

Content

Science News from Chinese Media Shown up in April 2009
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1 Science News	3
1.1 Energy	3
Asia's Largest Wind Turbine Put up near Shanghai	3
Mega Solar Plant to be Built in China's Qinghai Province.....	3
Xiaolangdi hydro project gets nod	3
China becomes world leader in UHV power technology	4
China Won't Copy U.S. and EU in Bioenergy Development: Legislator	5
1.2 Earth and Environment	6
Scientists Find Ocean Desert in Taiwan Strait.....	6
China prepared for drilling of deep Antarctic glacier ice core in 2010	6
Chinese Researchers Improve Post-Quake Alert System	6
China plans six unmanned weather stations on Mt. Qomolangma.....	7
Chinese scientists cast adrift in a sea of opportunity.....	7
China Should Adopt Hydrosience Strategic Research: Scientists	10
CAS Released Yangtze Conservation and Development Report.....	10
Scientists plan to explore Earth's crust.....	11
Zoo in SW China Microchips Endangered Animals.....	11
1.3 Health and Biological Sciences	12
Chinese Researchers Pick Up 20 Essential Genes in Polyoxin	12
Chinese scientists say they make peonies, symbol of wealth, bloom at will.....	12
Scientists go to work on egg in fertility first	13
Shanghai to Host International Congress of Biochemistry and Molecular Biology.....	13
Chinese scientists look for new way to repair damaged brain cells	14
China Firm to Map Genome of 3 Animals	14
China develops instant diagnostic method for possible H1N1 virus	15
China Draws on SARS Lessons as Swine Flu Spreads	15
1.4 Key Technologies	16
Supercomputer 'Magic Cube' to Be Installed in Shanghai	16
China Develops Supercomputer with 2,335 Trillion Operations Per Second.....	17
CAS Researchers Develop Ellipsometry Imaging System.....	17
China prepares for market launch of robots attending lone elderly.....	18

1.5 Structure of Matter	18
Chinese Scientists Find New Way for Structural Analysis of Ionic Liquid.....	18
China's biggest large-scale scientific facility SSRF completed.....	19
Shanghai particle accelerator to open its doors for business	19
1.6 Transport and Space	20
CAS, University Build Astrophysics Center in Xinjiang	20
China's first space telescope to be launched between 2010 and 2011	20
Model Explains Youthful Supernovae.....	21
China Launches Second "Compass" Satellite for Global Navigation System	22
Network construction of Beidou navigation system to be completed in three years.....	22
Laboratory of Astronomical Optics and Technology Established in Nanjing	23
Expert: China to offer free global navigation by 2020	23
China Launches "Yaogan VI" Remote-sensing Satellite	24
China to launch sixth remote-sensing satellite	25
Chinese mainland's space tracking ship Yuanwang VI arrives in HK.....	25
CAS Academician: China Should Strengthen International Co-op in Large Scale Astro-observation Research.....	26
2 News from Universities.....	27
Chinese government offers more scholarships to foreign students in China.....	27
Studying abroad grows in three trends	27
3 Innovation Management	29
Engineering Studies to Back up National Strategies Implementation.....	29
CAS Opens Large-Scale Scientific Facilities to Enterprises.....	29
Airbus A320 assembly line in Tianjin signs orders until 2016.....	30
NSFC, CAS to Carry out Strategic Studies on Scientific Disciplines	30
4 China's International Science Cooperation	31
China to host International Conference on Conservation Biology.....	31
CAS, HKUST Built Laboratory of Intelligent Recognition	31
Workshop Boosts Sino-French Collaborations in Particle Physics Research.....	32
China-UK higher education exchanges benefit both.....	32
2009 China-Australia Young Scientist Exchange Program Kicks off.....	33
CAS, CEA Strengthen Collaboration in Renewable Energy	34
Abbreviations.....	34

1 Science News

1.1 Energy

Asia's Largest Wind Turbine Put up near Shanghai (CAS, 2009-04-03)



The first wind turbine at the offshore wind power electricity plant near Donghai Bridge was installed over the weekend. The plant will have a total of 34 wind turbines and is expected to be in use before the 2010 World Expo.

The wind turbine is about 90 meters high and weighs 400 tons, with rotating blades about 45 meters long, said a spokesman for the Shanghai Donghai Wind Power Electric Generating Co Ltd.

The Yangshan Port Maritime Authority sent two patrol boats to escort the windmill from the port to the site, a journey that took about six hours, officials said.

The 2.3 billion yuan (US\$337 million) plant will generate 260 million kilowatt hours of electricity yearly, a supply for 170,000 families, said the Shanghai Electric Co Ltd. Construction of the plant began in late 2007.

Mega Solar Plant to be Built in China's Qinghai Province (CAS, 2009-04-08)

A mega solar energy photovoltaic plant is to appear in the desert of northwest China's Qinghai province within a few years. The capacity of the plant will reach 2,000 megawatt by 2020, according to a report on the development of the province's solar energy system.

The project will begin the first phase of construction this year. It was funded by an initial investment of 1 billion yuan (about 146 million U.S. dollars).

It could become the world's largest when completed, according to a recent joint statement of the two developers, the Institute of Electrical Engineering of the Chinese Academy of Sciences and Qinghai New Energy Group. They have already completed research and investigations on the project.

Qinghai has abundant solar energy resources, second only to the country's Tibet Autonomous Region. With spacious deserts and large-scale electric network capacity, the province is a favorite place for developing mega solar energy photovoltaic plants.

