine with the high-temperature waste heat from chemical engineering and power system so as to raise the unitization rate of natural gas production;
3. Cut energy consumption of the evaporation and separation processes of brine through heat pump and refrigerating technology driven by mid- or low-temperature residual heat; and,
4. Achieve recycled utilization of resources by using (1) chlorine, the major pollutant of salt chemical industry, as a raw material of the natural gas chemical industry; (2) the unreacted gas in natural gas chemicals production as a fuel of their power systems; and (3) CO2-rich mixture from the power system as a raw material for carbonation in salt industry.

The experts also worked out detailed technical routes involving the manufacture of methanol, dimethyl ether and PVC from natural gas, the molten-phase hydrolysis of alkali from brine, the biomass transformation of chlorine, the system integration of chemical-engineering polygeneration, etc.

The proposal aims at an environment-friendly multi-functional system for comprehensive utilization of the bittern and natural gas resources through key technology innovation and integration, giving an in-depth illustration to the new notion of circular economy.

To address the energy and environment problems in exploiting both resources, the following measures are suggested.

First of all, a strategic research on the integration of salt and natural gas industries is needed under the guidance of the new concepts of ecological industry and circular economy. Traditional salt chemical production leads to inevitable ecological devastation as well as corresponding technological and economic problems. To deal with it, interdisciplinary strategic studies are of high necessity, not only for a new series of technologies, techniques and systems, but to point out the development direction and draw a blueprint for the utilization plan.

Secondly, the multi-functional system combining the salt and natural gas industries and their engineering mechanism shall be achieved by addressing technical bottlenecks and system integration,

and a clean, energy-efficient and circular way of resources development will lead to a win-win harvest in both economy and ecology. For instance, with the technical routes mentioned above, ecological industry parks can be set up to bring on good economic performance, environment protection and scientific consumption of energy.

Thirdly, importance must be attached to the demonstrative roles of the system integration and new technology for an ecological industry. On one hand, instances like the use of waste heat and the transformation of chlorine well showcase the complementary characteristics of the two industries. The circular economy notion, On the other, is illustrated by the fact that energy and resources can be transformed with high efficiency when resources are made use of in a recycling way. These merits may all contribute to overcoming the long-standing headaches still plaguing China's salt and natural gas industries, and shed light on the future of an ecological industry. Pilot sites for ecological industry parks and circular economy spots are suggested to be established after investigations in related fields.

China Constructs Nuclear Power Station in Fujian

(CRI, 2008-02-18)

China began the construct of its first million kilowatt (K.W) nuclear power station in Ningde city in Fujian province, after China launched its middle and long term nuclear power development program for the period from 2005 to 2020.

Chinese vice Premier Zeng Peiyan announced on Monday the initiation of the construction at the sea island site against China's Taiwan province across the Taiwan straits.

China will invest 51.2 billion yuan, or 7.1 billion US dollars, in the first phrase of the project, which will employ China's independently-developed nuclear technology.

Four million kilowatt (K.W) nuclear power units will be installed in the first section, and will start generating electricity in 2012. After that there will be one more unit a year in the next three years.

Four power units will generate some 30 billion kilowatt-hours of electricity a year mainly for Fujian province.

China takes its own road of nuclear energy development

(People's Daily, 2008-02-29)

The State Nuclear Power Technology Corporation (SNPTC), also abbreviated as the "State Nuclear Energy", founded in May 2007, has been dubbed as a "newborn baby" as compared with "old-name", large central industrial firms or enterprises. This neonate, however, symbolizes China's hope for the rapid growth of its nuclear energy in the years and even decades ahead.

The mission of the State Nuclear Energy is to bring in the state-of-the-art, third-generation Pressurized Water Reactor (PWR) technology, and to pool efforts to tackle pivotal technical issues and to carry out related researches, development and innovation, so as to braze China's new trail of nuclear power development, Chen Zhaobo, an independent director of SNPTC, told reporters.

Since the 16th National Congress of the Communist Party of China (CPC) held in 2002, the CPC Central Committee and the State Council have attached greater importance to the nation's cause of developing nuclear energy and made a decision to include nuclear power in a new energy strategy. In November 2006, the State Council made a decision to set up SNPTC and empower it to take charge of the execution of the importation, digestion, absorption and re-innovation of the third-generation nuclear energy technology.

Since its inception, SNTPC has arranged and completed in a fairly short period of time negotiations for the contract on the third-generation nuclear technology importation, and launched related items in an effort to lay a sound basis for the importation, digestion and re-innovation of the technology.

Meanwhile, SNPTC has optimized the disposition of its internal resources and integrated its good external resources so as to accelerate the growth of China's nuclear power energy from a still higher starting-point thanks to the strategic readjustment and layout re-arrangement of its professional business.

The work of keeping up nuclear island negative pressures in the first phase project of the Sanmen Nuclear Power Plant in east China's Zhejiang Province, was commenced on Tuesday, or February 26, one month ahead of schedule,. This endeavor indicates the scheme for the development of China's third-generation nuclear power technology has entered the phase of the on-the-site implementation.

1.2 Earth and Environment

Sea level along coastal China to rise 0.032 meters in 10 years
(Xinhua Net, 2008-02-10)

The sea level along China's coastal areas will rise 0.032 meter in the next decade, according to a report by the State Oceanic Administration.

The average increase in sea level was about 25 millimeters (0.0025 meters) a year in the past 30 years, slightly higher than the world's average, according to the administration's 2007 Sea Level Bulletin, released early this month.

China's total sea level rise in the past 30 years was 0.09 meter. Among all the coastal areas, Tianjin saw the fastest speed of sea level rise, with a total increase of 0.196 meter, while Shanghai had a rise of 0.115 meters.

However, the sea level rise seems to have gained speed in recent years, as climate change intensifies. Meanwhile, coastal areas in both north and south China suffered more often from abnormal temperature rise and oceanic disasters, the Bulletin said.

"We need to work on plans to deal with sea level rise before it is too late," said Wang Pinxian, an oceanographer with Shanghai Tongji University.

He said it is less likely that any coastal cities will be submerged by the sea in near future, but China will need to tackle other problems resulting from sea level rise such as the back flow of sea water into underground water.

New Environment Protection Facilities Planned at China's Mega Three Gorges Dam
(CRI, 2008-02-18)

Environment protection measures are high on the agenda as China's gigantic Three Gorges dam project heads toward completion this year, said dam builders.

According to the ongoing work conference at the year beginning of the China Three Gorges Project Corporation, more environmental facilities will be built this year to deal with and guard against environmental problems in the dam area.

The facilities include the new Yingzizui water plant, Letianxi waste water processing factory, a processing ground to handle algae blooms and silt in dammed water and a breeding center for protected

fish species in the upper reaches of the river.

Plans have also been made to deal with cave-ins, debris slides and other geological hazards along highways that run through the area and to reinforce reservoir banks with more trees.

Li Yong'an, director of the corporation, told his staff that the success of the dam would boost China's pride and world standing. "As the world's largest hydro-power plant, the Three Gorges will attract wide attention from the international society this year when China rises to the center stage as Olympic host," he said.

