

Content

Science News from Chinese Media in September 2007
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Helmholtz News Concerning China

At the morning of the 4th September, “Helmholtz Sino-German Research Laboratory for Cancer” was unveiled officially in Tangdu Hospital, Xian. It is one of the cooperation projects between the



German Cancer Research Centre (DKFZ) and the Fourth Military Medical University (FMMU). Prof. O. Wiestler, Chairman of the DKFZ director board and Helmholtz Vice President for health research signed two agreements with Prof. Daiming FAN, President of FMMU and Prof. Yongsheng Zhang, President of the Tangdu Hospital. FMMU is one of the top medical universities in China and Tangdu Hospital, an affiliate to FMMU is the largest dedicated hospital for cancer diagnosis and treatment in West China.

Prof. Wiestler was quite impressed by the fast construction speed of the central China city and its research infrastructure. During his visit to the Xian Hightech Development Zone, he was shown to a very modern facility with updated instrumentations for developing new drugs from nature products. It is noticed that behind the doors the newly finished laboratories are mostly unoccupied.

During 20th -26th, Prof. S. Chhatwal and Dr. Rohde from the Helmholtz Research Centre for Infection paid a visit to Beijing and Shanghai. They tried to identify their Chinese collaborators for streptococcus. This group has made outbreak discovery, why some 5% streptococcus may lead to rheumatic heart diseases. They are now trying to look into the genomes of some Asian strains with their Indian and Chinese partners. With the help of the Helmholtz Beijing Office, they are very satisfied with this trip. They will work out a programme for working together with the Chinese groups.

On the 23rd and 24th Sept. the LOICZ Yantai TaLOIRS Workshop was held in Yantai, Shandong Province. LOICZ stands for Land Ocean Interactions in the Coastal Zone. LOICZ has its international project office in GKSS, Germany and therefore four GKSS colleagues attended this workshop and each of them made a presentation. Dr. Hong HE, Helmholtz Representative in Beijing



attended this activity and witnessed the signing of cooperation agreement between the coastal research institute, GKSS and Yantai Institute for Coastal Zone Research for Sustainable Development (YIC), represented by both directors Prof. F. Colijn and Prof. Ping Shi. YIC is one of the 6 newly established institutes in the Chinese Academy of Science (CAS). YIC will be expected to expand to 300 staff in the coming years from the present 80 people. It is agreed that the GKSS coastal

research institute will help train the young staff and identify the research fields.

Two Helmholtz colleagues, Dr. Dannenberg from Berlin and Dr. Heinze from Helmholtz Moscow Office have visited Beijing. Together with Dr. HE, they have visited the China Scholarship Council and the Chinese Academy of Sciences. Discussions were made concerning the improvement of the ongoing student programme with CSC and reinforced cooperation with CAS.

Helmholtz Beijing Representative Office

1 Science News

1.1 Energy

China to invest 2 tln yuan on renewable energy

(China News, 2007-09-05)

On September 4, 2007, China released its long-term plan on renewable resource development, saying that by 2010, renewable energy will take up 10% of its total energy consumption. By 2015, the proportion will increase to 15%, and a complete renewable industrial and technological network with independent intellectual property rights will be set up to meet the great demand for energy in the domestic market.

In the next 10 years, the Chinese government will take measures to maintain market order, and implement favorable policies for the industry. It is estimated that at least 2 trillion yuan will be needed.

By 2020, due to the wide use of renewable energy like hydropower and windpower, the emission of carbon dioxide and sulfur dioxide will be cut by 1.2 trillion tons, not to mention that it will also protect millions of trees. Besides, the new industry will offer at least 2 million job openings.

Provinces vie for the right to build first inland nuclear power plant

(China News, 2007-09-11)

At present, about seven Chinese provinces have applied for the right to set up the first inland nuclear power plant. They include Anhui, Jiangxi, Hubei, Hunan and Sichuan along the Yangtze River region, Jilin in the northeast, and Gansu in northwest China.

All the five provinces along the Yangtze River region are grouped as provinces in the central part of China. At present, only Shanxi Province in this region has not proposed any plan for nuclear power plant construction. Compared with provinces in other regions, it is said that provinces located near the Yangtze River region have the most favorable conditions for obtaining the right to build the first inland nuclear power plant. However, so far, the State Development and Reform Commission has not approved any of the applications submitted by them.

A forum on nuclear power exploitation and construction was held in Wuhan on last Sunday. At the forum, executive vice governor of Hubei Province, Zhou Jianwei, said the provincial government had attached great importance to the nuclear power construction project, that it would work hard to support its nuclear power construction project and try to win the bid to become the first inland province to build a nuclear power plant.

Early in 1988, Hubei local government carried out an inspection work to choose an ideal site for the nuclear power plant. In the initial stage, the government chose 20 sites and later they reduced the potential sites to five. In June 2004, it finally chose Dafan (in Xianning city) as the site to build the nuclear power plant. In October 2004, the local government finished its nuclear research program and submitted the program proposal to the State Development and Reform Commission. Hubei thus become the first inland province to submit the nuclear power project proposal.

Hubei has a relatively short supply of energy resources. Its production of primary energy is rather small and the energy it has produced can rarely meet the demand for it. There are four ways to solve the energy shortage problem in Hubei: to buy more coal resources from other provinces, to develop hydropower, to

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buy more power from other provinces, and to develop the nuclear power. If Hubei can build a four-million-kilowatt nuclear power plant before 2020, it will save 18 million tons of coal resources every year. Construction of the nuclear power plant can also diversify the energy resources in Hubei, said Xiao Yunbao, director of the Hubei Provincial Nuclear Power Office.

China's growing trend to develop nuclear energy (China News, 2007-09-11)

Nuclear energy is a clean energy. China might improve its energy structure by promoting the use of nuclear energy, said experts and scholars who attended a forum on nuclear energy exploitation and construction held in Wuhan on Sunday.

As China has further developed its economy in recent years, how to solve the environmental pollution problem has become a serious issue. At present, China is implementing a strategy that aims at conserving energy and reducing emissions. The Chinese government requires that by 2010, all the 12 provinces and regions which witness a fast economic growth should reduce their chemical oxygen demand and the emission of sulfur dioxide. For cities unable to meet related standards, the central government will stop them from developing new projects. In addition, the Chinese government will also raise the threshold of thermal power plants, said Pan Ziqiang, an expert on nuclear radiation prevention and an academician at the Chinese Academy of Engineering.

China has also reached its full capacity of exploiting hydropower resources. China is developing the Three Gorges project along the Yangtze River. In Hunan, a province with rich water resources, it is said that 80% of the water resources there have been exploited. However, with regard to nuclear materials, related exploitation work has just begun. Experts predict that China has 1.7 million tons of uranium deposit, a key material for developing nuclear energy. In China, large uranium mines that have over 10,000 tons of uranium resources each have also been found, Pan said.

Compared with traditional energy resources, such as coal and water, nuclear resources cause only small environmental pollution. The emission released by nuclear material is only 1% of that of coal. Its production cost is also a little bit less than that of coal and water, Pan said.

While thermal power has caused heavy pollution and the hydropower exploitation has reached its full capacity, China has to change its energy structure by developing more nuclear power projects if the country wants to further develop its economy, Pan noted.

His points are echoed by Yang Qi, chairman of the Sichuan Provincial Nuclear Association. He said that four one-million-kilowatt nuclear power sets could generate power equal to a thermal power plant with six million kilowatt generation capacity. According to him, if the thermal power plant is replaced by the nuclear power plant, about 18 million tons of coal resources can be reserved and 30,000 tons of sulphur dioxides will be reduced in the atmosphere. Nuclear energy, as well as coal and oil, have been ranked as three major energy resources in the world. Nuclear power plants are highly effective in energy production and the energy they make is clean, safe and economical. In many developed countries, nuclear energy has been exploited in a far greater extent than in China. Developing nuclear energy will become an inevitable trend in China, Yang said.

Heliostat Installed on Solar Power Tower Experimental Plant (MOST, 2007-09-17)

An experimental heliostat has been recently installed on a demonstration system for solar thermal power

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generation technology, a key 863 project during the 11th Five-Year Period. The project aims at building an experimental platform for 1MWe solar thermal power generation system.

The plant adopts the approach of "light-heat-electricity", with the 10,000 m² heliostat concentrating solar power on the receiver located on the tower to produce steam and thus drive the operation of the turbine generator.

China to enter "wind power era" before 2010, expert says

(People's Daily, 2007-09-20)

China will enter an era in which wind power will be fully developed by 2010, an expert said on Wednesday.

He Dexin, president of the Chinese Wind Energy Association (CWEA), said the gross installed power-generating capacity would reach 5,000 megawatts by the end of 2010, ahead of schedule.

He made the statement at the "Solar World Congress 2007" which opened in Beijing Tuesday with nearly 1,000 experts from more than 60 countries present.

He laid out a road map for the country's wind power development:

- After 2010, China will independently design and manufacture a wind turbine generator system.
- The country's wind power-generating capacity will reach 30,000 megawatts before 2020, and will head towards a 50,000-megawatt goal.
- The cost of wind power will be close to that of traditional power generating methods at the time.
- The capacity will reach 100,000 megawatts in 2030 when wind power will be extensively applied in various industries.

Statistics from the CWEA show China had 91 wind farms with a total installed capacity of 2,599 megawatts at the end of 2006.

Shi Dinghuan, president of the Chinese Renewable Energy Society, said at the congress on Tuesday that renewable energy may contribute 30 percent of China's total energy supply by 2050.

China to increase solar water heater coverage by 50 pct by 2010: report

(People's Daily, 2007-09-21)

The coverage of solar water heating systems in operation in China will reach 150 million square meters in 2010, an increase of 50 percent from the current level, a report from the country's top planning authority predicted.

The Energy Research Institute (ERI) of the National Development and Reform Commission (NDRC) submitted a report on "Renewable Energy Markets and Policies in China" to the on-going "Solar World Congress 2007" here on Thursday.

China accounts for more than half of the world's solar-heated water consumption as well as for half of the world's annual output of solar water heating systems, the report said.

By 2006, the coverage of solar water heaters in operation in China hit 100 million square meters, benefiting about 200 million people. The annual production capacity has reached 20 million square meters in 2006, up 20 percent on the previous year, according to the report.

The report also noted that, except for solar water heaters, solar-powered appliances are developing in China, including solar energy heating and cooling devices, solar energy air-conditioner systems and seawater desalination systems.

The ERI's deputy head Li Junfeng said China would continue to promote and popularize the integration of

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solar energy equipment into the design and construction of houses. Solar water heaters will also enter more households in the country's rural areas and towns.

"By utilizing solar energy, China can save more than 50 million tons of coal in 2010," Li estimated.

The NDRC's vice minister Chen Deming said earlier this year that China will soon promulgate policies to stipulate compulsory installation of solar energy equipment in the construction sector.

It is the first time the International Solar Energy Society's Solar World Congress has been held in China since it was initiated more than two decades ago.

CAS outlines strategic plan for China's energy development over next 40 years

(Xinhua Net, 2007-09-24)

The Chinese Academy of Sciences (CAS) has set out a strategic plan for the development of China's energy industry until 2050.