Xiaolangdi hydro project gets nod (Xinhua Net, 2009-04-08)

The Xiaolangdi Water-Control Project was officially hailed a success Tuesday after eight years as a pilot operation. The project is the most difficult ever built on the world's muddiest natural waterway, the Yellow River.

China Highlights April 2009

The project, which would have to deal with heavy floods and high sedimentation for years, was ready for a safe run, a panel of experts and officials said. The check was co-sponsored by the National Development and Reform Commission and the Ministry of Water Resources.

The project was completed in 2001 at a cost of 35.2 billion yuan (5.1 billion U.S. dollars), with over 1.1 billion dollars loaned by the World Bank. Around 9.18 billion yuan went into rehabilitating the 200,000 displaced residents in 221 villages of Henan and Shanxi provinces. They were compensated as scheduled, Liu Yunjie, an official in charge of the settlement program, said.

The investment was used well and passed by the State audit, the officials concluded. After a day of spot inspection, about 40 km north of Luoyang, Henan province, the experts conceded that the project was of excellent quality. However, they urged the management to keep an eye on a few key technical problems discovered before.

For example, a crack atop the surface of the 160-m-high dam found two years ago needed repair for the dam to be able to hold floodwater at its maximum capacity.

However, expert Wang Hong said: "The crack caused by unhomogeneous deformation would not affect the safe operation of the dam" as it has experienced dramatic fluctuation of crests over the past years during flushing out of silt build-up on the riverbed. Heavy sedimentation downstream was successfully cleared eight times. It is believed silting could be prevented in the next 20 years.

The project also helped fight droughts downstream by supplying water to neighboring areas. It also supplied hydropower to the power crisis-hit Henan province, officials said.

China becomes world leader in UHV power technology

(People's Daily, 2009-04-16)

A spokesman of the State Grid Corporation of China (State Grid) said here Wednesday the country has become the world leader in the development of ultra-high-voltage (UHV) power transmission and transformation technology.

In recent years, China has achieved an overall breakthrough in UHV core technology and the localization of UHV equipment, with more than 100 domestic manufacturers and suppliers participating in the manufacturing and supply of UHV equipment, Ma said at the annual General Meeting of the China Business Council for Sustainable Development (CBCSD), on behalf of his company's general manager Liu Zhenya.

In January 2009, the world's first 1000kv UHVAC transmission project, known as the Jindongnan-Nanyang-Jingmen UHVAC transmission project, was put into operation. It marks a breakthrough in the technology of long-distance, large-capacity and low-loss UHV power transmission.

The project has been organized and independently innovated by the State Grid, said the company official. So far, the State Grid has formulated 47 national standards and a whole set of specifications for UHV project design, construction, operation and maintenance, he said.

Ma said that the standard voltage of China's UHVAC is recommended as the international standard by the International Electro Technical Commission and the International Council on Large Electric System.

The International Electro Technical Commission has set up an HVDC New Technology Board, with its secretariat based in China. It is the first time that the commission has placed the secretariat of a board in China, according to the State Grid official.

China Highlights April 2009

By 2012, the company plans to set up a large coal-electricity base linking together Shanxi and Shaanxi provinces, the Inner Mongolia Autonomous Region, and other economically-challenged western parts of the country, as well as a UHV network for eastern and central load centers.

By 2020, the company will build up a synchronized power grid mainly consisting power grids of northern, eastern and central parts of the country. By then, the country's total transmission capacity of UHV power grid will have reached 300 million kw.

China Won't Copy U.S. and EU in Bioenergy Development: Legislator (CAS, 2009-04-22)

Rigid domestic demand for grain crops has forced China to turn its back on corn and rapeseed, the traditional raw materials used by the West for bioenergy production, and focus on crops whose annual output stands much higher, said an agricultural legislator Monday.

At a rural economic forum closed here on Monday, Vice Chairman Yin Chengjie of the Agriculture and Rural Affairs Committee of the National People's Congress, China's top legislature, said the premise of China's bioenergy development strategy was "not to jeopardize food safety."

"The United States and the European Union have been grain-crop exporters for a long time. With the acceleration of their bioenergy production, however, they not only reduced exports but even imported more corn and rapeseed. That helped tilt the supply-demand balance and jack up the grain prices on international markets," said Yin.

"China must, and has the conditions to, explore a different road in biofuel production," he said.

For China, the bottleneck was not in processing technology but the country's limited farmland resources and grain crop shortage. Growing population and the accelerating produce-processing industries would also raise grain crop consumption, said Yin.

Yin said a viable way out was to use non-grain raw materials --especially wheat or rice stalks. China produces 700 million tons of wheat stalks each year, compared to only five million tons of grain crops.

Under traditional farming, when people were less aware of recycling and clean energy, farmers would normally let stalks rot away in the fields or simply set a fire for a quick cleanup. More than 500 million tons of stalks were estimated to have been wasted each year.

State Energy Bureau chief Zhang Guobao has said in the year's national legislature meeting in March that China should learn from past experiences and put new energy development onto "an important strategic position."

An increasing number of rural households have learned to recycle stalks by adding them to livestock manure into methane pools for power generation. By the end of 2008, some 30 million households have built their own methane pools with an aggregated yearly methane output of 12 billion cubic meters, equivalent to 17million standard coal.

Another 67 stalk power plants were built as of June 2008, transmitting 2.613 billion kilowatt hours into the national power grid.