Li urged staff to continue with the highest standards in building, operating and managing the project. "A top-quality and environment-friendly Three Gorges will bolster the international image of this engineering feat, and showcase China's accomplishments and the overall strength of the nation," he said.

The dam, which stands at 185 meters above sea level and holds 39 billion cubic meters of water, began construction in 1994 to tame periodic devastating floods on the Yangtze and generate clean energy.

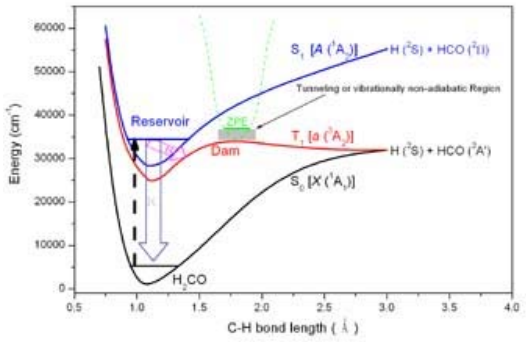
The 180-billion yuan project was built to reduce the threat of floods on the Yangtze from once every 10 years to once every 100 years. The cost is still 2 million yuan less than the economic losses incurred by the 1998 flood.

With five more sets of generators, each with a capacity of 700,000 kilowatt, the project has 31 generators which are set to be completed in 2008. But worries resurfaced over its environment impact, including algae blooms, landslides, trapped silts and clean water discharge.

Wang Xiaofeng, director of the office of the Three Gorges Project Committee of the State Council, or China's Cabinet, told Xinhua in November that "the dam's environmental impacts had been less damaging than feared and under control".

Latest statistics from the work conference show that the dam has effectively relieved flood pressure and provided 3.4 billion cubic meters of water to the lower reaches in the lean water season last year. It handled 60 million tons of cargo last year, up 10 million tons over 2006, and, together with Gezhouba dam, about 38 kilometers downstream, the dam has generated more than 77 billion kilowatt hours of electricity.

CAS chemist further reveals the photodissociation of formaldehyde
(CAS, 2008-02-19)



Dr. YIN Hongming with the CAS Dalian Institute of Chemical Physics has discovered two main reaction paths of formaldehyde's photochemical decomposition. His latest research progress, which was published in the first issue of China Science Bulletin in 2008, may shed new light on the reaction mechanism of its radical channel.

Formaldehyde is a prominent carcinogenic pollutant in the atmosphere. Its degradation is mainly realized by photodissociation, a chemical reaction involving sunlight in which molecules are split into their constituent atoms. A deeper understanding of its photo-chemical reactions and evolutionary course is of special significance in the control of air pollution.

The photo-decomposition is one of hot topics in the worldwide research endeavor to bring the atmospheric pollutants into control. In the eyes of chemists, formaldehyde is one "fingerprint" compound. Since 2003, Yin started probing such a downgrading process. "Although the molecular structure of methanal is quite simple (H2CO), its light-caused downgrading process is exceedingly complicated. After having absorbing ultra-violet ray, it may give rise to six photo-chemical or photo-physical processes, including two main decomposing processes which yield H2 + CO and H + HCO respectively," says Yin.

"Early studies on its photo-decomposition were concentrated on the wavelength between 330 and 345nm, leading to the reaction path which generates stable molecules of H2 and CO. During the latest decade, another reaction path yielding free radicals was taken into attention." he noted.

Prof. Yin made a series of comparative and systematic studies on the process when exposed to light with different frequencies, ranging from the ultra-violet ray to visible rays. His studies indicate, when displayed to visible rays, the hydrocarbon's decomposition is via its molecular path, yielding H2 and CO; while being exposed to ultra-violet rays, it embarks on its path of free radicals, yielding H and HCO. The radicals might be transformed into an air purifier HO2, forming an approach of the air's self-protection. From this, we might see that, the man-made control over its light-caused decomposition is not only may decimate the amount of formaldehyde in the air, but also conducive to the subsequent improvement of the air quality.

"My work for the next step is to probe the radical yield of the air purifier when methanal disintegrates under the sunshine. But, my work is not to be limited by it. My expectation is pinpointed at exploration of other kinds of air purifiers provided by nature," Prof. Yin concluded. "My ultimate goal is to develop a natural approach for air purification so as to help promote our country's effort to bring the mounting momentum of air pollution into control."

Chinese Meteorologists Warn of Severe Sandstorms, Spring Drought

(CRI, 2008-02-20)

The China Meteorological Administration (CMA) said on Wednesday that the country's northern regions were likely to experience more frequent and severe sandstorms in spring, while eastern regions would receive less rain than last year.

"Sandstorm days" were forecast to increase significantly in eastern Inner Mongolia and northern Heibei, with a rising possibility of severe occurrences.

Eastern regions could expect less rain. Some areas, especially parts of Jilin and Liaoning provinces, were prone to "relatively severe" drought in the spring. As a result, local forest management officials should raise the forest fire alarm level, said the CMA.

Meteorologists said that the adverse forecasts were related to the La Nina phenomenon and abnormal atmospheric circulation and would prevail until summer.

La Nina is a large pool of unusually cold water in the equatorial Pacific that develops every few years and influences global weather. It is the climatic opposite of El Nino, which is a warming of the Pacific.

The latest development of La Nina conditions was the cause of rare prolonged snowstorms and low temperatures that resulted in havoc in many parts of China during the past month, said experts.

Snow storms that hit 21 provincial-level areas in southern and central China, the worst in 50 years, killed 107 people and forced 1.5 million people to relocate over about one month. They also caused losses of 111.1 billion yuan (about 15.3 billion U.S. dollars), according to the Ministry of Civil Affairs.

"Losses caused by severe weather would keep rising if we cannot improve the weak points of weather forecasting," said Jiao Meiyan, the director of the National Meteorological Center.

She said that the forecast service should help prevent weather-related disasters. For example, the weather forecasters did predict heavy snow in many parts of China -- but they didn't anticipate how long the snow would last and how much would fall, or its impact on traffic and power supplies.

Meanwhile, she urged the authorities to step up the dissemination of weather information and raise public disaster-prevention awareness.

She suggested that power supply, traffic and construction departments should cooperate with weather officials to carry out feasibility studies on outdoor facilities to make sure they can survive harsh weather.

China Plans Manned Plunge to 7,000 Meters beneath Sea Level

(CRI, 2008-02-21)

China will test its deep-sea manned submersible that can reach as far as 7,000 meters below sea level, according to a government plan issued by the State Oceanic Administration.

Research on the manned submersible had been given "equal importance with China's space endeavors", said the administration.

Selection for the crew began in August 2006 will conclude by 2010. The country will also finish building a support vessel for initial tests during the same period.

The administration's plan also said China would finish building its first-phase deep-sea base project by 2010. It would be equipped for deep-sea natural resources inspections, as well as research and tests of equipment designed for deep-sea use.

China to build new network for monitoring changes in oceans' surface

(Xinhua Net, 2008-02-26)

China will build a four-level network for monitoring and evaluating changes in the surface of oceans this year.