The plan proposes three steps. The first is to develop energy-saving technology and master techniques in the collection, storage and utilization of carbon dioxide by 2020.

From 2021 to 2030, the focus will be on promoting nuclear energy and other renewable energies so they become main resources and maximizing the efficiency of solar energy.

Over the following 20 years, the academy advocates the reduction of fossil energies (coal, petroleum, natural gas) to less than 60 percent of total energy consumption.

"Drawing up a strategic plan for energy science and technology development is a significant guarantee to build a Chinese energy sustainable development system," said Lu Yongxiang, CAS president.

"China should establish a renewable energy system by 2050 with which the amount of energy produced could generally meet the domestic demands of economic development," he added.

Last week, China's Science and Technology Minister Wan Gang announced plans to establish a batch of international laboratories and research centers to strengthen cooperation in research and energy exploitation between governments and non-governmental organizations around the world.

China plans to build 31 new nuclear power plants by 2020

(China News, 2007-09-24)

According to China's new national nuclear power development plan, by 2010 the installed capacity of China's nuclear power plants then being in operation will reach 12 million kilowatts. By 2020, China will build 31 new nuclear power plants, with the installed capacity of the operating nuclear power plants reaching 40 million kilowatts and the installed capacity of the nuclear power plants being under construction reaching 18 million kilowatts by that time, the *Shanghai Securities Journal* reported.

In order to realize this goal, China needs to build at least two nuclear power plants every year with an installed capacity of one million kilowatts and the country's total input for nuclear power plant construction will reach 500 billion yuan.

As one of the major nuclear nations in the world, China has a huge demand for nuclear power and it has carried out several cooperative projects with other countries with regard to nuclear use. This, as some experts say, might make China one of the most promising countries in the world in promoting nuclear power use.

In Asia, no other countries have a great demand for nuclear use as China. According to information from the International Atomic Energy Agency (IAEA), of all the 65 nuclear power plants that are being built or planned to be built in the world, two-thirds are located in Asia, especially in China. At present, nuclear

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power accounts for only 2% of the total power consumption in China. China has outlined a program that aims at changing the structure of its energy use. In complying with this program, the country will place nuclear power as the top priority.

Fusion reactor pact signed (People's Daily, 2007-09-26)

The state has submitted a letter to the International Atomic Energy Agency (IAEA) ratifying an agreement to launch the world's first experimental fusion reactor.

Tang Guoqiang, China's permanent representative to the United Nations in Vienna, submitted the ratification letter signed by President Hu Jintao to IAEA chief Mohamed ElBaradei on Monday.

China will fulfill its obligations and contribute its share to the International Thermonuclear Experimental Reactor (ITER) project, Tang said.

ElBaradei praised China's research in the field of atomic fusion technology, saying the country's access to the ITER International Fusion Energy Organization is of great significance to the project.

China signed the Agreement of Joint Implementation of the ITER Project in November 2006 in France, along with the European Union, India, Japan, the Republic of Korea, Russia and the United States.

The first ITER site will be built in Cadarache, France.

The 11-billion-euro (\$15.5 billion) ITER project, aimed at developing sustainable energy, is the largest ever international scientific research program.

More than a dozen Chinese scientists and managers are already working at Cadarache and more will soon join them, said Pan Chuanhong, a leading scientist of the ITER China program and president of the Southwest Physics Research Institute affiliated to China National Nuclear Corporation.

"If nothing changes, humanity will consume most of the fossil fuel resources accumulated over hundreds of millions of years within less than 100 years," Pan told China Daily yesterday.

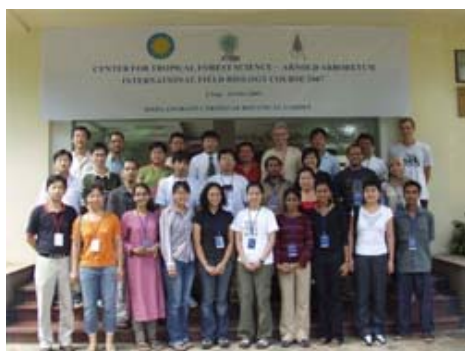
"The ITER project is the victory of the general interest of humanity," he said.

The 500MW fusion reactor will aim to turn deuterium extracted from seawater into fuel by mimicking the way the Sun produces energy: As two light atomic nuclei fuse together to form a heavier one, a huge amount of energy is released.

Fusion reactors will be vastly cleaner than existing fission nuclear reactors, and offer almost limitless supplies of energy, with 1 liter of deuterium producing the same amount of energy as 300 liters of petrol, the scientist said.

1.2 Earth and Environment

International field biology course held in Xishuangbanna (CAS, 2007-09-04)



The CTFS-AA International Field Course 2007 was opened on 2 September at the CAS Xishuangbanna Tropical Botanic Garden (XTBG) in southwest China's Yunnan Province. It is attended by 21 trainees from 11 countries together with 16 resource staff from a variety of national and international institutions that are to give lectures and practical instruction.

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It is an annual, graduate-level field course in tropical forest biology run by the Center for Tropical Forest Science-Arnold Arboretum Asia Program (CTFS-AA) in collaboration with institutional partners in South and Southeast Asia. The Course in 2007, which will last from September 2 to October 13, is hosted by XTBG. It is the seventh such course organized by CTFS-AA.

Its opening ceremony was presided over by Prof. HU Huabin. XTBG Director Dr. CHEN Jin delivered a welcome address. Dr. Rhetta Harrison from the Smithsonian Tropical Research Institute introduced the aims and activities of the training course. Deputy Director of Xishuangbanna National Nature Reserve LIU Linyun was invited to make a keynote speech.

In addition to lectures, the students are to have excursions and extended field trips to national nature reserves in Xishuangbanna, Caiyanghe, and Ailaoshan.

As the first such field course held in China, the CTFS-AA 2007 is aimed to provide high level training in the biology of forest by making use of the unique and rich natural conditions of Xishuangbanna.

China Exclusive: Scientist advocates weed planting to combat lakes plagued by algae (Xinhua Net, 2007-09-05)

A Chinese scientist believes he has found a potential solution to China's growing problem of blue-green algae outbreaks in the country's lakes.

Yu Dan, Professor of Botany and Zoology with the College of Life Sciences at Wuhan University, said that growing more aquatic weeds could curb lake contamination.

Yu reached the conclusion after his research team succeeded in removing large swathes of algae from the Liangzi Lake, situated between the three industrial cities of Wuhan, Erzhou and Huangshi on the middle reaches of the Yangtze River, through the growth of aquatic weeds.

"Aquatic weeds and algae are the two primary kinds of lake-borne plants and are fighting against each other in the same environment," said Yu. "A good growth of aquatic weeds can absorb more nutrients such as nitrogen and phosphorus, depriving the algae and improving the quality of the lake water."

Blue-green algae grows easily in polluted water with a high concentration of nitrogen and phosphorous and a temperature of around 18 degrees Celsius. An excess of blue-green algae removes oxygen from the water, killing fish and other aquatic life.

Liangzi Lake, the second largest lake in Hubei Province, has a water area of 28,000 hectares. It fell victim to frequent algae outbreaks in the late 1980s as a result of unrestricted development of aquaculture on the lake, coupled with the emergence of a large number of industrial projects and mining businesses which directly discharged waste water into the lake, causing the ecological environment of the lake to deteriorate.

The local government has closed business ventures, dismantled 2,000 hectares of aquacultural grounds, improved the environment around the lake and introduced fishing bans to curb the lake's degradation.

In the meantime, Chinese scientists led by Professor Yu have grown 13,333 hectares of aquatic weeds in the Liangzi Lake since 1992. Aquatic weeds are now growing in 80 percent of the lake.

The efforts appear to have paid off. Local environmental protection organizations now monitor that the water in the Liangzi Lake has attained the I-category and II-category levels, which both meet drinking water standards.

The practice of planting weeds has also been implemented in Changtan Reservoir in Taizhou, east China's Zhejiang Province. The reservoir was crippled by an algae bloom from 1999 to 2001.

Yu brought waterweed seeds and propagating agents to Changtan Reservoir in 2002 and grew 666

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hectares of aquatic weeds. The quality of water in the lake returned to the II-category level a year later.

Yu hopes to use the weed-planting technique to reduce pollution in other major lakes in China but there are no concrete plans at present and he is quick to recognize the scale of the task ahead.

"It is very hard to restore a damaged lake's ecological environment in a very short period of time, but success is not mission impossible if concerted efforts can be made over dozens of years," said Yu.

The scientific team led by Yu has built a resource bank and a database of more than 150,000 aquatic weed samples collected in the past 25 years.

"I believe the growing of aquatic weeds is a cost efficient method to prevent ecological degradation of lakes and there are no technical barriers in this regard," said Yu.

There are more than 20,000 natural lakes across China, of which 2,800 measure at least one square kilometer. One thousand lakes have disappeared from Chinese territory in the past 50 years, according the State Environmental Protection Administration of China.

Many of the country's lakes have been ridden by pollution. The Taihu Lake drainage area is situated in one of the most densely populated regions in China and receives 56 billion tons of sewage discharge each year.

However, about 30 million people rely on Taihu Lake, China's third largest freshwater lake, for drinking water, including nine cities in the provinces of Jiangsu and Zhejiang as well as Shanghai Municipality.

A severe algae outbreak at the end of May rendered tap water undrinkable for a week for half of the 2.3 million residents in Wuxi, a city in eastern Jiangsu Province.

By mid-June, a second algae bloom appeared, covering 800 square kilometers and causing widespread concern in cities around the lake.

Blue-green algae outbreaks have also been reported in the Chaohu Lake in east China's Anhui Province and the Dianchi Lake in southwestern Yunnan Province since May, and have threatened the local tap water supply.

Center for drinking water launched at CAS institute (CAS, 2007-09-05)



A Center for Drinking Water Science and Engineering was established at the CAS Research Center for Eco-environment Sciences on 29 August in Beijing. Present at the ceremony were Dr. David Garman, president of the International Water Association, Dr. Shoichi Kunikane, director of Department of Water Supply Engineering under the Japanese National Institute of Public Health, Member of

the Chinese Academy of Engineering LI Guibai and leaders of waterworks groups in Beijing and Tianjin.

The center strives to be a scientific and engineering platform for drinking water safety by integrating basic research, technological development, achievement application, consultation and talent training, according to Prof. YANG Min, executive vice director of the new center. By strengthening cooperation with enterprises and institutions, the center seeks to improve the capacity of the country on water supply safety in both urban and rural areas, and enhance the scientific operation and management level of the sector.

Qilian Mountains glaciers might melt in decades**(China News, 2007-09-05)**

According to research meteorologists in Gansu Province, continuous warming has caused the glaciers in the Qilian Mountains, a range straddling the provincial boarder between Qinghai and Gansu Provinces, might melt away around 2050.

Nowadays, the snowline in the mountains keeps rising by 2 – 6.5 m every year. The 1,970-sq-km glaciers on the Qilian Mountains are the major water sources for the Shiyang, Hei and Shule rivers, which are the lifeline to 5 million people in northwest China. These days, the water from Qilian Mountain glaciers has dropped by one billion cubic meters every year.

The population explosion in Gansu should also be blamed for the degradation of the glaciers, as excessive grazing there has contributed a lot to the desertification of Qilian Mountain range, which is also deadly to the glaciers.