1.2 Earth and Environment

Scientists Find Ocean Desert in Taiwan Strait

(CAS, 2009-04-01)

Chinese scientists recently discovered a huge ocean desert at the bottom of the Taiwan Strait. They published a paper about the finding in the Journal of Natural Resources, the 3rd issue 2009.

The desert covers an area of 15, 000 square kilometers only 30 meters below the sea. The sandy beach is still moving and reshaping owing to the currents and ocean tide. There is barely any zoobenthos in the area.

The desert is constituted of fine sand with shell debris, beach rock and basalt, noted Dr. Shi Qian from Department of Environmental Engineering, Xiamen University of Technology. The research team also estimated that the ocean desert has over 100 trillion cubic meters of sand, enough for construction use on both sides of the Strait for over 100 years.

Shi Qian, Zhang Junyuan from Institute of Oceanology of the Chinese Academy of Sciences (IOCAS) and Prof. Cai Aizhi from College of Oceanography and Environmental Science of Xiamen University discovered the desert located in the southern-central Taiwan Strait in an on-spot investigation.

China prepared for drilling of deep Antarctic glacier ice core in 2010

(Xinhua Net, 2009-04-10)

China will do preparatory work for the drilling of deep Antarctic glacier ice core at Dome Argus (Dome A) in 2010, a scientist said here Friday.

In China's 26th Antarctic scientific expedition next year, scientists will build deep drilling work shop and install drilling machines, said Li Yuansheng, head of China's Kunlun Station, the country's first research station on the continent's inland.

In January, China set up the Kunlun station at Dome Argus, the pole's highest icecap at 4,093 meters above the sea level.

China's 25th Antarctic scientific expedition team left in October for a 173-day trip, the longest in China's polar expedition history, and returned to Shanghai Friday.

China has another two research stations in Antarctica. The Changcheng (Great-Wall) Station, founded in February 1985, is south of King George Island. The Zhongshan Station, built in February 1989, is south of Prydz Bay on the Mirror Peninsula, eastern of Larsemann Hills.

Six countries, including the United States, Russia, Japan, France, Italy and Germany, have already built inland research stations in Antarctica.

Wei Wenliang, an official for polar expedition affairs with the State Oceanic Administration, said China is planning to build an aid center in Australia to help Antarctic research.

The center, which will be in Sydney or Hobart, will help scientists get to the Zhongshan and Kunlun stations quicker by flights and provide them with more fresh food, Wei added.

Chinese Researchers Improve Post-Quake Alert System

(CAS, 2009-04-13)

Chinese researchers found a new method to locate the epicenter and magnitude of an earthquake within 10 seconds after the shock.

China Highlights April 2009

Ni Sidao, a professor with the University of Science and Technology of China, and his team integrated "Wavefront Sensor" of seismic networks and "P-wave Forecast Method" based on the data of a single seismological to develop the new method. They also borrowed from the advanced post-seismic rapid alert research in western countries.

The new method, with an error of less than 10 kilometers and one magnitude, provided theoretical basis for shortening China's reaction time after the earthquake. With the new alert system and modern communication method, people who are more than 30 kilometers outside the epicenter can seek emergency way to reduce the danger before the arrival of more damaging epic wave.

The method was used for detection after the Wenchuan Earthquake in 2008. Position of the epicenter was fixed eight seconds after the quake with an error of less than 10 kilometers, the magnitude was fixed in eight to nine seconds with an error of 1 grade.

Results of the detection can be updated when more seismological stations reported data about the earthquake, and more accurate figures will be provided. In areas where there are more such stations, more precise figures will be obtained in less time, said scientists.

China plans six unmanned weather stations on Mt. Qomolangma

(Xinhua Net, 2009-04-14)

China is planning on building six unmanned observation stations on Mt. Qomolangma in an effort to provide more accurate weather forecasts in the plateau region.

The stations will cost 5 million yuan (732,000 U.S. dollars). Installation work will begin sometime this year, according to the weather bureau of the Tibet Autonomous Region.

According to the bureau's plan, the observatories will be built at altitudes between 4,200 meters to 6,500 meters above the sea. They can send humidity, wind speed and precipitation data wirelessly to headquarters in Lhasa.

Chu Duo, with the Tibet Research Institute of Plateau Atmosphere and Environment, said capricious weather in the region makes it difficult for researchers to get accurate data.

That data will help mountain climbers as well as people living in the region.

China has built six observation stations on the mountain since 2004, all of which are under the altitude of 6,200 meters.

Chinese scientists cast adrift in a sea of opportunity

(Xinhua Net, 2009-04-15)



Researchers from the China Ocean University aboard the Dongfanghong 2 vessel, which left Xiamen, in Fujian province, on February 3 to deploy ARGO floats in the Pacific Ocean.

Sea-faring robots may be the latest high-profile weapon in the fight against climate change, but are Chinese scientists letting the valuable data they produce go to waste?

Experts working on a major international ocean monitoring project think so - and have blamed the waste on the fact many researchers simply do not know it is free.

Launched at the start of the millennium, ARGO (Array for Real-time Geostrophic Oceanography) is an ongoing and developing program aimed at keeping a regular check on the temperature and salinity of the Seven Seas with satellite-tracked, automated floats.

The robots, which have a lifespan of four years and dive to 2,000 m for 10 days to take crucial measurements, help scientists to better predict changes or trends in the ocean's climate, explained Xu Jianping, a researcher at the second institute of oceanography under the State Oceanic Administration and chief scientist for the China ARGO program.