While addressing an ongoing annual conference of the State Oceanic administration (SOA) held in Changsha, capital of central China's Hunan Province, SOA Chief Sun Zhihui said the network would be built on the basis of the country's existing systems for observing the oceans and making predictions.

Once completed, SOA will provide scientific data for development plans, said Sun.

"Our priority will go to construction of the forecasting agencies at the prefectural level, and great efforts should be made to expand offshore observation," said the official, adding "we must provide society with a quality forecasting service."

Construction of a comprehensive mechanism featuring marine climate changes response was also included on the work agenda for 2008.

A new initiative on Qinghai-Tibet Plateau flora in the pipeline

(CAS, 2008-02-26)

The initiation of a new project on the investigation and preservation of germplasm resources on the Qinghai-Tibet Plateau flora has been ratified by the Ministry of Science and Technology. Its launching meeting will soon be held in Kunming, capital of southwest China's Yunnan Province.

Under the title of "Investigation & Preservation of Wild Floral Germplasm Resources in the Specific

Habitat of the Qinghai-Tibet Plateau," the new initiative will be coordinated by Prof. SUN Hang, vice director general of the CAS Kunming Institute of Botany. Its participants will include researchers from 12 research bodies across the country.

On basis of the newly established Germplasm Bank for Wildlife in China's Southwest, the project will conduct investigation, collection and storage of floral germplasm samples and specimens indigenous to the Plateau. Its objectives include the construction of a complete system for keeping up and storage of the floral germplasm resources, which is to be composed of an integrative database and information-sharing platform, offering technical guarantee for utilization, protection and preservation of the resources as well as the safety of the national bio-resources of strategic significance, at the same time providing fundamental materials and scientific grounds for national decision makers.

Encouraging advancement of CAS geologists in lithosphere evolution
(CAS, 2008-2-27)

The research work of the State Key Laboratory of Lithospheric Evolution (SKLLE), which is affiliated to the CAS Institute of Geology and Geophysics, was spoken highly at a recent review meeting under the auspices of the National Natural Science Foundation of China (NSFC).

Established by NSFC on behalf of the Ministry of Science and Technology in 2005, the lab is engaged in basic research of the material composition, structure and evolution history of the continental lithosphere, and crust-mantle process and the basin-range systems, using multi-disciplinary integrated theories and methods of geology, geophysics, and geochemistry.

Over the past two years, according to the panel, the lab has done a good job in performing their research assignments with encouraging progress. Specifically, the research work plays a guiding role on advancing the studies of the destruction process of the continental lithosphere in North China, shedding new light on understandings of the transformation of the continental lithosphere.

In the aspect of the renovated crust, the researchers are targeted at the Huangtuling granulite in the northern section of Dabieshan Mountains sprawling at the juncture where the three provincial borderlines of Henan, Anhui and Hubei meet.

Taking the Huangtuling granulite in the northern section of Dabieshan Mountains as a case for study, the researchers identified six stages in the process of the granulite's metamorphic evolution, using a systematic scrutiny with means borrowed from metamorphosed petrology. In line with the obtained chronological materials, they proved that, the crust beneath the Yangtze plate has experienced a thickening stage and then a melting stage in its under-thrusting movement. In the mantle-remoulding tectonism of the lithosphere, the research focus was concentrated on the petrological studies of xenocrysts in pyroxenite, pyroxene groups and trapped bodies in olivinite embraced by the Cenozoic basalt in Shandong Province, revealing the interactive reaction between olivinite and its fuse-elements. Their work indicated the interaction itself resulted in the re-concentration of the mantle, eventually leading to the olivinite formations featuring high Mg content to transform itself into the olivinite

formations with low Mg content. The transformation is the main cause and telltale evidence for explaining the evolutionary history of the mantle beneath northern China's lithosphere when the latter underwent a transformative change from the mantle's Paleozoic infusible portion into a Cenozoic plump one.

1.3 Health

China breeds 2 more "fluorescent piglets"
(People's daily, 2008-02-19)

According to Science and Technology Daily, the Northeast Agricultural University reported that China's first green fluorescent protein transgenic cloned pig successful produced 11 piglets this past January. Among these 11 piglets, 2 carry green fluorescent genetic characteristics. As a result, the number of "fluorescent piglets" has doubled to 4.

In December 2006, from the transgenic cloned pigs project, chaired by Professor Liu Zhonghua from China's Northeast Agricultural University, three green fluorescent protein transgenic cloned pigs were delivered by natural birth. The successful birth of green fluorescent protein transgenic cloned pigs, this time around, reflects the development of China's transgenic pig reproduction by somatic cell nuclear transplantation technology.

Olive ingredient helpful for eye health
(CAS, 2008-02-21)

Although olives were used for medical purposes as early as more than 150 years ago, modern studies have constantly revealed the new properties of its extracted substances as a powerful antioxidant to treat an arrange of health problems.

Now a recent study by CAS researchers demonstrates a novel benefit of an olive ingredient -- hydroxytyrosol (HTS) -- to treat smoking-induced or age-related retinal pigment epithelial degeneration, such as age-associated macular degeneration (AMD).

A degenerative retinal disorder, AMD constitutes a major cause of blindness for the aged. Currently about 30 million people worldwide suffer from the disease. Epidemiological investigations find that smoking might be a major contributive factor to the crippling illness.

As reported by a recent issue of Journal of Neurochemistry, a research team led by Prof. LIU Jiankang from the CAS Institute of Nutritional Science (INS) and their colleagues from DSM Nutritional Products in Switzerland discovered in an in vitro lab study using cells from the human retina that HTS, a natural polyphenol abundant in olive oil, is a mitochondria-targeting antioxidant nutrient. Its dietary administration may be an effective measure in reducing and or preventing AMD.

Our work demonstrated that HTS could significantly protect acrolein-induced cellular toxicity in ARPE-19 cells, a cellular model for smoking- and age-related macular degeneration, notes LIU Zhongbo, lead author of the article and a PhD candidate at INS.

The feat is only a stage result of a cooperative project between INS and DSM on natural nutrients and aging and diseases. "We will try to go further with in vivo animal models and also possible for clinical trial in the future," Prof. LIU Jiankan was quoted as saying.

Studies on extremophiles fruitful

(CAS, 2008-02-22)

With the support of the Fund for Creative Research Groups of the National Natural Science Foundation of China (NSFC), researchers from the CAS Institute of Microbiology (IOM) started a 5-million-yuan three-year research project on life in extreme conditions one year ago. Now the studies are making encouraging progress, announced the annual conference of the project held on 21 January in Beijing.

An extremophile is an organism adapted to living in physically or geochemically extreme conditions, and most of them are microbes. They are believed to be home to an opulent and informative trove of messages and clues for the evolutionary saga of living beings, and knowledge gained from their studies could promote the understanding of life's paramount adaptability to the external world in extremities and defining the last frontiers of the living kingdom.