Climate change to be better monitored**(China News, 2007-09-12)**

The China Meteorological Administration (CMA) Tuesday announced the completion of a national climate observation network to help mitigate global warming.

CMA director Zheng Guo-guang said the network would collect accurate information about climate change.

"Climate change is threatening the environment, state security and economic development," Zheng said.

Responding to a UN plan, China's first climate observation network was set up in 1997. Seven departments - meteorology, water affairs, agriculture, environmental protection, forestry, ocean and scientific research - joined the network.

The network set up 16 key observation areas, Zhang Renhe, director of the Chinese Academy of Meteorological Sciences Director, said.

These are: Atmosphere and land systems in the Qinghai-Tibetan plateau, glacier; water and ecological systems in the Tianshan Mountain area; Xilingol pastures in the Inner Mongolia Autonomous Region; Dunhuang desert in Gansu Province; forests in Northeast China; water circulation systems in Sichuan and Yunnan provinces; agriculture in the Yellow and Huaihe river basins; the lakes of Dongting and Poyang; the atmosphere around Mount Waliguan in Qinghai Province; ecological systems in source regions of the Yangtze, Yellow and Lancang rivers; the economic belt around Beijing; economic development zones in the Yangtze and Pearl river deltas; Sichuan Basin; the land-ocean-atmosphere system around Bohai Sea; air-sea interaction in the South China Sea; and comprehensive oceanic observations.

By observation and data processing, the network should provide data about temperatures, glaciers, frozen soil, accumulated snow, aerosoles, greenhouse gases, ozone, plant and soil.

"This data can help China predict natural disasters, strengthen forecasts of extreme weather events and be more adaptable when it comes to industrial projects," Zheng said.

A National Climate Change Program was released in June, which pledged to cut greenhouse gas emissions, but with no specific goals.

China to build 160,000 dams to control soil erosion along Yellow River**(Xinhua Net, 2007-09-14)**

The Chinese government will build about 160,000 embankment dams on the tributaries of the Yellow

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River over the next 17 years to prevent soil erosion and filter out silt from the water, according to a senior water resources official.

The long-term project involves a combined investment of 83 billion yuan (around 11 billion U.S. dollars). It is expected to curb soil erosion on the upper reaches of the Yellow River and prevent surrounding topsoil from falling into the river and causing flooding.

"As of 2020, when construction of these dams is finished, the silting up of the lower reaches of the Yellow River will have been radically changed," claimed Li Guoying, director of the Yellow River Water Resources Commission of China's Ministry of Water Resources.

The Yellow River has made Huangtu Plateau, or Loess Plateau, in western China, one of the world's worst areas suffering soil erosion, where an estimated 1.6 billion tons of sediment flows into the river annually.

While China has in recent years brought floods under control through strengthened river embankments and the construction of reservoirs, silt continues to be deposited in the lower reaches and the river bed is rising at a rate of about one meter every 10 years.

The building of these soil-retention structures, at the bidding of China's Ministry of Water Resources, is expected to block as many as 700 million tons of soil and sand every year.

China began building the embankment dams around 1980. There are currently more than 110,000 such dams on the Huangtu Plateau, with a combined soil filter quantity exceeding 21 billion tons.

The building of the dams on the Yellow River and the Yangtze River, China's longest, has long incurred strong criticism within China and abroad, with environmentalists alleging the trapped silt and nutrients behind the dam have led to the shrinking of the delta on the lower reaches and damaged fish stocks and the fertility of farmland downstream.

However, some people have benefited, such as the owners of the farmland around the dams.

"The soil erosion used to result in low agricultural productivity, but with the fertile dammed land, my family do not starve now," said Mi Jun, a farmer who lives on the Huangtu Plateau.

The 5,464 meter-long Yellow River originates on the Qinghai-Tibet Plateau, winds its way through nine provinces and autonomous regions, and empties into the Bohai Sea in east China's Shandong Province.

The river supplies water to 12 percent of China's 1.3 billion people and 15 percent of its farmland.

Lake Pollution in Southwest China Worsening, Say Experts (CRI, 2007-09-14)

The pollution in lakes in southwest China's Yunnan province, some of which have already seen several blue algae outbreaks, is actually getting worse, Chinese researchers and lake protection experts say.

"Urban population, agriculture and industrial use are guzzling most of the water resources, particularly in the densely-populated central areas in the province. The portion of water that should have been spared to maintain the local ecology has been reduced to the lowest possible amount," said Ma Hongqi, a veteran expert with the Chinese Academy of Engineering.

Plateau lakes like Dianchi Lake, near Kunming, capital of Yunnan, have been shrinking and are being suffocated by a massive influx of pollutants, he said.

In 1999, about 58 million cubic meters of untreated waste water was poured into Dianchi Lake. The figure nearly doubled to reach 97 million cubic meters in 2004 and is still rising, said Guo Huiguang, former director of the provincial environmental sciences research institute.

The Dianchi Lake, covering more than 300 square kilometers, started to suffer from blue algae blooms in 1999 and the latest blue algae outbreak this year has forced Kunming to replace the lake with a reservoir

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as its source of drinking water for its 1.5 million residents.

"We have been seeing a rise in phosphorous substances and chemical oxygen demand (COD), a measure of water pollution, in the lake, and the chances of algae bloom outbreaks are still very high," Guo said.

Li Huiyu, a resident who lives near the lake, said, "Sometimes there is a stinky smell coming from the lake and it gets worse in summer.

"If you put the water in a bottle, at first it's green, then it turns blue, and in a few days, it just goes black," he added.

Declining water quality is also being seen in Xingyun Lake, Qilu Lake and Yilong Lake, which, combined, cover more than 100 square kilometers.

In July, the province announced a plan to spend 8.4 billion yuan (1.1 billion U.S. dollars) to tackle pollution in Dianchi Lake, the largest freshwater lake on the Yunnan-Guizhou Plateau, in a bid to restore the size of the lake by reversing land reclamation, planting more trees around the water and setting up more sewage treatment plants.

The province also proposed the diversion of water from the Jinshajiang River, a major tributary of the Yangtze, to address a chronic water shortage and patch up the local ecology.

But the project, which is estimated to cost 49 billion yuan (6.5 billion U.S. dollars), is still awaiting approval by the central government.

China launches scientific investigation to protect plants in Three Gorges (China News, 2007-09-15)

China on Saturday launched a large-scale scientific investigation into plants in Three Gorges, which would collect 28,000 specimens in three years.

A team of nine scientists from the Chinese Academy of Sciences (CAS) arrived here on Saturday as the first batch of more than 60 scientists who are expected to join the investigation.

The investigation is the largest of its kind in Three Gorges, and would provide reliable reference for the protection of plants and the ecological environment," said Li Liangqian, chief researcher of the CAS Institute of Botany.

New plant communities are expected to be found during the investigation, which would enrich the botanical resources of China and boost the development of medical and gene sciences, according to Li.

The scientists conducted the scientific investigation under the request of the Office of the Three Gorges Project Construction Committee of the State Council in April.

The Three Gorges Project, the world's largest water control facility, is located on the middle reaches of the Yangtze, China's longest river, with a 185-meter-high dam, completed in June last year, and a five-tier ship lock.

The project was launched in 1993 and built at an estimated cost of 180 billion yuan.

However, rare plant species face extinction after water level rises in the wake of the operation of Three Gorges reservoir.

Research institutes in Chongqing and Hubei Province have done some investigations in the area, which were confined to certain areas with a small scale.

"I am happy to see the investigation. Rare plants get chances to survive," said Xiang Xiufa, who operated a botanic park of rare plants of Three Gorge in Chongqing that went bankrupt in June.

Northwest China might become humid**(China News, 2007-09-16)**

According to the latest studies of Chinese meteorologists, the central part of northwestern China might become humid and warm in the future. It is estimated that the total precipitation there will greatly increase by 2050.

The research is based on the comprehensive analysis of temperature, precipitation and glaciers.

By 2050, the northern part of Xinjiang Uygur Autonomous Region, the both sides of the Tianshan Mountains, the west part of the Tarim Basin, and the northern part of Gansu Province will experience a humid weather.

Studies for mineral-rich southwest China initiated**(CAS, 2007-09-17)**

With the support of CAS headquarters, two research projects in the field of resources and environment were recently initiated at the CAS Institute of Geochemistry (IGCAS) in Guiyang, capital of southwest China's Guizhou Province. Their launching ceremony was held at the State Key Laboratory of Deposit Chemistry attached to IGCAS.

One of the projects is to examine the mineralization of major deposit types in southwest China's "Three Rivers" area. It will focus on deposit types of copper, lead, zinc, gold and silver in an area of some 500,000 square kilometers where Nujiang, Lancangjiang (the upstream of the Mekong River) and Jinshajing (a section of the upstream of the Yangtze) run through, including the mining bonanza in western Yunnan and western Sichuan provinces. The project is to make an in-depth exploration of the mineral-concentrating process of the massive deposits, bringing to light the spatial and temporal coupling of the major geological and mineralizing events in the area and their geo-tectonic background. In this way, the related mineralizing processes and modes in various scales are to be determined. Based on this, it is expected to build up a theoretic system for depicting the origin and formation of the main deposits and present new theories and methods for prospecting the underground trove in the area. Scientists believed that the findings can provide an exemplary model for understanding the mineralization in the Tethys-Himalayan domain plus a solid foundation for further finding valuable ores in the area.

The other project is to deal with the environmental biogeochemical processes and effects of the natural organic matter in Southwest China's Karst areas. A systematic exposition will be made on their bio-geochemical cycles and eco-environmental effects in a terrestrial ecosystem featured with carbonate rock in southwest China. The project is designed to probe the origin, transfer, conversion and ending result of the organic matter, their coupling processes with nutrients such as carbon, nitrogen, phosphorus and silicon, interactive mechanisms governing their reactive and converting behavior and the toxicity with poisonous pollutants such as Sn, As, Se, poly-cyclic aromatics and polychlorinated biphenyl as well as their degrees of involvement. In addition, the project is to build up a fundamental framework for understanding the organic matter's bio-geochemical processes, including their final consequences and influences on human health in the area. In this way, it is expected to provide theoretical grounds for human control over the area's polluting processes, related mechanisms, predicting models, environmental protection etc. so that this country's research on the geo-chemical theory might be further enriched and developed.

Experts: China needs 10 years to curb desertification**(Xinhua Net, 2007-09-19)**

China would need at least 10 years to curb desertification that is exacerbating erosion around the world's highest and largest wetlands, the Sanjiangyuan Nature Reserve, preservation experts have said.

Desertification has proven one of the worst ecological problems harassing the Sanjiangyuan Nature Reserve in the remote northwestern Qinghai Province, said Li Xiaonan, an official in charge of wetland preservation in the reserve.

China launched a massive ecological preservation project in the region in 2005 to restore pastureland and move herders out of vulnerable areas.

"These measures have proven effective, but it will take about five years to restore the ecology and at least 10 years to curb desertification in the region," said Li.

Sanjiangyuan, meaning "the source of three rivers", is an area where the Yangtze, the Yellow River and the Lancang River originate. The 363,000-square kilometer area, located more than 4,000 meters above sea level, is home to the world's highest wetlands.