He said China will deploy around 60 floats this year, 10 of which will be placed in the east of the Bashi Channel, in the northwest Pacific Ocean, during a two-week scientific expedition by researchers from the China Ocean University. They were aboard the vessel Dongfanghong 2, which left Xiamen, in Fujian province, on February 3. Another 50 will be cast adrift in the Indian Ocean between June and September.

But while experts in Great Britain, Australia, Japan and the United States have embraced the "revolutionary" research, Xu warned his nation is lagging far behind.

"In most participating countries, scientists from various fields have shown great interest in the ARGO program, with climatologists the most enthusiastic," he explained. "But in China, ARGO is still little known among scientists, except oceanographers.

"Everyone has access to the same data. Even a high school student who wants to be an oceanographer or climatologist can access it on his desktop. He or she could also catch up with the international research and climate change studies using the ARGO data. It would be a great pity if China's scientists miss such a good opportunity."

He said researchers in China were failing to exploit the valuable data from more than 3,000 floats across the globe not because of a "lack of interest", but because of restrictions over project funding or background expertise.

The country's climatologists had got too used to expensive information access systems and had no idea the ARGO research could be obtained for free, he said. "Few have shown an interest in the data because they are not used to things being free of charge."

Xu said there had been an improvement in recent years but was still disappointed no climatologists or meteorologists from China attended the recent third International ARGO Science Workshop in Hangzhou, Zhejiang province.

"The ARGO data will demonstrate its greatest value when it is exploited for precision weather forecasts and seasonal to decadal climate prediction," added Xu.

Fellow researcher Zhu Jiang, from the institute of geophysics and meteorology at the Chinese Academy of Sciences (CAS), agreed and highlighted the fact that, unlike in China, oceanic data for non-profitable use has been distributed free of charge in countries such as the US, Canada and Japan for the last decade.

He recalled that before the ARGO program launch in 2000, he emailed a US-based research institute requesting the most up-to-date satellite ocean-monitoring data. He had expected a polite refusal but

China Highlights April 2009

was overwhelmed when in just a month he received a box filled with more than 100 CD-Rom discs packed with the relevant facts and figures.

"They didn't ask for any payment, not even for shipping," said Zhu. "That was a real surprise for me after so many years doing scientific research."

However, the swapping of such research has not yet set in among Chinese institutes, with the ARGO team offering China its first sharing platform for real-time ocean data, he said.

Data from the ARGO robots is relayed to China via the French ARGO satellite, providing a continuous measure of ocean change and the speed of various currents. And although free to all, the nation has dedicated a team of more than 80 scientists over three State projects to study the results, from which "breakthrough findings can be expected", said Xu.

"This will be the first time such a big group of scientists, mostly oceanographers, will focus on research based on ARGO data," he explained, adding the work was vital for such a geographically expansive developing country extremely vulnerable to climate change.

China suffers frequent weather-related disasters, with statistics from the China Meteorological Administration (CMA) showing they caused losses amounting to 2.8 percent of the gross domestic product between 2001 and 2008. And according to Xu Xiaofeng, CMA vice-director, extreme weather events are expected to become even more devastating and harder to manage in the future.

The CMA forecasted all five of the blizzards that affected 22 provinces and cities in January 2008 - the costs of which totaled more than 150 billion yuan (\$22 billion) - two to five days beforehand. But with ARGO data scientists would be able to better predict the severity of a storm far in advance, allowing them more time to properly pre-warn the general public.

"While weather forecasters have had to use what has happened in the past to predict the intensity of storms, data from the ARGO program will give a real-time prediction of just how bad storms will be," said Xu. "But this actually belongs to the expertise of meteorologists and climatologists, not us oceanographers. I hope more climatologists and meteorologists in China will join our research and make the most out of the ARGO data."

Meanwhile, Su Jilan, a fellow oceanographer with the CAS, said the ARGO floats would also greatly assist oceanographic research in remote and hostile regions that would otherwise be very costly.

"Ocean research has reached a new starting line, not only in China but across the world. Before ARGO, scientists had little access to oceanic data, which restricted the potential for comprehensive studies. But ARGO makes this possible, that's why we call it revolutionary.

"Such research is critical to our understanding of climate change, as the ocean changes much more slowly than the atmosphere. These gradual changes provide a clearer signal of long-term climate trends than the larger day-to-day oscillations in temperature."

The latest deployment of the autonomous, sensor-loaded floats is not China's first. In 2002, when the country joined the global ARGO network, it promised to deploy up to 150 in the Pacific and Indian Ocean. By the end of February, China had deployed 51 - 23 of which are still active - while the total number of active floats across the world stood at 3,325.

ARGO was the brainchild of Dean Roemmich, co-chairman of the ARGO program steering team and a physical oceanographer at the Scripps Institute of Oceanography in California, and intended to help record changes in the climate by measuring what he calls the "vital signs" of the ocean: temperature, salinity and velocity.

"ARGO is similar to a satellite in coverage but it's looking at the sub-surface ocean rather than the

China Highlights April 2009

sea's surface," he said. "So the purpose of having 3,000 floats out there is to give us that sort of dense global coverage that you need in order to really see the variability in the oceans."

The program has so far yielded valuable results that have proved the foundation, or at least a major source, for an annual average of 107 research papers since 2004. The collected data is made available to users quickly and free of restrictions online or on request.

China Should Adopt Hydrosience Strategic Research: Scientists (CAS, 2009-04-16)

"China should adopt hydrosience strategic research of cross-disciplines as soon as possible, to solve the water crisis in a long run," said American Chinese scientist Shen Yuanrang, academician of both the Chinese Academy of Sciences (CAS) and the National Academy of Sciences of the United States of America, in a proposal he presented to CAS recently.