Therefore, in the eyes of microbiologists, the microbes contain a precious bonanza for probing and decoding the innermost mysteries in genetic puzzles and functional diversity of life itself. By laying bare the microbe's intrinsic characteristics and self-adaptive mechanism to the environment, scientists will be able to understand the origin of living beings on Earth and their developmental patterns, expound the formative mechanisms and driving forces giving rise to the multi-colorful world of bio-diversity and make clear the interaction between life and its ambience, including the correlation between life and geo-chemical changes in the environment. At the same time, the applications of the microbial resources at extremities will be promoted to the industries derived from bio-technology in a big way.

Just against such a background, a project entitled "live features of microorganisms in extreme environment and mechanism of their environmental adaptation," under the leadership of Prof. HUANG Li, director of State Key Laboratory of Microbial Resources at IOM, received the funding from NSFC in 2006. Since then, the project has been engaged in exploring the bio-diversity and related mechanisms of the microbes at extremities as well as their evolutionary laws, laying a solid foundation for their industrial applications.

Under the guidance of seven Principal Investigators of the project, the research team has already scored some significant achievements. Regarding the genetic mechanism and adaptation of microbes in the extreme environments, researchers made an in-depth study of a thermophilic and anaerobic bacillus that was separated from hot springs in Tengchong, southwest China's Yunnan Province. Its physical sequence has been mapped with the help of members of the research team. They precisely positioned the origins of its DNA duplication and made an analysis on its initiating and thermal-adaptation mechanisms under high-temperatures. The scientists also brought to light a possible coupling mechanism between the primer synthesis and its extension in the process of DNA duplication of a hyperthermophilic archae, and discovered a new chromosome protein of the ancient microorganism.

In the aspects of metabolic characteristics and extremity-loving physiology of the microbes, the research team made first report in the world on the genes involved in PHA synthesis in the extremely halophilic archaea, revealing a new formative mechanism in the microbe's sporation and made a crystalline analysis of the reductase in the sulfur-oxidizing process in which the extremely thermophilic bacteria take part. In addition, the scientists succeeded in obtaining some extreme enzymes of unique properties from the maverick bacteria.

China Gene Experts Search for Answers on Diabetes

(CRI, 2008-02-24)

Chinese scientists are trying to find out which errant genes are responsible for diabetes and certain forms of cancer that have long plagued Chinese populations, a geneticist said.

Rising affluence, richer diets and a sedentary lifestyle have led to an alarming rise in cases of diabetes in China in recent decades, while cancers of the esophagus, lungs, breast, stomach and colon have plagued Chinese people for a much longer time.

The state-funded Beijing Genomics Institute (BGI), which completed the mapping out of the first Chinese human genome in 2007, is trying to figure out which genes may be responsible for these chronic and even terminal illnesses.

"We are doing disease gene mapping, to find causal (gene) variants for certain diseases in Chinese populations," said Gao Yang, vice general manager of BGI's Shenzhen branch, which was mainly responsible for the sequencing of the first Chinese genome.

"We are most interested in diabetes and five types of cancer."

BGI is collaborating with Chinese hospitals on the cancer project and foreign institutions on diabetes.

"We will be sequencing DNA samples provided by hospitals," Gao told Reuters in a weekend interview.

Chinese doctors now rely on western data when making diagnoses and deciding on drug protocols, which Gao said was far from ideal.

"When deciding how to administer drugs to a Chinese breast cancer patient, for example, it's important to consider her genetic makeup. From diagnosis to drug dosage, it may be a very different story," said Gao.

"With our own data, we can have personalized medicine. Even if it's the same disease, you may need a different drug or dosage if you have a different genetic makeup."

Sequencing the Panda Genome

The institute is currently mapping out the genome of China's giant panda. "We may use the information to better protect this endangered species and understand its evolution," said Gao.

The institute also has its eye on a few infectious agents, such as the Hepatitis B and human papilloma viruses (HPV) that are especially problematic for Chinese populations -- although a better or faster cure may be decades away.

Asia is largely ignorant about Hepatitis B, the 10th leading cause of death worldwide. Chronic Hepatitis B affects 360 million people globally, and of these, 281 million are in Asia.

One in four will die from either cirrhosis, or scarring of the liver, or liver cancer later in life.

HPV is a major cause of cervical cancer.

"We want to develop better (and less expensive) detection tools. For now, HPV detection kits are very expensive and HPV infections mainly take place in poorer areas," Gao said.

"As for Hepatitis B virus, drug resistance is serious, so we need to design more sensitive and cost effective diagnostic tools. By sequencing the virus, we can see how it is mutating, so that better drugs can be designed," he said.

Experts say 10 percent of China's more than 1.3 billion population carry the Hepatitis B virus, with the figure reaching as high as 16 percent in certain parts in the south. China Gene Experts Search for Answers on Diabetes

China Achieves Informatization of Microbial Strain Resources
(MOST, 2008-02-27)

In building a platform for microbial strain resources in China, researchers developed a unified database system, 10 search websites and realized informatization of such resources under the auspices of MOST. Information of 112,000 microbial strains is available on those 10 websites for retrieval. The project improves the efficiency of sharing, evident in that the sharing of physical resources is up about 30% on average, and the sharing of information increases by 25%.

The 319th session of XSSC addresses public health
(CAS, 2008-02-28)

Under the theme of "problems and countermeasures for the public healthcare," the 318 Session of the Xiangshan Science Conferences (SXSC) was held from 26 to 28 February in Xinglin Shanzhuang Hotel nearby Xiangshan Hills in Beijing.

Co-chaired by Prof. LIU Depei from the Chinese Academy of Medical Sciences, Prof. SUN Jiulin from the CAS Institute of Geological Sciences and Natural Resources Research, Prof. YU Mengsun from the Institute of Aviation Medicine under China's Air Force; and Prof. YI Ling from the PLA General Hospital, the meeting invited experts and scholars from various disciplines to hold in-depth discussions on the following issues: major obstacles for achieving the public health security; problems and countermeasures for health security in communities in urban areas; and problems and countermeasures for health security in communities in rural areas.

According to experts, public healthcare is a major issue facing governments across the world. It is even difficult for developed countries to afford the increasing costs of a health service system that is focused on disease treatment. The task of the meeting is to probe ways of optimizing the social role of the limited healthcare resources in China, so as to make its people enjoy the basic health service as early as possible.

1.4 Key Technologies

Flagship project on smart nanocomposites starts at CAS
(CAS, 2008-02-14)

With the support of the Ministry of Science and Technology, a major research project on intelligent nanocomposites has recently kicked off in Beijing.

Led by Prof. JIANG Lei, its chief scientist from the CAS Institute of Chemistry, the project will mainly focus on the following three aspects: the signal recognition, smart regulation, driving mechanism and structural effects in life systems; new methods for preparing molecular systems capable of making smart responses and related mechanisms at the liquid/solid/and/gas interface; and principles for designing and assembling intelligent nanocomposites, their multi-scale synergy effects, their energy conversion and transport patterns, and new methods for their measurement and characterization.