Yet a 2003 national survey indicated 2.88 million hectares of sandy land at the origins of the Yangtze and Yellow River alone.

A group of scientists with the Qinghai-Tibet Plateau Study Institute of the Chinese Academy of Scientists warned the situation would continue to deteriorate because of climate changes, overgrazing and increasing human activities.

Desertification is not only damaging the pastureland and hindering the development of the local animal husbandry industry, it also destroys water conservancy by burying waterways and speeding up evaporation, said Li Xiaonan.

Wetlands are shrinking across China, mostly a result of climate changes, overgrazing and excessive exploitation of rivers.

China has earmarked 16.5 billion yuan (2.1 billion U.S. dollars) to protect and restore its wetlands during the 11th five-year-plan period between 2006 and 2010.

Largest glacier group on Qinghai-Tibet Plateau discovered**(China News, 2007-09-25)**

The largest glacier group on the Qinghai-Tibet Plateau has been discovered in a county of southwest China's Tibet through satellite remote sensing, local authorities claim.

A group of 42 glaciers were found in Bomi County with an average altitude of 4,200 meters above sea level in the southeast of the region.

It would be the biggest glacier group on the Qinghai-Tibet plateau, said Zhaxi Norbu, director of the county's publicity department.

The total area of the glaciers has yet been counted.

The 90-square-km Kaqin glacier is located in Yi'ong Town, with two major peaks of 5,990 meters and 5,964 meters above sea level.

But the tongue of the Kaqin glacier had shrunk by 10 kilometers since a decade ago due to global warming, Norbu said.

The total area of the glaciers on the Qinghai-Tibet plateau is estimated at about 50,000 square kilometers, mainly distributed in the Kunlun and Himalayas ranges.

Over the past century, the area of the glaciers has shrunk by around 30 percent. Experts say the glacier

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area will shrink by a further 45 percent if the temperature rises by 2.1 to four degrees Centigrade at the end of the century.

Flagship project on cryospheric changes kicks off at CAS

(CAS, 2007-09-27)



With the support of the National Basic Research Program (dubbed the "973" Program), a research project entitled the "dynamic process of China's cryosphere, and the mechanism behind its impact on climate, hydrology and ecology" has recently been launched at the CAS Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI) in Lanzhou, capital of northwest China's Gansu Province, marking the inception of a systematic and all-round exploration of the subject.

The cryosphere, portions of the Earth's surface where water is in solid form, is considered as one of the sensitive indicators of climate change. In China, as one of the largest cryospheric areas on Earth, the cryosphere has been undergoing rapid changes in recent decades, according to studies. Reviewing these changes would help provide a better understanding of the present and future state of the global cryosphere.

With a budgetary funding of about 13 million yuan (or \$1.7 million) for its first two years' implementation, the study will focus on the impact of cryospheric change, its underlying mechanism as well as countermeasures to address the issue, according to Prof. QIN Dahe, chief scientist of the project and a glaciologist with the CAREERI.

In particular, the researchers will examine the influence in terms of water resources, ecology and climate by targeting on typical glaciers of different types, through field surveys and model simulations, and on the basis of a macroscopic understanding. They are also expected to develop an evaluation system for the ecological fragility of the changes and work out approaches to adapt to the changes by making clear their characteristics and taking all related factors into all-round consideration in dimensions of nature, society, economy and human.

The objectives of the project are multifold, notes Prof. DING Yongjian, coordinator of the project and vice director of CAREERI. It is anticipated to shed new light on a comprehensive understanding of the changes on water resources; draw a clear picture in the temporal and spatial scale of the impact of mountain permafrost changes on the hydrological conditions and water resources of inland rivers in arid regions; bring to light the mechanism by which the cryospheric changes make impact on hydrological and ecological conditions of river headwater areas; and reveal the interaction between the cryosphere in the Qinghai-Tibet Plateau and the climate of the country. It could upgrade the research level in this aspect in this country and produce proposals to cope with some key problems and issues in western China such as the sustainable exploitation of the water resources, ecological preservation and rehabilitation in the frigid and arid regions and sustainable socio-economic development there.

Intelligence robots will participate in South Pole exploration

(China News, 2007-09-28)

China will soon kick off its 24th exploration activity in the South Pole, in which two intelligence robots

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will be used. One robot will wander on ice surface and another will fly low in the sky. This will be the first time that China uses intelligence robots in its South Pole exploration, the *Science and Technology Daily* reported.

The two robots were made by China Polar Research Center, Shenyang Institute of Automation under the Chinese Academy of Sciences, and Beijing University of Aeronautics and Astronautics.

The ice wandering intelligence robot weighs 200 kilograms. It looks like a tank with a pole that can move up and down. The robot can move past ice cracks, climb over snow slopes and snow dunes. It can move around within a radius of 25 kilometers. It can carry things weighing 40 kilograms at most on its back while working and at the same time can pull things that weigh 100 kilograms. In the recent exploration in the South Pole, the hefty robot will take with it a high-precision differential global positioning system (DGPS) device and a weather observation station.

In contrast to the big, hefty robot that moves on the ice, the robot that flies in the low sky in the South Pole will be a small, light device. It weighs only 20 kilograms and has a carrying capacity of only 5 kilograms. However, the robot's flying speed can reach 50-100 kilometers an hour and it can keep flying in the sky for one hour without stopping, even on days with a strong breeze. This time, the little chap will carry with it an ocean monitoring infrared radiation device and a camera.

“Compared with human explorers, the two intelligence robots have a strong point that human explorers do not have – they can work in all weather conditions,” said a person in charge of the exploration project at China Polar Research Center.

Academicians call for biota conservation in the Yangtze (CAS, 2007-09-30)

A group of prestigious Chinese scientists call on the authorities to pay close attention to the ecological status of the Yangtze River Valley and take active measures to protect its biota.

The group, which is made up of 14 Members of CAS or the Chinese Academy of Engineering, lodged the appeal at the First Yangtze River Forum of Organism Resources Conservation opened on 16 September in Shanghai. Under the joint organization of the Ministry of Agriculture and Shanghai Municipality, the forum was attended by experts and representatives from relevant governmental departments, institutions and 10 cities and provinces in the Yangtze Valley such as Yunnan, Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Chongqing and Shanghai.

The mighty Yangtze River is the longest in China and the third largest in the world. With an area of one fifth of the country's territory, the Yangtze Valley is home to one third of the nation's population. It is one of the most typical regions in terms of diversity throughout the country. There exist about 1,100 species of aquatic life including 400 species of fish. A large number of them are endemic ones to the river, such as "living aquatic fossil" Chinese sturgeon (*Acipenser sinensis*) and Baiji Dolphin (*Lipotes vexillifer*). However, along with the rapid economic growth in the region, its organisms are increasingly under threats. Some of them are even at the verge of extinction.

To address the pressing issue, said Prof. SUN Honglie, a CAS Member and an advocate of the appeal, an effective and well-coordinated mechanism has to be inaugurated by rallying the governmental departments in charge of fishery, environment protection, water resources, agriculture, forestry and water transportation and local governments in the Valley. They must be active in the enforcement of the outlined national action plan for protection of China's aquatic resources, a document enacted by the Chinese government.

The scientists also made proposal to introduce policy measures for the trove's protection, including giving priority to fish spawning grounds protection, the prevention and control of bio-invasion, the establishment of protective zones and reserves in Yangtze's mainstream and its main tributaries, outlawing all predatory fishing methods impairing scrods in lower reaches, linking mainstream and its adjacent lakes, the enhanced enforcement of the decrees on seasonal fishing ban and a long-term prohibition of commercial fishing all the year round.

1.3 Health

Shanghai to build cord-blood bank

(China News, 2007-09-05)

Shanghai will build a cord-blood bank storing at least 10,000 samples at a time in 2010, to meet the increasing demand for hematopoietic stem cells transplant. Theoretically, the cord-blood bank will serve as a bone marrow bank with about 100,000 to 500,000 donors.

The hematopoietic stem cells in cord-blood can be used to treat some 80 kinds of diseases. Besides, it is more likely for patients to find appropriate cord-blood than suitable bone marrow donors, not to mention that cord-blood transplant usually leads to much lighter side-effects than bone marrow transplant.

Last year, only 3,000 mothers donated or kept the cord-blood of their babies, accounting for only 2% of the total new mothers that year. The collection of cord-blood is after cutting off the umbilical cord, thus no harm or pain will be caused to the baby.

The cord-blood can also be used without side-effects to cure the hematopoiesis disease of the baby if it unfortunately afflicted with such diseases.

International drugmakers accelerate research input in China

(People's Daily, 2007-09-05)

International drugmakers have accelerated their pace to establish research input in China for new patented medicines.

During an ongoing conference held by International Pharmaceutical Federation (FIP) in Beijing, pharmacist like AstraZeneca, GlaxoSmithKline, Lilly and Pfizer have all displayed their research bases or centers in China.

A report released by the National Development and Reform Commission in July revealed that a lot of international drugmakers have moved research and developing sectors to China.

International drugmakers have so far invested more than 500 million U.S. dollars to establish research centers in China.

Doctor Wang Xiaoliang, director of institute of Materia Medica, Chinese Academy of Medical Sciences, believed that some Chinese industrial zones like Zhangjiang Hi-tech Park in Shanghai have become places attracting foreign drugmakers.

The World Health Organization announced in August that at least 39 new pathogenies have been found since 1967 and many traditional viruses have also generated more variations and drug-resistance, which compels more new patented medicines to come up.

However, IMS Health, a medical counseling company, indicated that about 29 billion U.S. dollars worth

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prescription medicine patents in the U.S. expired or were about to expire in recent two years.

"Losing patents will have negative impact on international drugmaker's profit," said Wang Liquan, a representative with AstraZeneca in China, "China with comparatively lower cost, more medical talents and more market potential is really a good choice."

Wang said his company has employed many Chinese local talents cultivated by improved domestic education for administrators at middle level and basic research staff.

"Establishing research centers in China will reduce international drugmaker's cost to sell new medicines and attract more talents from domestic companies," said Zhang Guojun, vice chairman of the board of Zhejiang Medicine Co. Ltd.

Doctor Wang Xiaoliang believed that the competition for new medicines and talents between foreign and domestic drugmakers will benefit the market and make domestic companies stronger eventually.

The doctor also said international drugmakers will cooperate with domestic medical institutes and pharmaceutical companies to carry out their research in China, which will also help more Chinese relevant researchers and clinic doctors participate in global medical research.

China the World's Largest Vaccine Producer: Drug Administration (CRI, 2007-09-11)

China ranks the world's largest vaccine producer with an annual output of more than one billion doses, said the State Food and Drug Administration (SFDA) on Tuesday.

The annual output of vaccines against hepatitis B, poliomyelitis, measles, whooping cough, diphtheria and tetanus can vaccinate 500 million people alone, the SFDA said in a press release.

Thirty-three Chinese vaccine manufacturers produce 49 kinds of vaccines against 26 diseases, the SFDA said.

The Chinese health authority recently announced that it was working to vaccinate people against 15 serious diseases, up from seven.

"If this is completed, China's national immunization projects will cover the most serious diseases in the world," Chinese Health Minister Chen Zhu said last week.