"China should set up a well-defined medium and long term plan, establish a strong cross-discipline research team with fundamental and applied research, if the country hopes to succeed in hydrosience research," Shen said in his proposal on carrying out hydrosience strategic research in China.

A United Nations' report said that water crisis, namely shortage of clean water for daily life, will break out within 20 years. It will affect the economic and living environment in developing countries including China.

Chinese government has put large amounts of money, manpower and resources in water pollution control. However, cost, effect and efficiency of the effort are far from gratifying. The current technology is merely an improvement or assembly under traditional theoretical framework, said Pan Gang, researcher with Research Center for Eco-Environmental Sciences, CAS.

"With a perfect plan and consistent strong investment, China would overtake its peers and become a pioneer in this area," said Shen, adding that research of hydrosience will promote prosperity of many related pioneering disciplines in China, such as energy, material sciences, environmental sciences and life sciences.

CAS Released Yangtze Conservation and Development Report (CAS, 2009-04-21)

Chinese Academy of Sciences (CAS) released the Yangtze River Conservation and Development Report 2009 on April 18. The report summed up the new progress and problems concerning the river's on-going conservation and development since 2007.

It focused on the influence that major construction projects and the climate change had on the conservation and development of the Yangtze River area, the degree of the influence and the strategies to deal with it.

Researchers used 28 quantitative indicators in measuring the development of 39 big and medium-sized cities along the Yangtze River and ranked them up in terms of development level, dynamics, development capacity and comprehensive competitiveness. The economy in this area had maintained a yearly two-digit increase and had gained more coordination and integration capacities, noted Yang Guishan, the editor of the report.

The report analyzed the climate change in this area and its impact on water resources and different types of ecosystem. It also examined the benefits that major engineering constructions brought to the

area and the effects they had on the ecological environment.

Researchers also predicted the impact of sea level rising, the Three Gorges project and South-to-North Water Diversion Project (on the eastern side) on salt water encroachment at the Yangtze River estuary and water supply in Shanghai.

The report proposed strategies on the comprehensive restoration of Yangtze River estuary and the wet land conservation. In conclusion, it pointed out the challenges and opportunities this area faced and proposed the priorities in Yangtze Conservation and Development.

It is the second report of its kind. The first Yangtze Conservation and Development Report was published in 2007.

Scientists plan to explore Earth's crust (CAS, 2009-04-27)

A deep-Earth detection technology development project could enable China to begin exploring the planet's crust, a top scientist has said.

Dong Shuwen, deputy head of the Chinese Academy of Geological Sciences and "SinoProbe" project leader, said the undertaking aimed to develop such a system by 2012.

The technologies will help scientists understand the crust's structure - relevant to many natural disasters - and assist mineral exploration, he said.

China is the world's second largest mineral resources consumer and imports more than 50 percent of the mineral resources it needs, vice-minister of land resources Xu Shaoshi said yesterday.

As mineral resources in the crust's shallow layers have already largely been discovered and exploited, "looking for deeply buried resources is the way of the future", he said. Countries including the United States and Russia are seeking to determine the crust's thickness. Currently, two methods are used - boring deep holes in the crust and employing survey techniques, Dong said.

China's SinoProbe project will study both approaches with greater attention given to the surveying methods, Dong said.

Geoscientists have been digging boreholes near the fault line in Wenchuan, the May 12 earthquake's epicenter, to install monitors.

Chinese Academy of Geological Sciences scholar Li Tingdong said the project would provide more accurate seismological data and could improve China's capabilities to forecast earthquakes and mitigate damage. Ministry of Land and Resources chief engineer Zhang Hongtao said the first borehole had reached 500 m deep - half of the planned depth of 1,000 m - because of complications arising from the complex geological structure.

Zoo in SW China Microchips Endangered Animals (CAS, 2009-04-29)

Zookeepers in the southwestern Chinese city of Kunming, Yunnan Province are implanting digital identification chips in animals for better management and protection.

The stitching-needle-sized chips, provided by the State Forestry Administration, contain each animal's name, age, gender, species, birth date and birthplace, blood type and DNA information, said Li Youlong, head of the Animals Management Department with the Yunnan Wild Animals Park.

The chips will be injected into the necks, ear roots or tail roots of about 200 animals that are under Class A or B state-level protection in the zoo, such as Siberian tigers, African lions, hoolock gibbons

and black swans, Li said.

"You won't see the chips," he said. "It'll help us better manage the animals, especially endangered animals."

Zookeepers began implanting the chips Monday and are expected to finish by June, Li added.

The Yunnan park has more than 10,000 animals from more than 110 species.

The State Forestry Administration has ordered all zoos to implant chips in 17 species, including tigers, lions, elephants, giant pandas, bears, golden monkeys, cranes and swans.

1.3 Health and Biological Sciences

Chinese Researchers Pick Up 20 Essential Genes in Polyoxin

(CAS, 2009-04-01)

Chinese researchers have found 20 essential genes among 39 candidate genes of polyoxin, making it possible for growing the bacteria in heterologous hosts.

The research was carried out by the Key Laboratory of Microbial Metabolism of Shanghai Jiaotong University and the Ministry of Education, in collaboration with the Institute of Microbiology, Chinese Academy of Sciences (CAS).