With a budget of about 13 million yuan for its first two-year implementation, the five-year project is slated to produce new knowledge, new know-how and new materials for the sustainable development of smart materials, and the related technology transfer. It is expected to lay a solid theoretical framework for the new research area, bring up a batch of high-level research professionals, and

establish several research teams with worldwide recognition.

Homemade Chip to Serve China's Navigation System
(CRI, 2008-02-22)

A Shanghai technology company on Thursday unveiled the country's first homemade navigation chip, which is expected to be the heart of China's satellite-based navigation system, a local newspaper reported Friday.

The "Navigation I" chip, developed by Shanghai Fukonghualong Technology Co, can be applied on the country's homemade Beidou satellite navigation system, Shanghai Morning Post reported.

The Beidou system, mainly used for economic purposes, has played a significant role in cartography, telecommunications, water conservation, transportation, fishery, prospecting, forest fire monitoring and national security.

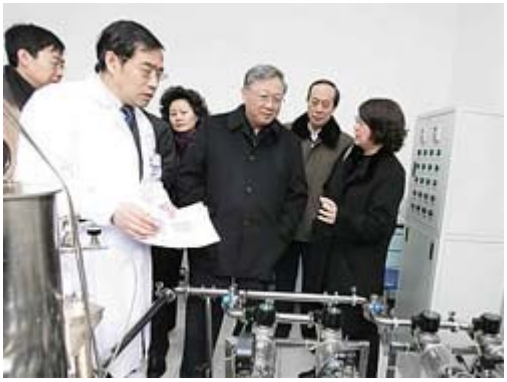
The system was developed domestically and has been studied since the 1990s. A trial system was completed in 2003, according to previous story.

China is one of the several countries in the world capable of developing such a system on its own.

The system can help clients know their location at any time and place with accurate longitude, latitude and altitude data.

It will be used in the coming Beijing Olympics to pinpoint traffic congestion and supervise venues along with the GPS and will also appear at the 2010 Shanghai World Expo.

Process engineering research sees a novel opportunity for development
(CAS, 2008-02-22)



While the process engineering industry contributes to more than one sixth of China's GDP, its energy consumption accounts for more than 50% of the national total. Promoting energy efficiency is an urgent task for researchers in the field, thus offering a new opportunity for its development. CAS President LU Yongxiang made the remarks during his recent inspection tour to the CAS Institute of Process Engineering (IPE) in Beijing.

Prof. Lu spoke highly of IPE's work in developing clean and high efficient conversion processes, its efforts in dealing with key issues for technology transfer, and its endeavor in capacity buildup for technique, process and engineering innovation. He encouraged the researchers there to stick to its features of process engineering in resource conversion and make fresh contributions to the industrial structure adjustment and technology upgrading in this country.

Process engineering is a common discipline serving all process industries, mainly investigating motion, transfer, and reaction of substances in physical chemical and biological conversion processes. Its major tasks involve the establishment of high-efficiency and clean technologies, processes and equipment, for solving key problems in the transition of experimental results to industrialization.

Aimed at such fields as biochemical industry, resources, environment, energy and materials, IPE is making efforts to intensify its capability of technology innovation, process design and engineering application so as to create research complex of process engineering and product engineering.

Particularly, the institute is devoted to understanding of various complex systems at different scales from molecular engineering to product and process engineering by emphasizing trans-disciplinary research and following the strategy from the particular to the general, targeting general methodologies and high technologies.

A major research project on nano-biology starts at CAS
(CAS, 2008-02-26)

Funded by the National Basic Research Program, a research project on the in-situ real-time nano-testing and characterization of single biomolecules and cells has recently been launched at the CAS Institute of Chemistry.

Headed by Prof. FANG Xiaohong, the project is targeted at cells of tumors and heart muscles with an objective of developing nan-obiology and nano-medicine.

With a budget of about 13 million yuan for its first two-year implementation, the five-year project is expected to provide scientific grounds for early diagnosis of some major diseases at the cellular level and offer a technical guarantee for promoting the high-speed and burgeoning development of nano-biology and nano-medicine in China.

1.5 Structure of Matter

Progress of Shanghai Light Project highly appraised
(CAS, 2008-02-26)

The recent progress scored for the construction of the Shanghai Synchrotron Radiation Facility (dubbed Shanghai Light Source Project or SSRF) in 2007 is of milestone significance, says CAS President LU Yongxiang, director of the Leading Group for the construction, during a recent inspection tour to the project in Shanghai.

Together with other members of the Group including its Vice Director HAN Zheng, Shanghai Mayor, Prof. Lu visited the project on 21 February. The team spoke highly of the achievements made by the project.

Launched on 25 December, 2004, the construction of the 1.2 billion yuan Project has been implemented by researchers from CAS Shanghai Institute of Applied Physics and their co-workers under the sponsorship of CAS, Shanghai municipal government with support from the State Council.

In 2007, after three years of hard work, CAS researchers were successful in realizing the 3GeV electron beam storage at the facility, a third-generation synchrotron radiation light source. They are able to see the long-waited synchrotron radiation beam lines.

When completed in 2009, the facility is expected serve a group of various academic disciplines, providing a platform for upgrading China's capacities in original innovation and key technological development.

1.6 Transport and Space

China to launch 10 satellites in 2008

(Xinhua Net, 2008-02-19)

China plans 10 space launches this year including the Shenzhou VII spaceship, according to a scientist from China's top space program research institute.

The 10 launches include two environmental satellites, a meteorological satellite and a communications satellite for Venezuela, according to Yang Baohua, head of the China Academy of Space Technology.

The launch of Shenzhou VII this year will spacewalk by taikonauts and lay the foundation work for China's space station construction.

The Huanjing-1A and Huanjing-1B, together with a third satellite to be launched next year, will shape China's first small satellite constellation for disaster monitoring. The constellation will enable scientists to conduct all-weather, 24 hour monitoring and forecast on the environment and natural disasters.

Yang said the country is also planning to send a record number of satellites into space in the next five to 10 years, but failed to mention the exact number.

China has sent an average of eight satellites into space annually during the first two years of its 11th five-year-plan (2006-2010), and the number was 1.5 before its ninth five-year-plan (1996-2000).

The mission for China's space administration in the coming five to 10 years will include a lunar landing, building a space laboratory and doing preparatory work for the third stage of China's moon exploration -- to bring back lunar soil.

China's space vehicles now are more reliable with a longer lifespan, said Yang, citing that the latest generation of communications satellites will last for 15 years or more.

The Academy has made breakthroughs in many areas including satellite recovery, geosynchronous communications satellites, and manned space flight and moon exploration technology in the past 40 years, Yang said.

China Academy of Space technology has designed most of China's satellites, including the Shenzhou spaceships. By last December, the country had designed and manufactured about 80 space vehicles.

Installment of Telescope Array Completed at Dome A

(CRI, 2008-02-20)

Astronomers of the Chinese Academy of Sciences (CAS) with the 24th Antarctic expedition team have erected an array of four 14.5-centimetre telescopes called CSTAR (Chinese Small Telescope Array) on Dome A in the Antarctica. The equipment was sent to the South Pole by the antarctic research vessel "Xuelong," or "Snow Dragon", which set sail for the region on Nov. 12, 2007 from Shanghai.