More rabies vaccines to meet surging demand (China News, 2007-09-16)

China has increased the production of rabies vaccines to cope with the rising number of rabies cases, according to the State Food and Drug Administration (SFDA).

Statistics from the administration showed that from Aug. 1 to Sept. 4, a total of 2.595 million doses of rabies vaccines were approved to be put on market, almost 1 million over the monthly average in the first half of this year.

"The increased supply of vaccines has relieved growing demand of rabies vaccines," said the SFDA's spokeswoman Yan Jiangying.

Statistics from the Ministry of Health showed that in 2006, rabies was ranked the second killer among the infectious diseases. It has stayed at the top of the list of fatal infectious diseases in China from Jan. to Aug. this year.

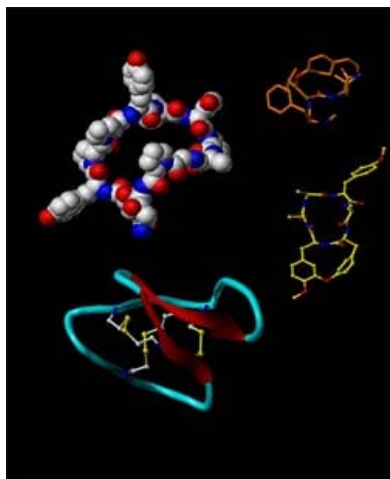
In China, production of one dose of vaccine against rabies will take three to six months. Moreover, vaccine production is based on plans made in accordance with predicted demand at the beginning of each year.

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The disease prevention and control center in Beijing reported a rapid increase of rabies cases, as patients scratched or bitten by cats and dogs exceeded 100,000 person times from Jan. 1 to Aug. 6, up 33.7 percent year-on-year.

As a result, rabies vaccine is insufficient as the rabies patients had a sharp increase so far this year. Yan also called for enhanced management over the raising of dogs, saying it is the ultimate solution.

CAS researchers discover 79 new cyclopeptides from 28 plants (CAS, 2007-09-18)



Key innovative research results have been achieved in systematic chemistry of plant cyclopeptides (PCPs), a group of important plant metabolites, by a research team with the CAS Kunming Institute of Botany (KIB) in the capital of southwest China's Yunnan Province. According to a recent announcement released by the Institute, its chemists have brought to light 79 new plant cyclopeptides.

In natural product chemistry, PCPs are defined as cyclic compounds formed mainly with the peptide bonds of 2-37 protein or non-protein amino acids discovered in higher plants, mainly *L*-amino acids. Highly bioactive members with such actions as anti-cancer and immune regulation have been reported.

Since the heterophyllins A and B were discovered from *Pseudostellaria heterophylla*, a traditional Chinese medicine, in 1991, CAS Member ZHOU Jun, Prof. TAN Ninghua and their colleagues from KIB have achieved a series of research breakthroughs of vital importance from their project under the title of Systematic Chemistry on Plant Cyclopeptides.

They have reached the world advanced level in terms of new methods for detecting cyclopeptides from plants, skeletal classification, discovery of new compounds and enzymic cyclization of plant cyclopeptides, says the announcement.

To develop an effective method for the detection of PCPs is one of the bottle-necks on the way to the progress of the whole research realm. For the first time in the world, the research team at KIB succeeded in establishing a new method for the PCP's conventional chemical detection, featuring high speed, trace and convenience. As soon as it has been published to the world, the method finds wide applications in the field.

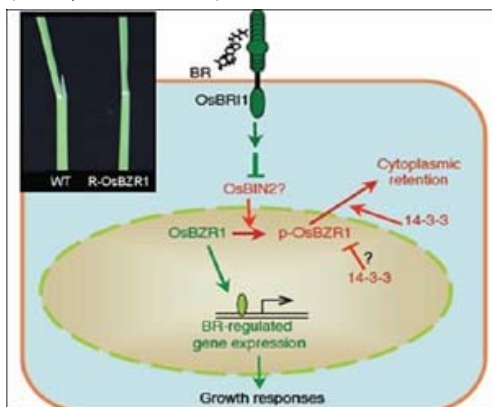
The team's achievements include an initial completion of enzymic cyclization of heterophyllin B, the suggestion of a new approach for PCP classification based on their structural skeleton. More importantly, the team's scientists developed a view, claiming that cyclopeptides with 28-37 amino acids are the preliminary metabolites in plants, while other kinds of PCPs with 2-14 amino acids are indirect gene products very probably synthesized through multi-enzyme pathway in vivo which may be the secondary metabolites in plants.

The team's research accomplishments include the identification of 112 PCPs isolated from 28 species of Caryophyllaceae and Annonaceae, including 79 new ones never recorded in related literature, the HPLC method for quality control of heterophyllins A and B from *Pseudostellaria heterophylla*. In addition, in response to the invitation of the ACS journal of *Chemical Reviews*, the team issued an review on PCPs (Chem. Rev. 2006, 106(3): 840-895), summarizing the landmark advances in the human exploration of PCPs during the past 120 years and in particular in the latest half a century. So far, the team's research

results account for one fifth of the total R&D output made by colleagues both at home and abroad. Because of the outstanding contribution in the field, the team has been honored with a first-class prize from the Yunnan Province's Awards for Natural Sciences in 2006.

Studies reveal novel protein controlling growth regulators in rice

(CAS, 2007-09-19)



A recent study by CAS researchers could add new dimensions to the understanding of downstream signaling mechanism of Brassinosteroids (BRs), a group of plant growth regulators, in rice. Their work was published by the August 21 issue of the *Proceedings of National Academy of Sciences* (PNAS).

As growth hormones of essential significance found throughout the plant kingdom, BRs bind to the receptor kinase *BRI1* on the cell surface to activate a pathway of signal transduction that regulates nuclear gene expression

and plant growth. Findings have been made on the BR signaling pathway in *Arabidopsis*, a model organism for plant biology. However, it remains unclear how much of the BR signaling pathway demonstrated in *Arabidopsis* is conserved in other plants, particularly monocots.

By using reverse genetic approaches, a research team led by WANG Zhiyong and ZHONG Kang at the CAS Institute of Botany examined the function of OsBZR1, the closest rice homolog of a transcription factor dubbed BZR1 in *Arabidopsis*.

Their work demonstrates that the downstream BR signaling component BZR1 (OsBZR1) is conserved both in *Arabidopsis* and in rice, providing critical evidence that the BR signaling pathway, from cell-surface receptor to transcription factors, is conserved in monocots and dicots. Moreover, they identified 14-3-3 proteins as OsBZR1-interacting proteins, revealing a molecular mechanism by which OsBZR1 is inhibited by the phosphopeptide-binding 14-3-3 proteins. The results support a model that an interaction occurs between the two and OsBZR1 is inhibited at least in part by retaining it in the cytoplasm, whereas BR activate OsBZR1 by inducing its dephosphorylation, disrupting its interaction with 14-3-3 proteins, and increasing its nuclear localization and transcriptional activity.

The new findings, scientists believe, could offer a new approach for raising the rice's yield and its adversity resistance.

Researchers soon to unveil Asian genetic map

(Xinhua Net, 2007-09-21)

Biologists in the southern boomtown of Shenzhen will soon release the first map of an East Asian gene, laying the groundwork for future discoveries about the race.

This will be the third individual gene map released, building on previous work by two U.S. biologists - James Watson, the Nobel Prize-winner who published his map in May, and Craig Venter, who published almost all 6 billion letters, or 96 percent, of his own personal genetic code in the journal *PLoS Biology* early this month.

"The yellow race must have its own genetic traits. Our project will lay the groundwork for personalized genetic research, especially for East Asians," Ye Jia, spokeswoman for the Beijing Genomics Institute

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Shenzhen (BGI-SZ), a non-government, non-profit scientific organization, said yesterday.

The project is the result of joint efforts by the BGI-SZ, the Beijing Institute of Genomics, the Chinese Academy of Sciences (BGI-CAS) and the National Engineering Research Center of Bioinformatics Center (NERC-BS), which had previously worked as a team for the Human Genome Project.

With personalized genetic genome sequences, or genetic maps, people will be able to gain a new understanding of their genetic destinies, from diseases to personality traits, according to the DNA inherited from their parents.

"For the first time, we can answer almost any question of what's genetic, what's the environment. Our genes can tell us probabilities of what might happen and give us a chance to do something about it," Venter was quoted by CNN as saying in a recent interview.

Specialists will be able to use these maps to search for clues of links to diseases such as blindness, diabetes, hypertension and obesity, allowing people to take actions or treatments to prevent them, Ye said.

The breakthrough will also promote the development of new medicine and therapies, she said.

It is not easy to sequence the genomes of ordinary people at the moment, given the high costs, Ye said.

"Although the introduction of a new gene sequencing machine at the end of last year has cut costs and improved efficiency, it still costs about 2 million U.S. dollars to sequence an individual genome," she said.

The idea of being able to predict diseases has fired the imaginations of many Chinese people, some of whom are hoping that genetic maps will be commercialized as quickly as possible.

"It might be sad to know my genes could leave me susceptible to deadly diseases, but I would still be happy to have a map as I could live a healthier life and take preventive measures," Zeng Yong, an IT manager in Beijing, said.

Studies on natural drugs score encouraging progress

(CAS, 2007-09-24)



A CAS project on natural drugs against some murderous diseases, which was completed seven years ago, has made major new progress, according to an ex-post evaluation panel.

Jointly headed by Prof. HAO Xiaojiang from the CAS Kunming Institute of Botany, Prof. DING Jian from the CAS Shanghai Institute of Materia Medica and Prof. LI Boliang from the CAS Shanghai Institute of Biochemistry and Cell Biology, an interdisciplinary pan-institute research team spent three years to carry out research and

development on novel natural medicines against several major diseases.

To assess the effectiveness and sustainability of the project, under the auspices of the CAS Center for Project Supervision and Evaluation, an expert panel made an ex-post evaluation on the research project on 3 September in Beijing.

With four million yuan from the CAS headquarters, the project started in 1997 by setting up 24 components to address such issues as tumors, cardiovascular diseases, Alzheimer's and viral diseases. One year later, CAS invested another 8.4 million yuan to support seven of the components with commercialization prospects. The studies have scored fruitful achievements. Some of the new drugs from natural products have received the official approval for clinical studies or commercial production. They

passed the official acceptance organized by the CAS authorities in 2001.

In their follow-up studies, many of the research topics have won support from national or local research programs for new medicines, with a total investment of 110 million yuan from governmental departments and enterprises, including the Ministry of Science & Technology and CAS. The studies have led to more than 100 research papers published by SCI journals both at home and abroad. They also filed for 63 invention patent rights, and 41 have been authorized, laying a solid foundation for their industrialization.

China might obtain the genome sequences of Asian people

(China News, 2007-09-26)

The Shenzhen Huada Genetic Research Center is working out the world's first diagram on the genome sequences of the Asian people. The work is expected to be completed by the end of this year, said a person in charge of the project, the *Shenzhen Special Zone Daily* reported.

The project is jointly undertaken by the Shenzhen Huada Genetic Research Center, the Biological Information System at National Engineering Research Center, and the Chinese Academy of Social Sciences Beijing Genetic Research Team.

The Shenzhen Huada Genetic Research Center is a non-profit, private research organ jointly funded by Shenzhen municipal government, Yantian district government, and several companies.