Leading by Deng Zixin, academician of CAS, doctorate candidate Chen Wenqing and other researchers biosynthesized and cloned the whole gene cluster from polyoxin. They obtained 39 candidate genes during the process. The achievement will help establish the industrial utilization of metabolic engineering technology, Deng said.

Polyoxin, one of the best biopesticides currently used for controlling fungus diseases of significant crops, economic plants, and fruits and vegetables, is highly effective, environment-friendly and does not cause drug-tolerance.

Chinese scientists say they make peonies, symbol of wealth, bloom at will

(Xinhua Net, 2009-04-13)

It's taken more than 1,000 years, but the Chinese now say they can make peonies -- a symbol of prosperity in imperial times -- bloom at will.

Scientists here in the "city of peonies" said Monday that they can bring the plants into full bloom any day of the year.

"There will be blooming peonies at any festival, whether it's the national [founding day] holiday in October or the Spring Festival" that marks the end of winter under the lunar calendar, said Ma Zhuohua, vice director of the Luoyang Peony Research Institute in the central Henan Province.

Ma's institute boasts the country's largest peony gene bank.

"We are also able to extend the flowering time, normally three to five days, to nearly a month," Ma said.

"We use both physical methods, such as the control of temperature and light, and chemical methods such as spraying chemicals on the flower buds and leaves," said Fan Peirong, an engineer with the institute.

The capital of China under 13 imperial dynasties, Luoyang produces the country's best peony trees.

The luxuriant blossoms were believed by ancient royalty to signal wealth.

Scientists go to work on egg in fertility first

(Xinhua Net, 2009-04-13)

Researchers in Shanghai say they have managed to generate new eggs using stem cells from the ovaries of young and adult female mice, taking a step toward addressing problems of female infertility.

It is currently accepted in scientific circles that the production of eggs, known as oocytes, stops before birth for most species of mammals, including humans.

In an article published in the journal *Nature Cell Biology*, the scientists said they found a way to generate new eggs using stem cells harvested from the ovaries of juvenile and adult female mice.

"The finding may have important implications in regenerative and reproductive medicine," they wrote.

Led by Wu Ji from the School of Life Science and Biotechnology at Shanghai Jiao Tong University, the researchers said they isolated female germline stem cells (FGSC) from the ovaries of five-day-old and adult mice.

The cells were cultured for more than six months and transplanted into the ovaries of infertile female mice, they said, adding that 80 percent of these mice went on to produce offspring after natural mating.

"These results suggest that oocytes can be regenerated in sterile recipient females by transplantation of FGSCs," the scientists wrote.

Azim Surani, professor of physiology and reproduction at Gurdon Institute, University of Cambridge, who was not connected to the study, said: "Sperm are produced continuously in men but the number of eggs in women is fixed at birth.

"This new study in mice now suggests that there are also stem cells present in ovaries that can be cultured in a dish, which upon transfer to ovaries can develop into viable eggs and give rise to offspring. This finding, if confirmed independently, could advance understanding of these ovarian stem cells and advance research on female infertility."

Another researcher, who was also unrelated to the study, called for caution.

"A lot more work is needed to understand what these new cells really are, and to verify the findings and the claims," said Robin Lovell-Badge at the MRC National Institute For Medical Research in Britain.

Shanghai to Host International Congress of Biochemistry and Molecular Biology

(CAS, 2009-04-20)

The 21st IUBMB (International Union of Biochemistry and Molecular Biology) and 12th FAOBMB (The Federation of Asian and Oceanian Biochemists and Molecular Biologists) International Congress of Biochemistry and Molecular Biology (2009-Congress) will take place on 2-7 August in Shanghai, 2009.

The Chinese Society of Biochemistry and Molecular Biology will co-host the Congress with Chinese Society for Cell Biology (CSCB).

The 2009-Congress will offer comprehensive advances at the cutting edge of biochemistry and molecular biology, which cover four major themes of life sciences (Genome Dynamics and Gene

China Highlights April 2009

Regulation; Protein Structure, Dynamics and Proteomics; Cell Signaling and Network; Molecular Basis of Diseases) with a total of 36 symposia; it will also provide additional symposia such as glycobiology and biotechnology.

So far 12 world's leading scientists have confirmed to give presentations at the Congress, including four Nobel Laureates, Drs. Luc Montagnier, Aaron J. Ciechanover, Kurt Wüthrich and Sidney Altman, as well as Dr. Shinya Yamanaka who discovered iPS cells and Dr. Victor Ambros who discovered microRNA.

In addition, 158 invited speakers have also been confirmed and will give presentations in the different symposia.

Click for registration: <http://www.iubmb-faobmb2009.cn/iubmb/page/index.jsp>.

Chinese scientists look for new way to repair damaged brain cells (Xinhua Net, 2009-04-23)

Chinese neuroscientists have begun a new research on changing the nature of brain neurons after disproving theories that neurons can change themselves to replace cells damaged by strokes or by diseases like Alzheimer's or Parkinson's.

A group of nine scientists from Shanghai and Guangzhou found that neuroblasts -- cells that transform into nerve cells or neurons -- did not generate into neurons like those that had been damaged.

Previously, scientists had hoped that the new neurons produced after a brain injury like a stroke could reach injured areas to replace damaged cells.

The Chinese study refuted the research direction, and indicated "external intervention" could induce neuroblasts to alter into appropriately functional neurons.

The study was published in an article carried in the U.S.-based Journal of Neuroscience Wednesday. Yang Zhengang, of Shanghai-based Fudan University, who led the study, told Xinhua on Thursday that his future study would focus on exploring genetic modification methods to trigger changes in cells that could replace the functions of the damaged ones.