A brainchild by the CAS Nanjing Institute of Astronomical Optics and Technology, CSTAR is the first set of optical astronomical facilities in the region, which will be used by a robotic observatory named PLATO to hunt for alien planets. PLATO, which incorporates instruments from China, the U.S., and the UK, was built at the University of New South Wales in Sydney, Australia. It is powered by a gas generator, and has a 4000-litre tank of jet fuel to keep it running through the lingering winter there.

CSTAR is slated to monitor a 20-square-degree patch of sky -- about 100 times the area of the Full Moon -- for four months straight. It will search for planets around other stars by looking for a star's dimming light caused by a planet passing in front of it as seen from Earth.

Dome A claims the best astronomical sky conditions in the world, as it is devoid of clouds and boasting steady air that makes for clear viewing. The observatory will also measure the observing conditions at the site to see if it is worth trying to build bigger observatories there.

In the meantime, preparations for larger projects for Antarctic observation are underway. The short-, mid-, and long-term plans of the Antarctic Astronomical Center of China involve building a 35cm testing telescope and a prototype of wide filed survey telescope XIAN in about two to three years; a 400 telescope array with 50cm aperture XIAN and a 2-m LAMOST type survey telescope in about five to eight years; and an 8-16m LAMOST type telescope in about 10 to 15 years.

Preparations for the Launch of Shenzhou VII

(CRI, 2008-02-20)

China has successfully resolved the key matter of the space walk for its manned Shenzhou VII's mission this year, a scientist from China's top space program research institute was quoted as saying in a TV report.

Yang Baohua, head of the China Academy of Space Technology, told China Central Television on Tuesday that the air lock module on Shenzhou VII has been proved effective in a joint ground verification experiment along with taikonauts in space suits for spacewalks.

The air lock module will work as a transfer station that will allow taikonauts to walk outside and inside the spacecraft with adaptable air pressure.

China's manned Shenzhou VII spacecraft will lift off at the Jiuquan Satellite Launch Center in western China's Gansu province this year, carrying three taikonauts. It will mark another milestone in China's manned space flights history.

As taikonauts have successfully carried out spacecraft operations and were able to take care of themselves in the capsules during the two previous missions, Shenzhou VII taikonauts will take on more initiatives during the flight. The new situation will raise higher requirements for their technological proficiency, physiques and ability to stand more pressures.

The Shenzhou VII manned spacecraft China independently developed boasts technologies that are approaching or exceeding that of the international third generation spacecrafts, according to early media reports.

The Shenzhou VII consists of three cabins, the orbiting cabin, returning cabin and propelling cabin. The returning cabin has a diameter of 2.5 meters, which is the largest in the world so far.

After the cabin returns to earth, the orbiting cabin will stay in orbit for several months to continue space exploration and technical experiments.

Throughout Shenzhou VII's launch and experiments during the space flight, China will make great breakthroughs in the key technologies regarding taikonauts' activities out of the spacecraft. This is meaningful for China to build its own space station in the future.

Chinese researchers are busy working on the launch of the manned spacecraft, Shenzhou VII, and people can view the space-walks on television.

China to launch Chang'e-2 lunar probe around 2009

(Xinhua Net, 2008-02-22)

China plans to launch its second lunar probe, Chang'e-2, around 2009, according to a top satellite scientist.

Ye Peijian, chief commander and designer of China's first moon probe satellite system, revealed the plan during an interview program on CCTV, China Central Television.

However, Ye did not elaborate on the plan with more details.

He said Chang'e-1, the country's first lunar probe, had resumed contact with the control center after it moved out of the shadow area caused by an eclipse of the sun at about 14:10 on Thursday.

From about 10:00 a.m. on Thursday, the satellite was blocked from the supply of solar energy when the Earth eclipsed the sun and lost the contact with the control center.

Scientists redirected the orbit of the satellite before the eclipse started.

"Chang'e-1 passed the test," Ye said, adding that when blocked from solar rays, the probe consumed only 40 percent of the battery power rather than the predicted 60 percent under a temperature of minus 100 degrees Celsius.

The satellite will perform another orbital adjustment while preparing for a second eclipse in August, he said.

The 2,350-kilogram satellite carrying eight surveying facilities aims to make a three-dimensional survey of the moon's surface. It will also analyze the abundance and distribution of elements on the lunar surface, investigate the characteristics of the powdery soil layer on the surface, and explore the environment between the Earth and the moon.

China's moon mission also includes a landing of a rover vehicle around 2012 and the launch of another rover that will land and return to the Earth with lunar soil and stone samples for scientific research around 2017.

China to carry out first space-walk in late 2008

(CAS, 2008-02-28)

China plans to carry out its first space-walk in second half of the year, an official of the nation's manned space program said here on Thursday.

The Shenzhou VII spacecraft will be launched from the Jiuquan Satellite Launch Center in the northwestern province of Gansu latein the year and the astronauts will leave their spacecraft for the first time, the official told Xinhua.

The spacecraft will also release a small inspection satellite, which monitors its own performance.

Breakthroughs have been made in significant techniques related to the spacewalk. Research into the development of spacecraft and rockets has been going smoothly, and astronauts have undertaken extensive training, according to the official.

The Shenzhou VII mission will start the second phase of China's three-stage space program, said the official.

In the second stage, China plans further breakthroughs in manned space flight, such as space walks and docking of the capsule and space module. In this phase, China will put into orbit a space laboratory staffed by humans for short periods and establish a fully-equipped space engineering system.

In the third stage, China will build a permanent space station and a space engineering system. Astronauts and scientists will travel between the Earth and the space station to conduct large-scale experiments.

China began its manned space program in 1999. It successfully sent Yang Liwei into orbit on the Shenzhou V spacecraft in 2003.

Two years later, Fei Junlong and Nie Haisheng completed a Chinese record of five-day flight on the

Shenzhou VI. All returned safely.

2 News from Universities

Chinese college students to participate in arctic exploration

(People's Daily, 2008-02-17)

Ten Chinese college students have been chosen to join in a Chinese-Norwegian arctic exploration at the end of the month. In a final contest for choosing the expedition members held in Dalian, a port city in northeast China, on Saturday, ten college students from 8 universities across the nation won the opportunity among 30 candidates.

Since nation-wide contests were launched in December of last year, a total of more than 3,000 college students have applied for the expedition who had taken tests on physical, language and arctic knowledge as well as survival and scientific research abilities.

The chosen Chinese students will participate in the exploration to be held in Svalbard Islands for two weeks. They will carry out respective researches on biology, astronomy, physics, geography, climate and cultural issues in Chinese arctic Huanghe Station.

They will also visit the University of Svalbard of Norway to attend training program and exchange activities.

Two of the ten teammates are students from the University of Hong Kong and the Hong Kong University of Science and Technology.

The exploration has been co-sponsored by International Polar Year(IPY) 2007-2008 China Programme and the Ministry of Foreign Affairs of the Kingdom of Norway.

Chen Lianzeng, vice director of China's State Oceanic Administration, said that the exploration will encourage more Chinese to pay attention to climate change and environmental issues of the earth.