After completing the genome sequences for hybrid rice, the research center began to work out the genome sequences for the Asian people. There are now 2 billion people in the world that belong to the Asian people group. Previously, scientists from six countries in the world had completed the genome sequences for the humankind. This time, Chinese scientists want to draw the complete genome sequences of the Asian people with their own efforts. This should serve as a historical achievement, said the person in charge at the Shenzhen Huada Genetic Research Center.

Studies shed light on origin of new gene functions

(CAS, 2007-09-28)

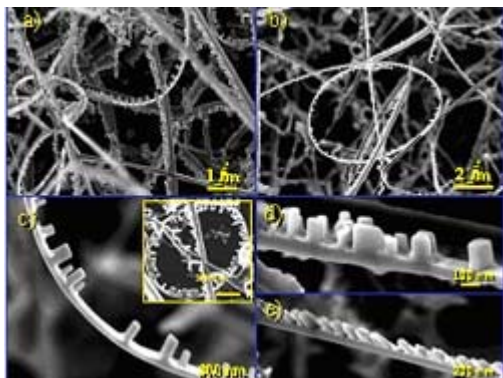
One of the significant characteristics of biological evolution is the continuous emergence of new adaptive functions. The genetic functions of the process have been a major research area of biological sciences. Three mechanisms, *i.e.* new genes, alternative splicing, and changes in regulation of gene expression, have been reported as major approaches for the process.

Recently, a research team led by Prof. WANG Wen with the AS-Max Planck Junior Research Group at the CAS Kunming Institute of Zoology observed independent acquisition of new exons in mammalian chromodomain Y-like (CDYL) genes. Their functional analysis revealed that the new exons have conferred new functions to their encoded product, which might have contributed to the evolution of these mammalian species, including humans.

The researchers discovered the CDYL gene maintains orthologous status across mammals at the genic level. However, the existence of different transcripts of the CDYL gene, with different regulatory behaviors, expands the proteome and adds to the complexity of gene regulation in the gorilla, chimpanzee and human. Their work was reported in the September issue of *Trends in Genetics*.

1.4 Key Technologies

A hetero-structured ring discovered by CAS nano-scientists (CAS, 2007-09-05)



Teaming up with co-workers at home and abroad, researchers from the CAS affiliated National Center for Nanoscience and Technology (NCNST) recently succeeded in the fabricating a hetero-structured nano-ring in their laboratory. The work, which would be valuable for developing new optical or electronic nano-elements and related devices in the near future, was reported by *Advanced Materials* (Vol.19, 2319-2323, 2007).

Wurtzite-structure materials, such as ZnO, ZnS, GaN, share a common feature: the existence of polar surfaces originated from cation- or anion-terminated surfaces. Such a unique crystalline structure gives rise to a variety of exceptional and bizarre nano-structures. Driven by minimizing energy, for example, the polar charge could induce the formation of novel nano-structures, such as nano-rings, nano-springs, nano-helices and nano-bows while during the crystalline growth, the self-catalysis on the cation-terminated surface could lead to the one-side toothed growth of nano-combs. So far, however, such maverick phenomena can only be observed in the single-constituent materials.

With the support of the National Natural Science Foundation of China and National Basic Research Program ("973" Program), a research team at NCNST present a new ring structure that is composed of hetero-structured ZnO/ZnS, with tooth decoration exclusively at the inner surface.

They have synthesized a novel heterostructured ZnO/ZnS ring. The formation process of the ring has been investigated, and is attributed due to the strain induced bending that arises mainly from the lattice mismatch between ZnO and ZnS. This growth model is in consistent to the electrostatic model proposed previously about the formation of nanorings, nanosprings and nanohelix, but it shows the dominant contribution from interface strain in the ring formation for such a special case. The ring structure of ZnO/ZnS provides an ideal candidate for investigate optoelectronics of ring structured II-VI semiconductors.

Employing the technology of vacuum sublimation, the scientists adopted ZnS as a source of evaporation and they first succeeded in developing a tooth-like hetero-structured ZnO/ZnS ring alternatively composed of ZnO and ZnS nano-belts. With the aid of field emission scanning electron microscopy and transmission electron microscopy, they carried out the characterization of the new structure. The formation process of the ring has been investigated, and is attributed due to the strain induced bending that arises mainly from the lattice mismatch between ZnO and ZnS. This growth model is in consistent to the electrostatic model proposed previously about the formation of nanorings, nanosprings and nanohelix, but it shows the dominant contribution from interface strain in the ring formation for such a special case. The ring structure of ZnO/ZnS provides an ideal candidate for investigate optoelectronics of ring structured II-VI semiconductors.

A gas analytic platform set up at the Institute of Mechanics

(CAS, 2007-09-26)



A research team on waste treatment technology at the CAS Institute of Mechanics has recently established a gas analytic platform with Varian CP-3800 as the key component. The facility is able to have a rapid analysis on residue gases in a combustion furnace or from high temperature pyrolysis, and will become a basic platform for waste treatment studies.

1.5 Structure of Matter

CAS launches a Center for Theoretical Physics of Large-Scale Scientific Facilities

(CAS, 2007-09-10)



The nameplate for the CAS Center for Theoretical Physics of Large-Scale Scientific Facilities was unveiled on 6 September at the CAS Institute of High Energy Physics (IHEP) in Beijing. Chaired by IHEP Vice Director WANG Yifang, the ceremony was attended by CAS Executive Vice President BAI Chunli, Vice President of the National Natural Science Foundation of China (NSFC) SHEN Wenqing and nearly 20 CAS Members.

Large-scale scientific facilities are an important platform for scientific research, says Prof. Bai. As a unique feature

and cutting-edge of CAS, the facilities have been given priorities by CAS leaders. The establishment of the Center, a non-corporate entity, is a key vehicle for pan-institute cooperation and interdisciplinary studies of theoretical and experimental studies.

Chinese scientists have been long cherished the wish that they could conduct research on China's large-scale facilities, stresses Prof. Shen. It is also hoped that the experiments and their results are predicted and explained by Chinese theorists. He says that NSFC attaches great importance to experimental and theoretical studies based on large-scale facilities.

New achievement in immobilized metal ion affinity chromatography

(CAS, 2007-09-19)

In conventional analysis of ion affinity chromatography (IMAC), the stationary phase used for the enrichment of phosphopeptides is prepared by chelation of IDA or NTA with Fe(3+) or Ga(3+) ions. But this kind of stationary phase is easily interfered by other acidic peptides.

New progress has been made recently by a research team at the CAS Institute of Dalian Institute of Chemical Physics in the IMAC analysis of phosphopeptides. In their novel approach, Zr ions were used

instead of the Fe or Ga ions, and a very selective and efficiently enriching stationary phase has been developed.

A paper with the title of "Immobilized Zirconium Ion Affinity Chromatography for Specific Enrichment of Phosphopeptides in Phospho-proteome Analysis", written by FENG Shun, YE mingliang, ZOU Hanfa and co-workers, was published in *Molecular and Cellular Proteomics* (2007,6,1656-1665), a journal run by the American Society of Bio-Chemistry and Cell-Biology.

1.6 Transport and Space

China's lunar probing satellite to be launched before year's end (People's Daily, 2007-09-19)

China's lunar probing satellite, "Chang'e I," is expected to be launched before the end of this year, according to the deputy director of the Commission of Science, Technology and Industry for National Defense, Sun Laiyan, during an online chat with readers.

Sun said the satellite, dubbed "Sister Chang'e" by Internet surfers, entered the launching area for a series of preparations. It will be launched before the year's end - if everything goes smoothly - to realize the Chinese nation's thousand-year-old dream of "flying to the moon."

The satellite, according to Sun, will be mainly used for scientific exploration, including 3-D photography on the lunar surface; analysis on the thickness and elements of the lunar earth; and investigating into the 380,000km environment between the earth and the moon.

China launches third Sino-Brazilian earth resources satellite (Xinhua Net, 2007-09-19)

China launched the third earth resources satellite co-developed with Brazil on Wednesday morning and the two nations will jointly develop two more satellites.

The satellite, named 02B, was launched on a Chinese Long March-4B carrier rocket which blasted off at 11:26 a.m. (Beijing Time) from the Taiyuan Satellite Launch Center in north China's Shanxi Province.

The satellite separated from the rocket 12 minutes after lift-off, entering its preset sun-synchronous orbit, at a perigee of 738 kilometers and an apogee of 750 kilometers.

The 1,452-kilogram satellite with a designed lifespan of two years, will gather resources information and send images to China, Brazil and other countries, for use in agricultural production, environmental protection, city planning and land resources surveys.

This is the third earth resources satellite jointly developed by the China Academy of Space Technology (CAST) and the Brazilian National Space Research Institute (INPE). The previous two satellites were launched in 1999 and 2003 respectively.

They are remote sensing satellites that can collect information through high definition cameras.

The previous two Sino-Brazilian satellites, with 1,200 users in China and 3,000 users in Brazil, have produced more than 1 million images.

Zhang Qingjun, chief designer of the satellite told Xinhua, "China and Brazil will cooperate to develop two more earth resources satellite.

"At least one of the satellites will be launched in one to two years."

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"If everything goes smoothly, we can provide data to our users till 2015," he said.

China and Brazil have cooperated in earth resources satellite development since 1988. The CAST is responsible for the satellite system concept, the development of the thermal control subsystem, orbit control subsystem and onboard data management.

The INPE is responsible for the structural subsystem, power subsystem, and data collection subsystem.

"We hope to continue to learn from each other and strengthen our cooperation in aeronautics," he said.

Satellite 02B is the 38th satellite launched at the Taiyuan Satellite Launch Center, all of which have been successful, including the first earth resources satellite co-developed by China and Brazil. This launch also marks the 102nd launch of a Long March carrier rocket.

China to build new space launch center in Wenchang (Xinhua Net, 2007-09-22)

China plans to construct a new space launch center in Wenchang, China's southernmost Hainan Province, according to official sources.

The new launch center aims to serve the next-generation rocket carriers that do emit poisonous and pollutive gas and new-type spacecraft.

The new launch site will be mainly used for launching synchronous satellites, heavy satellites, large space stations, and deep space probe satellites, according to the plan which has been approved by the State Council and the Central Military Commission.

Hainan is located in a low-latitude region, which is helpful to increasing the capacity of rocket carriers and extending the lifespan of satellites.

A spokesman for China's space program said the Chinese government works on peaceful use of the outer space to promote development of human civilization and social development and benefit the whole Mankind.

In 1958, China began building its first rocket launch site in northwest China's Jiuquan. At present, the country has three space launch grounds. The other two are located in Taiyuan, capital of north China's Shanxi Province and Xichang in southwestern Sichuan Province.

These launch sites have carried out over 100 space launches, sending over 100 satellites and six manned spacecraft into space.

China to launch Zhongxing 9 satellite this year (China News, 2007-09-24)

"If the launch of Xinnuo 2 satellite had not failed, Chinese public would have been able to watch TV programs broadcast by this satellite long time ago," said Ma Ju, director of the Broadcasting Science Research Institute under the State Administration of Radio, Film and Television (SARFT).

He made the statement in an interview given to *China Business News* last Friday.