"There is a bright future in using controllable transplant technology to make new cells carry certain genetic functions to replace cells damaged by brain diseases like Alzheimer and Parkinson," said the scientist.

In his research, Yang and his team marked new neurons in the brains of mice that had suffered strokes, and found they failed to produce the type of cells that control movement.

"The new neurons don't form the kind of spiny neurons like those before the injury, and they are also smaller in size," he said.

The human brain has about 100 billion neurons, which differentiate into about 10,000 types with different functions in the embryonic development period, he explained.

"You can't find a kind of super stem cell in an adult brain, which can differentiate into any type of neuron," said Yang.

But he hoped his new theory on intervention would ultimately bring hope to the treatment of brain diseases like Parkinson, which affects about 1.7 million Chinese.

China Firm to Map Genome of 3 Animals (CAS, 2009-04-27)

China Highlights April 2009

A leading Chinese scientific research institute specialized in genome sequencing is all set to map the entire genome of three animals that live in extreme environments.

The Beijing Genomics Institute based in Shenzhen, or BGI-Shenzhen, said on Friday that the project was likely to get completed by the end of the year.

The initiative, which follows BGI-Shenzhen's genome sequencing projects on the first Asian and the panda, would provide scientists with the essential tools to understand how these endangered species have adapted to extreme climates and assess the impact of global warming on their survival, Zhang Yong, a project director of the institution, said at a press conference in the city.

Scientists at BGI-Shenzhen took blood samples of a polar bear, a penguin and a Tibetan antelope earlier this month, and genome sequencing on these animals would be carried out from next month onwards, Zhang said.

If all goes according to plan, the research house will release genome maps of the three species in December.

Scientists would use the most advanced sequencing technologies to construct complete genome sequences for each of these animals, Zhang said. They will also use these technologies to carry out detailed genome-wide analysis, including identification of gene function and determination of the genomic basis of their unique evolution and adaptation to extreme climates, he said.

"Global warming has dealt a deadly blow to the species. Our study will help save these endangered species and the genome maps might also help restore them even if they become extinct," Zhang told reporters.

The map will also help to understand the effects of extreme climates on the health of human beings, Zhang said.

For example, the genome sequence of the Tibetan antelope, which is found in alpine meadows and deserts at an altitude of 3,500 to 5,500 meters, would help scientists in developing medicines to combat altitude sickness in human beings, he said.

The project has been launched in partnership with several foreign and domestic institutions, including US genetic technology kits developer Illumina, Dalian Laohutan Ocean Park Research Center and Qinghai University.

China develops instant diagnostic method for possible H1N1 virus

(People's Daily, 2009-04-30)

China has developed an effective method for instant diagnose of possible H1N1 influenza epidemic, originally called as "swine flu", said Health Minister Chen Zhu at a news conference Thursday afternoon.

The new detection method will be installed at the country's center for disease control and prevention offices at all levels, Chen said.

Experts and scientists from the Chinese Center for Disease Control and Prevention and the Chinese Academy of Medical Sciences have contributed greatly to the research work, Chen added.

"Experts from the United States and the World Health Organization also gave us great help for the research," he said.

China Draws on SARS Lessons as Swine Flu Spreads

(CAS, 2009-04-30)

China Highlights April 2009

Chinese provinces are drawing on their experience handling the 2003 outbreak of severe acute respiratory syndrome (SARS) to cope with the global swine flu outbreak.

Huang Fei, deputy director of the health bureau in south China's Guangdong Province, said Wednesday that the bureau had designated three provincial-level hospitals to treat suspected swine flu cases and ordered all urban health departments to designate one hospital for the disease.

"We have organized medical experts and staff who had experience in treating SARS patients and prepared lab testing equipment in these hospitals, where suspected swine flu-like symptoms can be tested as soon as possible," said Huang.

Guangdong, neighboring Hong Kong and Macao, was one of the worst hit in the SARS outbreak in 2003, when 21 people died from the disease.

The Ministry of Health confirmed Tuesday that tests on the first suspected swine flu cases, in the northwestern province of Shaanxi, were negative.

Exams by the disease control center in Xi'an, the provincial capital, showed that sick children had contracted B-type influenza, which is common in humans.

He Jianfeng, head of the Institute for Epidemic Diseases under the Guangdong Center of Disease Control, said many people called the center asking about immunization against swine flu.

"We advise people to take human flu vaccines. [All kinds of flu] usually peak in May and June, and there is no effective vaccine available for swine flu," he said.

Health departments in other provinces such as Hunan and Shandong are also organizing to deal with swine flu, if and when it reaches China. However, no provinces have declared health emergencies because of the flu.

Although there has been no public panic, service industries have been told to step up hygiene practices and awareness, as the disease is still spreading worldwide.

For example, a worker in a downtown shopping mall in this capital of Guangzhou said they cleaned elevator buttons with alcohol hourly.

Health and market regulators have also stepped up inspections of the pig farms, slaughter houses and markets.

1.4 Key Technologies

Supercomputer 'Magic Cube' to Be Installed in Shanghai (CAS, 2009-04-09)

China's first supercomputer with a computing speed of over 100 trillion times per second, the Dawning 5000A, also called the "Magic Cube," will officially be installed in the Shanghai Supercomputer Center in mid-May, according to the Dawning Information Industry Company.