3 Innovation Management

China enhances scientific and technological innovation

(People's Daily, 2008-02-01)

China has achieved new breakthroughs in its scientific and technological innovation; and applied a medium- and long-term framework for national scientific and technological development in 2007.

On March 1, 2007, the major scientific project, the "EAST superconducting experimental Tokamak fusion device," was inspected and approved, bringing China to the forefront of superconducting fusion experimental device technology.

On December 21, 2007, "Xiangfen," the first turbofan jet feeder liner with independent intellectual property rights, rolled off production lines. China achieved a milestone in independently developing airplanes.

On December 22, 2007, China independently developed its first motor coach train with speeds reaching 300 km/h. China has joined several countries which have independently developed 300 km/h motor coach trains.

From the Dawning 4000A High-Performance Computer, to China's first high-performance server safety standards; and from China's first approved, general-purpose Godson CPU chip verification to the "Chang"solar-powered cell phone; achievements in scientific and technological innovation have enhanced China's determination and confidence in the independent innovation and development of the nation's information industry.

Top priority: promote fast and sound development

In 2007, China focused on energy-savings, emissions reduction and promoting information technology in its sci-tech development; and transformed and promoted fast and sound economic development. The state fulfilled its goal to shut down 10 million kW in heavily polluting and high-energy consuming small thermal power units, two months ahead of schedule. And, for the first time, China doubled the reduction of the emissions from two major pollutants.

In 2007, China incorporated science and technology into the construction of its economy and laid emphasis on manufacturing equipment. The nation promoted the informationization of the manufacturing industry; and used modern information technology to transform and upgrade traditional industries. As more achievements are made in developing chips, software, and technological innovation, China has substantially improved the quality of its CNC center: the core components of machines. The import growth of mid- and high-end CNC machines decreased from 40% to 10%. China gradually became a major exporter of CNC machinery.

China also procured biotechnology in order to catch up in the development of high-tech industries. It stepped up research and development. In 2007, the value of industrial biotechnology output exceeded 460 billion yuan. Achievements in biotechnology research such as genetic engineering drugs, vaccines, and diagnostic reagents, have triggered major changes in the medical industry.

Achievements benefit millions

In 2007, China developed science and technology to improve people's lives. The achievements made through scientific and technological innovation benefited hundreds of millions of people.

China cultivated more than 800 new crop varieties in 2007. The average growth of a crop yield exceeded 10%; and the cumulative area surpassed 5 million mu.

China introduced a food production project, using new technologies, to develop more than 150

high-yield techniques for growing rice, wheat, corn, soybeans and other major crops. In 12 major grain-producing provinces, China allocated 150 million mu of land for pilot projects and demonstrations. There were 20.4 million tons of cumulative crop yields; and profits exceeded 30 billion yuan.

In 2007, China intensified R&D, ecological management and environmental protection. The Hefei Institute of Material Science, under the Chinese Academy of Sciences, developed a treatment for organic wastewater: it can make nitrogen, phosphorus and algae flocculate in only 3 to 5 minutes. The water quality after treatment meets discharge standards. In addition, the state has invested more than 100 billion yuan to launch pollution control and water treatment projects. Great efforts have been made to identify the major technical issues surrounding safe drinking water; to strengthen watershed and environmental management; and control urban water pollution.

4 China's International Science Cooperation

China, Germany seek green energy co-op

(Xinhua Net, 2008-02-01)

Sino-German collaboration on renewable energy can set a good example for other countries, a senior official with the National Development and Reform Commission (NDRC) said Thursday.

China and Germany should expand cooperation to promote the use of renewable energy and achieve more sustainable development, Wu Guihui, deputy director of the energy bureau of the NDRC, told an energy forum.

"It (use of renewable energy) is really important now as China is making great efforts in energy saving and environmental protection," he said.

China is improving energy efficiency and using more renewable energy sources, and thus playing an important role in combating global warming, said German Environment Minister Sigmar Gabriel.

As big energy consumers the two nations can expand cooperation in environmental technology, he said.

As the world's fastest growing major economy, China has set a target of cutting energy consumption per unit of GDP by 20 percent and pollutant discharges by 10 percent from 2006 to 2010.

The world's second-largest energy consumer is also making increased use of renewable energy such as wind and solar power. The government has set a target of raising the ratio of renewable energy in its total energy mix to 10 percent by 2010 and 15 percent by 2020. Renewable energy currently accounts for 8 percent of the total energy consumption.

In some sectors such as wind power, China has seen over 100 percent annual growth in the past three years.

A total investment of 2 trillion yuan is needed to meet the renewable energy target by 2020, according to the NDRC, the nation's top economic planning body.

The Chinese market provides major opportunities for German companies, said Jurgen Heraeus, a representative of the Federal Association of German Industry. Leading wind power company Nordex, for example, has seen over 50 percent annual growth of its business in China.

Several German energy majors said they are keen on China's energy sector. Siemens earlier said it plans to inject half of its 10 billion yuan mid-term investment in China into energy-saving and

environmentally friendly technologies.

China to Work with BioMerieux in Upgrading Anti-infection Network
(CRI, 2008-02-18)

China is to work with French diagnostic reagent giant BioMerieux in upgrading the country's hospital infection prevention system, according to a project plan signed in Beijing on Monday.

China's Ministry of Health (MOH) and BioMerieux will improve virus infection prevention network in hospital through training, formulating joint standards, providing anti-virus tests and constructing information networks, according to the project plan.

"The project will enhance the cooperation between clinical section, microbiology labs and infection management departments in hospitals, organizing training and stipulating guidelines for doctors and nurses, and a DNA database will be established for clinical reference," said Guo Yanhong, an official with MOH.

According to the statistics of MOH, the infectious rate in Chinese hospitals is about 5 percent and most infectious cases happen in intensive care units, hematology clinics and wound-healing clinics.

Guo Yanhong attributed China's infectious cases to patients and nurses' insufficient knowledge of hospital infections, relatively backward facilities and techniques, and slow test speed.

The project will be launched in nine state-level hospitals in Beijing and Shanghai municipalities and Hunan and Guangdong provinces.

5 Miscellaneous

Vice premier encourages scientists to further explore polar regions
(Xinhua Net, 2008-02-04)

Vice Premier Zeng Peiyan called on Chinese scientist to further explore ocean and polar regions on Monday.

Zeng, who was visiting the State Oceanic Administration in Beijing, extended greetings to the expedition team stationed in polar regions.

The heavy snow in China in recent weeks had made people realize more about the importance in exploring and understanding the laws of nature to adapt to the extreme climate changes, he said.

"In the past year, China has made progress in exploring the oceans and the polar regions. In the new year, we should extend greater support to this field and speed up the exploration of the oceans and the polar areas."

He encouraged the scientists to make more contributions to the peaceful utilization of polar areas and a coordinated development between human being and nature.

Chinese scientists left Shanghai on Nov. 12 for the country's 24th scientific expedition to Antarctica since 1984.

China also conducted two Arctic expeditions and built the Huanghe (Yellow River) exploration station there in 2004.