Earlier, when attending the 15th China International Radio and TV Information Network Exhibition, vice chairman of the Committee of Science and Technology under SARFT Du Baichuan said that Zhongxing 9 satellite might be launched around September or October. However, right now, it is almost the end of September and no officials have made any public announcement at the moment. It is now obvious that the launching schedule might be delayed.

Zhang Haitao, another official from SARFT, once disclosed that the launching might take place on November 9, or at a later time, this year.

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This might reflect Chinese officials' cautiousness resulting from the failure of Xinnuo 2 satellite launch, because the launch of the two satellites, Xinnuo 2 and Zhongxing 9, should not be regarded as a simple launching event. Rather, they reflect China's satellite technology level in the world.

The telecommunication satellites launch is regarded as one of the key projects for government efforts to extend radio and TV coverage to every village in China. With the launch of these telecommunication satellites, it is hoped that Chinese TV programs can further reach many remote villages previously not covered by the telecommunication satellites.

There are 378 million households in China. Of them, 140 million are cable TV users and 378 million receive radio or TV programs through wireless service.

China's new-generation tracking ship delivered for use (People's Daily, 2007-09-30)

Yuangwang 5, a new-generation tracking ship independently designed and made by China, was delivered on September 29 to China Satellite Maritime Telemetry and Telecontrol Department by Jiangnan Shipyard.

The ship is equipped with four major systems: shipping, tracking and control, communication and meteorology. It is of a full discharge capacity of 25,000 tons and can resist wind above the 12th scale. It can navigate on any waters between 60 degrees of south and north latitudes.

2 News from Universities

Foreign students have more choices (People's Daily, 2007-09-06)

Overseas students are now permitted to study at privately run colleges and research institutes rather than just public universities.

From the beginning of this month the private Shanghai Jianqiao College, Shanghai Shanda College and the Shanghai Academy of Social Sciences started recruiting foreign students, following authorization from the Ministry of Education.

The deal gives foreign students more choice and is expected to cause a rise in Shanghai's student population.

According to local education administration figures, by the end of 2010, the number of foreign students studying in the city will surpass 70,000.

Since 2000, the number of foreign students in Shanghai has increased 30 percent year on year. Last year the city's 24 public-run universities enrolled a record 31,636 overseas students.

Maria Gomez Lomelin, a Mexican student working on her master's degree at Shanghai International Studies University said, "My major is Chinese literature and art and doing the courses in China helps me get a grasp on the language faster."

It also gave her a better understanding of the country, she said.

Shen Baiyao, a professor in charge of enrollment of foreign students at Shanghai Jianqiao College, said it was a win-win deal for everyone.

"We sincerely welcome more foreign students. Communication between foreign and Chinese students will widen their horizons."

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Shen said faculty members are contacting foreign universities to set up exchange programs in order to attract more foreign students.

Overseas students are expected to start enrolling at private colleges for spring next year, in February.

Zhong Mindong, from Shanghai Shanda College's student exchange department, said Chinese students will have more opportunity to chat with foreigners and improve their English.

GUCAS enrolls 11,000 new students

(CAS, 2007-09-11)



An opening ceremony was held for 11,476 new graduate students of 2007 on 6 September at the Yuquan Campus of the Graduate University of CAS (GUCAS) in Beijing.

Chaired by GUCAS Vice President DENG Yong, the gathering was attended by distinguished scholars and senior administrators, including CAS Executive Vice President BAI Chunli, Dean of College of Earth Sciences XU Guangua, Dean of School of Information Science and Engineering LUAN Enjie, and Dean of College of Mathematical Sciences GUO Lei.

Addressing the opening, Prof. Bai, who is also GUCAS president, encourages the new students to be creative and keep up the honorary tradition and scientific spirit enjoyed by CAS.

This year the university has enrolled 5,040 doctoral students and 6,436 master's ones. At present it has more than 36,000 students at campus, more than one half of them are pursuing their doctoral degrees.

Chinese state-sponsored students abroad told to work at home or face penalties

(People's Daily, 2007-09-28)

The Ministry of Education required Chinese students who were sent abroad to study by the government to "serve the homeland for at least two years", or else they must "pay back their tuition fees and expenditure originally paid by the government".

"Government-sponsored students abroad must return in time and work in China for a minimum of two years," said a new regulation issued on Friday on the management of government-funded students studying postgraduate degrees abroad.

The regulation orders complete repayment of tuition fees and expenditure and an additional penalty payment of about 30 percent of the entire educational investment by the government.

Any conduct breaching the contract between students and the government will suffer penalties, it warned.

The ministry also instructed institutions to create more opportunities and offer work-related guidance for returned students they had employed before their study abroad.

The government sent 26,658 people to study abroad from 1996 to Sept. 2006, of whom about 97 percent returned in time.

3 Innovation Management

Scientist born after 1970s first selected as academician candidate

(People's Daily, 2007-09-02)

Scientist born after 1970s has, for the first time, appeared in the name list of academician candidate in China.

Pan Jianwei, professor of the University of Science and Technology of China and an expert in optical physics, is the youngest candidate aged 37 after primary selection of academicians for Chinese Academy of Sciences (CAS).

Academician is the highest academic title conferred on Chinese scientists and experts working in scientific and technological fields. The title of academician is a lifelong honor.

Lu Yongxiang, CAS president said "talents educated after the Culture Revolution (1966-1976) have become importance forces in China's scientific and technological fields gradually."

During the Culture Revolution, normal education for students was interrupted and the entrance exam to university, the most important exam to select Chinese talents, was suspended and resumed till 1977. One consequence of the Cultural Revolution was a 10-year break in China's intellectual lineage.

"Pan selected as the academician candidate indicates the talent resources gap caused by the Culture Revolution has been gradually bridged," Lu said.

The primary election results of CAS academician for 2007 show half of the candidates are younger than 50, indicating a younger trend of Chinese academician candidates.

A total of 72 out of 145 academician candidates after primary election are under 50 years old, according to the name list posted on CAS's website.

On May 28, the CAS and the Chinese Academy of Engineering (CAE) unveiled the name list of academician candidates for 2007, totaling 771 candidates.

The final result for newly elected academicians for 2007 will be released in December and at most 60 people will be selected this year for each academy.

Candidates, under 65 years old, have to win the recognition of two thirds of the voting panel, composed of a majority of incumbent academicians.

Those, above 65, should obtain the recommendation from at least six incumbent academicians, four of whom must come from the same academic fields with the candidate.

China's first chitooligosaccharide research center opens

(CAS, 2007-09-06)



GlycoBio Research Center for Chitooligosaccharides, first of its kind in China, was set up at the CAS Dalian Institute of Chemical Physics (DICP) recently. The nameplate of the research center was jointly revealed by Prof. GU Jianyi, Chairman of Saccharide Complexes Committee of Chinese Bio-Chemistry & Molecular Biology Society, and Prof. LIU Zhongmin, Vice-Director of DICP at its opening ceremony.

The research center will be supported technically by the

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Research Group No.1805 of DICP. This Group is the only research team in this country winning financial supports from the Ministry of Science & Technology for the R&D of chitooligosaccharides during the 9th, 10th and 11th National Five-Year Plan period (1996-2010). As a result of studies for more than 10 years, the DICP scientists have succeeded in the controlling of the polymerization degree of chitooligosaccharides, a key problem in this research area, by means of a proprietary patented technology of coupling enzyme degradation with membrane separation.

Sci-Tech Meeting Focuses on Energy, Environment (CRI, 2007-09-08)

More than 6,000 science and technology workers, as well as scientist-turned-entrepreneurs on Saturday started to sit together in Wuhan and discuss issues such as energy saving and environmental protection. Among them were more than 100 members from Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE), the highest palaces for scientific research achievements and engineering progress in China.

While addressing opening of the annual conference of China Association for Science and Technology (CAST) here in Wuhan, the most important industrial city in central China, CAST Chairman Han Qide said resource and environmental factors had become two prominent problems hampering social and economic development in China.

"Scientific and technological achievements are fundamental ways to advance adjustment of industrial structure and break through the bottleneck caused by resource and environment," said Han.

He hoped scientific and technological workers would discuss and find out efficient ways for promoting a harmony of the society, and construction of resource efficient and environment-friendly society at the seven-day conference.

This year's CAST conference, heralded as congress for science and technology community, features a theme of "Energy Saving and Environmental Protection, Harmonious Development". It is the eighth of the kind ever held since 1999.

During this year's science and technology congress, participants attend a host of academic exchange activities, 96 events for popularization of science and technology, alongside with 12 seminars.

Also present at Saturday's opening ceremony were scientific celebrities such as Zhou Guangzhao, CAST honorary chairman, Minister of Science and Technology Wan Gang, and Nobel Prize laureate in physics Chen-Ning Yang.

China's R&D spending exceeds 300 bln yuan in 2006 (People's Daily, 2007-09-12)

China invested 300.31 billion yuan (39.9 billion U.S. dollars) in research and development (R&D) last year as it boosted science and technology innovation to develop a more sustainable economy.

The R&D investment jumped by an annual rate of 22.6 percent, or 55.31 billion yuan, according to a statement jointly released by the National Bureau of Statistics, the Ministry of Science and Technology, and the Ministry of Finance on Wednesday.

The spending accounted for 1.42 percent of the gross domestic product in the world's fastest-growing major economy in 2006, the highest proportion ever, the statement noted.

China has set the target of investing two percent of its GDP in the R&D by 2010, according to the 11th Five-Year Program for National Economic and Social Development (2006--2010).

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R&D spending by companies hit 213.45 billion yuan, accounting for 71.1 percent of the total, according to the statement.

Government research agencies spent 56.7 billion yuan and higher education institutions 27.7 billion yuan, accounting for 18.9 and 9.2 percent respectively.

About 234.28 billion yuan, or 78 percent of China's total R&D spending went on development work, but only 16.8 percent went on application research and 5.2 percent went on basic scientific research.

The pharmaceutical, special instruments, electrical machinery, general instruments, transport manufacturing, rubber, and electronics sectors spent more than one percent of their sales revenues on R&D.

The government earmarked 168.9 billion yuan for the science and technology front, up 26.5 percent, or 35.36 billion yuan, from 2005.

The sum was 4.2 percent of the government's total expenditure last year, the highest since 1998. (one U.S. dollar equals 7.5263 yuan)

China increases postgraduate quotas for ethnic minorities

(People's Daily, 2007-09-28)

China's Ministry of Education has raised the ethnic minorities quota for postgraduate places from 3,700 this year to 4,200 in 2008, said the Ministry of Education Thursday in Beijing.

The quotas comprises 3,400 master's degree places and 800 doctoral places, the ministry said in a press release.

The government started the special postgraduate program for ethnic minorities in 2006 when 2,500 people were enrolled.

Young people from ethnic minorities with a bachelor's degree, will take a standard national exam, but enjoy a different enrollment policy with a relatively lower mark, according to the ministry's circular.

According to a program circular issued by the ministry last year, 71 universities are on the list, but the program will mainly cover those applying for normal schools and schools of information technology, sciences, medicine, finance, traditional ethnic arts and public management.

Those enrolled will be exempted from tuition fees, but must sign a contract with the government promising to return to their hometowns for employment after graduation.

"Most ethnic minority-dominated areas in China are running short of well-educated personnel and education facilities there are inadequate. That's why the central government adopted this program," the press release said.

The national exam for postgraduate courses of 2008 will fall on January.

Last year China's universities enrolled up to 420,000 students in postgraduate courses.

4 China's International Science Cooperation

SIBS-Philips joint lab in the pipeline

(CAS, 2007-09-07)



The CAS Shanghai Institutes for Biological Sciences (SIBS) and the Royal Philips Electronics Ltd. announced on August 29 the establishment of a joint laboratory to conduct advanced research in molecular medicine. A memorandum of understanding has been signed for the joint venture.

The lab will be located in the CAS Institute of Health Sciences (IHS), which was co-established by SIBS and Shanghai Jiao Tong University School of Medicine. The research emphasis is to provide novel solutions for early

diagnosis of diseases and monitoring their subsequent medication. Early diagnosis and personalized medical treatment are believed to bring patients more comfort and create better clinical effects.

Dr. Rich Harwig, Chief Technology Officer of Philips, says that this cooperation to set up a joint research laboratory with IBS is a valuable example of the "open innovation" approach of Philips that has been persistently pursued in the purpose of bringing the benefits of molecular medicine to patients. Besides, as an international company with the ambition to provide healthcare solutions that are tailored to local needs, we are delighted to be partnering with a Chinese institute that within the space of a few years has become renowned for its life sciences research, he adds.

Prof. GAN Rongxing, SIBS vice president, says this initiative serves as a good example for further cooperation between SIBS and European counterparts, which could give Chinese researchers access to the Philips' global research institutions, especially European labs. The joint forces will stimulate the combination of IHS' expertise in translational biomedical research and Philips' excellence in development of advanced medical instruments, and further boost the evolution of new healthcare solutions and create benefits for the whole world.

Research at the joint lab will be mainly focused on biomarker studies and in-vitro diagnostic technology. The biomarker is a special molecular compound or molecular imbalance associated with the presence and severity of a disease. In-vitro diagnostics is a clinical test intended for sensitively detecting the disease biomarkers gained from the specimens such as blood, urine or saliva taken from the human body. The new-generation in-vitro diagnostic technology will be used to closely monitor the health state of the patients almost at every stage of the clinical treatment, including routine disease screening, diagnosing, treatment and disease management.

Sustainable Water Use Made Possible for Beijing Olympics as China and Germany Join Hands

(MOST, 2007-09-24)

Positive results have been achieved in Phase I of the Pilot Project on Technology for Sustainable Use of Water for the 2008 Olympics, a Sino-German intergovernmental S&T project jointly undertaken by the Nuclear and New Energy Technology Institute of Tsinghua University, the Beijing Gaobeidian Water Environment Research and Development Center and three German research institutes. This provides a strong technological support for the "Green Olympics" and "Hi-tech Olympics". Both parties are now

engaged in active research and development under Phase II of the project.

**Chinese space expert: Int'l cooperation to be trend in space exploration
(Xinhua Net, 2007-09-28)**

International cooperation will be a trend in space exploration in the future, said Zhou Jianping, chief designer of China's manned space engineering project who is here attending an meeting on space science.

In an exclusive interview with Xinhua recently, Zhou said the ambitious missions to the moon and mars have become a hot spot in space exploration, which is not only the endless pursuit of the human being, but also the motivation of the scientific development.

In Indian southern city of Hyderabad, the 58th International Astronautical Congress (IAC 2007) is being held from Monday to Friday.

Talking about the international cooperation, Zhou said a lot of countries have expressed willingness to cooperate with China in the fields of space exploration. He added that some countries has cooperated with China in some areas with small scale.

As a delegation head of China's manned space engineering project, Zhou participated in the IAC 2007. At the sideline of this congress, Zhou's delegation talked with the European Space Agency (ESA).

Zhou said that China will implement more space flights in the future, which will provide more opportunities of cooperation with the ESA.

Meanwhile, Zhou's delegation also discussed the possibility of cooperation with Indian Space Research Organization (ISRO).

India got impressive achievements in the fields of space exploration, said Zhou, adding that, as two largest developing countries in the world which have got a large stride in space exploration, China and India will have tremendous cooperation chances in the future.

5 Miscellaneous

Sino-German links boosted by love of language

(People's Daily, 2007-09-07)

Chinese and Germans are becoming increasingly interested in each other's mother tongues - a phenomenon that speaks volumes about their growing mutual interest, and can increasingly do so in both German and Mandarin (Putonghua).

"If I hadn't chosen to learn this language, I wouldn't be able to be friends with the German people I've met," Tang Lulu, a 20-year-old German studies major at the University of International Business and Economics (UIBE) in Beijing, said.

And she said what she had learned about them surprised her.

"They're quite different from how I thought. A lot of Chinese people think of Germans as always being on time, but that's not true," Tang said, laughing and pointing to her German instructor Tobias Galts, who is also a Chinese-language student at UIBE.

"And many people maybe think Germans are very serious and have little sense of humor, but I don't think so," she said, eliciting a laugh from Galts.

According to China's Ministry of Education, there are currently 1,280 German students in China, making Germany the seventh largest contributor of study-abroad students.

Daniela Bhme, director of the Shanghai branch of the German Academic Exchange Service (DAAD) - the largest organization for international exchange between the two countries - said her organization subsidizes up to 1,400 German students' studies in China every year.

Bhme said there are currently 26,000 Chinese students in Germany, making up one-tenth of its international student population.

A report by the German Federal Ministry of Education and Research, entitled "Internationalization of Higher Education: Foreign Students in Germany, German Students Abroad", said: "With nearly 12 percent of the mobile foreign student population, China is the undisputed leader, with nearly twice as many mobile foreign students as Poland, the second leading country of origin."

Bhme said: "Germany is still a very attractive place to study.

"Compared to many other countries, our study fees are a maximum of 500 euros per term. And 60 percent of provinces don't ask for study fees at all.

"Germany sees international students not on a commercial level but as future multipliers for international projects," she said. And per educational agreements between the two governments, China recognizes most degrees earned in Germany.

"I would be eager to visit Germany someday, because I think it is a great country, so I took German as my major," UIBE student Ting Ting, from Hubei, who also studies under Galts, said.

Galts said he was first drawn to Putonghua because it was challenging. Over time, he came to love China.

"I really want to do something in China in the future; I'd like to work here and live here," Galts said.

"There's also a personal reason; my girlfriend is Chinese."

But the couple doesn't spend much time together these days; while the German is studying Chinese in China, his girlfriend is studying German in Germany.

While Galts' interest in Putonghua stemmed from a passion for linguistics, many Germans are now interested in learning Chinese because of the ongoing economic miracle and increasing integration of the two country's economies. This is demonstrated by the fact the German Chamber of Commerce in

Shanghai lists more than 1,000 German firms in Shanghai alone.

China among top scientific powerhouses**(Xinhua Net, 2007-09-27)**

The country's expertise in science and technology has grown significantly in recent years, a report from the Ministry of Science and Technology has said.

And with 35 million people employed in various scientific and technological fields, China ranks first in the world in terms of personnel, the Report on Science and Technology Strength of China, said. In addition, last year, China had 1.4 million people specifically engaged in scientific research and development, putting it second only to the United States, the report said.

Xu Heping, deputy director of the ministry's strategy survey and research office, said: "The gap between China and the world's most advanced scientific powers has been steadily narrowing. In recent years, by focusing on cutting-edge science and the needs of the nation, our scientists have harvested some prize results, many of which have had a major influence on the international community," he said.

"Chinese scientists have been at the forefront of international research in several fields including neuroscience, genetics, protein structure, quantum communication, nano-materials and thermonuclear fusion."

Spending on scientific R&D topped 450 billion yuan (58 billion U.S. dollars) last year, the fifth highest in the world. The figure amounted to 1.42 percent of GDP for the year, the report said.

In terms of the number of papers published in the Science Citation Index, Chinese scientists last year ranked fifth in the world, behind the U.S., the UK, Germany and Japan.

In 1991, they ranked 15th, the report said.

Tang Qin, a professor from the scientific knowledge popularization department of the Chinese Medical Association, said: "Quantitative analysis of international scientific papers is an important reference for evaluating basic research, as it is the precondition of scientific innovation and development."

In addition, results gained through original research have led to a number of important patents.

Last year, China registered the fourth-highest number of patents in the world, the report said.

As well as 200 key State-owned laboratories, private-sector science and technology companies have contributed greatly to sharpening the country's technological edge, the report said.

At the end of last year, China had 150,000 registered firms involved in science.

Two decades earlier it had just 7,000, the report said.

6 Information for upcoming Workshops in November

The 1st International Symposium on Technology Innovation, Risk Management and Supply Chain Management

Date: November 1 – 3

City: Beijing

<http://www.aaaa.org.cn/tirmscm2007/>

International Conference on Wavelet Analysis and Pattern Recognition

Date: November 2 – 4

City: Beijing

<http://www.mlcrl.hk/icwapr/ICWAPR.htm>

International Conference on Wavelet Analysis and Pattern Recognition

Date: November 2 – 4

City: Beijing

<http://www.mlcrl.hk/icwapr/ICWAPR.htm>

The 24th International Papillomavirus Conference and Clinical Workshop

Date: November 3 – 10

City: Beijing

<http://www.ipv2007.org/ipv2007/index.asp>

The 6th International Conference on Photonics and Imaging in Biology and Medicine

Date: November 4 – 6

City: Wuhan, Hubei Province

<http://vchibp.vicp.net/pibm2007/en/>

2007 International Symposium on Protein Modification and Degradation in Beijing

Date: November 4 – 7

City: Beijing

<http://www.spmdb.com/>

International Conference on Mechanical Engineering and Mechanics 2007

Date: November 5 – 7

City: Nanjing, Jiangsu Province

<http://www.icmem.org/>

International Conference on Mechanical Engineering and Mechanics 2007

Date: November 9 – 11

City: Shanghai

<http://www.sibcb.ac.cn/ticps/index.htm>

China Highlights September, 2007

The Second International Conference on Space Information Technology

Date: November 10 – 11

City: Wuhan, Hubei Province

<http://icsit2007.hust.edu.cn/>

The Second International Conference on Space Information Technology

Date: November 15 – 17

City: Wuhan, Hubei Province

<http://iprai.hust.edu.cn/mippr/>

The 4th International Symposium on Persistent Toxic Substances

Date: November 18 – 21

City: Beijing

<http://www.rcees.ac.cn/conference/4rd-PTS-ch.htm>

2007 IEEE International Conference on Grey System and Intelligent Services

Date: November 18 – 20

City: Nanjing, Jiangsu Province

<http://icgsis2007.nuaa.edu.cn/>

ICDCS 2008 International Conference on Durability of Concrete Structures

Date: November 18 – 20

City: Hangzhou, Zhejiang Province

<http://www.rilem.net/eventDetails.php?event=268>

International Conference of Nonferrous Materials(ICNFM),2007

Date: November 25 – 30

City: Changsha, Hunan Province

<http://www.csu.edu.cn/ICNFM07/english.htm>

The 1st Xiamen International Forum on Urban Environment

Date: November 28 – 29

City: Xiamen, Fujian Province

<http://www.iue.ac.cn/en/jbqk1.asp>

Abbreviations

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