Father of China's space program crowned among "Inspiring People" of 2007
(People's Daily, 2008-02-18)

Qian Xuesen, regarded as father of China's space program, has been named one of the 11 people that inspired China the most in 2007, according to the China Central Television (CCTV).

The 11 people were selected according to audience votes and opinions of a special committee that consisted of television hosts, college professors and popular movie stars.

Qian was a member of both the Chinese Academy of Sciences and the Chinese Academy of Engineering. Last year marked the launch of the country's first lunar probing satellite Chang'e-1.

The list of inspiring people of 2007 also includes Min Enze, the winner of State Highest Science and Technology Prize, and Meng Xiangbin, a 28-year-old soldier who drowned while trying to save a girl who threw herself into a lake to commit suicide.

Over the past six years, the CCTV program of "Inspiring People" has given honors to more than 60 persons.

Chinese First Test Tube Baby to Celebrate 20th Birthday
(CRI, 2008-02-26)

China's first test tube baby Zheng Mengzhu will have her 20th birthday this March.

"I feel just a normal person, despite being a little bit high-tech," said Zheng on her birthday party held a few day ahead of her real birthday on Monday in Beijing.

Zheng, born on March 10, 1988 in the third affiliated hospital of Beijing University, made a trip to the laboratory of Health Science Center of Beijing University where she was "created".

"It was magic. I'm too lucky, "Zheng said.

Zheng's mother Zheng Guizhen, from northwest China's Gansu Province, was 39 years old in 1988, and had tried for 20 years to become pregnant.

The test baby research started in December 1984. Zhang Lizhu, the leading doctor of the test tube baby researching team at that time, and her team spent three years on the project.

The new life turned out to be very healthy. The 52 centimeters tall new born baby weighed 3.9 kilograms.

"It was technology which endowed me with the right to be a mother," Zheng Guizhen said.

The girl was named Mengzhu as Meng indicates that she was the very first while Zhu was picked from the doctor Zhang Lizhu's name as a tribute.

Now the little baby has grown up to be a healthy beautiful little girl and went to college as an English major in Xi'an, capital of northwestern Shaanxi Province.

The world's first test tube baby was born in July 1978 in Manchester, England. When Zheng was born, over 6,000 test tube babies had been born throughout the world.

Test tube baby technology in China has been highly developed in the past two decades, said Zhang Lizhu, who was called the mother of Chinese test tube babies.

According to her, up to 2004, China had 10,000 test tube babies. Now, 130 productive centers have been built over the country, where between five and eight percent of couples cannot conceive.

Official Confident of Kindling Olympic Torch on Mt. Qomolangma
(CRI, 2008-02-27)

A leading science and technology official of the Chinese capital said he is confident of kindling the

Olympic torch on Mt. Qomolangma.

Ma Lin, director of the Beijing Science and Technology Commission, made the remarks in a live radio program Tuesday, known as Urban Zero Distance.

He noted that it would be a challenge to kindle the torch on Mt.Qomolangma, where the normal wind speed is about 17 meters per second and temperatures often dip below minus 30 degrees Celsius.

The outstanding problems include: whether the torch could be kindled, if the flame could be stably broadcast on TV, what to do about pollution caused by the combustion, and safety issues.

The commission had organized several scientific institutes to test the kindling process, with three successful trials.

Experts from Ma's commission have also conducted lab tests based on conditions of a maximum wind speed of 30 meters per second and a temperature of minus 45 degrees Celsius.

China's top 10 events in basic research in 2007

(CAS, 2008-02-29)

Under the joint auspices of the Ministry of Sciences & Technology (MOST) and China Association for Science & Technology, more than 1,600 Chinese scholars including CAS and CAE members, chief scientists of the National Basic Research Program (dubbed 973 Program) and directors of national key labs, have voted for China's top 10 events basic research in 2007.

Among 197 candidate items, 11 were selected this year, among which “Successful launch of Chang'e-1 and collection of clear images of lunar surface” comes out first place.

China's top 10 news stories about advances of basic research in the past year include:

1. Successful launch of Chang'e-1 moon probe and collection of clear images of lunar surface;
2. Experimental breakthrough in multi-photon entanglement and optical quantum computation;
3. Research advancement in exploring the fracturing mechanism of amorphous materials;
4. Discovery of fossil embryos in rocks predating earliest yet animal records;
5. A new 24-faced platinum nanocrystal catalyst developed;
6. A six-nucleotide insertion-deletion polymorphism in the CASP8 promoter approved to be associated with susceptibility of several cancers;
7. The role of dopamine-mushroom body circuit in regulating saliency-based decision-making of fruit fly revealed;
8. Signaling protein β-arrestin 1 uncovered as an important force in regulating the level of CD4+ T cells;
9. Giant panda found to still possess high genetic diversity and evolution potentials; and,

10-A. Negative birefraction of acoustic waves are successfully triggered in sonic crystal;

10-B. The dissolved inorganic carbon in the global water cycle identified as a potential important CO2 sink.

As the last two have got an equal vote, they are claimed to rank tenth concurrently. ZHANG Xian'en, Director General of Basic Research Department of MOST, says these advances have confirmed China's sustainable innovation capability and further shortened the gap in S&T innovation with the developed countries.

6 International workshops in China in April

2008 IEEE International Conference on Networking, Sensing and Control
Date: April 6 – 8 **City:** Sanya, Hainan Province
http://cil.ece.uic.edu/ICNSC08/

IAU Symposium 252
Date: April 6 – 11 **City:** Sanya, Hainan Province
http://iaus252.bao.ac.cn/

International Symposium on Advances in Computer and Sensor Networks and Systems
Date: April 7 – 10 **City:** Hangzhou, Zhejiang Province
https://cow.cs.memphis.edu/symposium/

International Symposium on Insect Midgut Biology
Date: April 7 – 11 **City:** Guangzhou, Guangdong Province
http://www.midgutmeeting.org/index_en.htm

The 10th South China International Congress of Cardiology (SC-ICC)
Date: April 10 – 13 **City:** Guangzhou, Guangdong Province
http://www.sc-icc.com/en/General%20Information.shtml

The 12th International Conference on CSCW in Design
Date: April 16 – 18 **City:** Xi'an, Shaanxi Province
http://198.20.44.104/cscwd2008/

International Symposium on Crop Modeling and Decision Support
Date: April 19 – 22 **City:** Nanjing, Jiangsu Province
http://www.klia.cn/iscmds/

International Conference on Condition Monitoring and Diagnosis
Date: April 21 – 24 **City:** Beijing
http://www.cmd2008.com/

First International Conference on Transportation Infrastructure
Date: April 24 – 26 **City:** Beijing
http://www.jtzx.net.cn/icti/

Society for Integrative Oncology (CIO): Shanghai International Symposium: Integrative Oncology Theory, Research and Practice
Date: April 25 – 26 **City:** Shanghai
http://www.siosh.org/en/index.asp

Abbreviations

CAS - Chinese Academy of Sciences

MOST - Ministry of Science and Technology

CRI - China Radio International