The Dawning 5000A, which is to be installed in Shanghai, will have three important missions- the national grid, Shanghai's basic scientific research platform, and information services for the eastern China region, said Li Jun, President of the Dawning Information Industry Company. It will provide massive information processing, information development services, and high-performance computing services for the purpose of scientific research in all sectors of eastern China.

Officials from the Shanghai Supercomputer Center noted that the Dawning 5000A will provide

China Highlights April 2009

powerful computing services to fields such as meteorology, undersea tunnels, environmental protection, shipping, jumbo jet manufacturing, automobiles, construction, iron and steel, petroleum, electro mechanics, and universities and scientific institutions, while also offering strong safety support for urban disaster reduction and precaution against earthquakes.

The Dawning 5000A officially came off the production line at the Dawning Tianjin Industrial Base on September 16, 2008, ranking among the world's top 10 supercomputers that year and making China the second country to independently design and manufacture a high-performance computer with a computing speed of over 100 trillion times per second after the US.

Besides its super strong computing capacity, the "Magic Cube" also features independent intellectual property rights, super high density, super high cost performance, super low power consumption and super wide application, according to the Dawning Information Industry Company. Although its performance is 20 times greater than the Dawning 4000A, its size is merely two-thirds that of the Dawning 4000A and has only a 50 percent increase in power consumption.

The Dawning Information Industry Company was established in 1995 with the support of the Institute of Computing Technology of the Chinese Academy of Sciences and the National Research Center for Intelligent Computing Systems. Through years of development, the company has accumulated abundant experience in server product research, development and application. In addition, it accomplishes the industrialized production of domestically-made high-performance computers and builds up a server industry chain integrating research, development, design and manufacturing.

China Develops Supercomputer with 2,335 Trillion Operations Per Second (CAS, 2009-04-21)

China has successfully developed the supercomputer Dawning 5000A, which is capable of 2,335 trillion FLOPS (Floating-point operations per second). The computer passed the appraisal by the Chinese Academy of Sciences on Thursday, making China the second country with capability of independently designing and making supercomputer on this level.

The supercomputer will be used for information processing and fundamental scientific research at the Shanghai Supercomputer Center (SSC), said Li Jun, president of Tianjin-based Dawning Information Industry Co.

Dawning 5000A will help with weather forecasting, construction of seabed tunnels, environmental protection, large passenger aircraft production and earthquake predictions, according to the SSC.

Dawning 5000A covers a floor space of 75 square meters and consumes 700 kilowatts of electricity per hour. Even with expensive imported AMD chips, it costs only 200 million yuan (29 million U.S. dollars), significantly lower than its 100 million-U.S. dollar counterpart "Roadrunner" in the United States.

CAS Researchers Develop Ellipsometry Imaging System (CAS, 2009-04-24)

Researchers with the National Microgravity Laboratory (NML) of the Institute of Mechanics (IMECH), Chinese Academy of Sciences, have recently developed a spectroscopic ellipsometry imaging system and its demonstration machine.

Supported by CAS' Major Research and Development Project, Jin Gang with IMECH and his team

China Highlights April 2009

carried out the research on the basis of spectroscopic ellipsometry. The research, integrated with spectral properties and digital imaging technology, makes it possible for researchers to carry out speed spectral imaging and quantitative measurement of bivariate distributed nano-stratofabric film sample.

The system provides an effective method for rapid characterization and physical analysis on large multi-layer nano-film samples with complicated horizontal structure, said experts with the appraisal committee.

The research opened a new field for applying ellipsometry. It will also play an important part in areas such as micron/nanofabrication, bio-film structure, new electronic device, biochip and high density storage device.

China prepares for market launch of robots attending lone elderly (Xinhua Net, 2009-04-25)

A 1.6-meter tall robot with twinkling eyes may soon become the best friend for lone elderly people, as Chinese scientists make the final sprint toward its market launch, said a senior researcher on the robot project here on Saturday.

"We are working on testing the precision functions and ways to reduce the cost in preparations for an anticipated market launch of the robot in two to three years," said Li Ruifeng, a member of the project with the Harbin Institute of Technology in this capital of northeast China's Heilongjiang Province.

He said the team hoped to reduce the cost so that the robot can be priced at 30,000 to 50,000 yuan (4,000-7,000 U.S. dollars), which is expected to be an affordable price range for this type of product for most of China's better-off families.

The robot has been developed with the functions of fetching food, medicine, sounding alarms in case of water or gas leakage, sending texts or video images via wireless communications, and even singing a song or playing chess to entertain its masters.

Li said that the robot, developed independently in China, has technology on par with those in western labs.

China embarked on the research of the robot in 2007, when it was listed as a national key project. It is backed by government funding, as the government has foreseen problems of an aging society.

China has the world's largest elderly population with 159 million people over 60, accounting for 12 percent of its total population.

According to a survey by the Ministry of Civil Affairs, more than 10 million caretakers and nurses are needed to attend the elderly population, as most of Chinese elderly prefer to live their retired lives at home.

1.5 Structure of Matter

Chinese Scientists Find New Way for Structural Analysis of Ionic Liquid (CAS, 2009-04-02)

Scientists with Shanghai Institute of Applied Physics (SINAP), Chinese Academy of Sciences, used

China Highlights April 2009

XAFS (X-ray absorption fine structure) technique to do structural analysis on ionic liquid ChCl-ZnCl_2 in different ChCl:ZnCl_2 ratios.

The research team, led by Xu Hongjie and Wu Guozhong, researchers of SINAP, investigated the components and structures of ionic liquid ChCl-ZnCl_2 in different ChCl:ZnCl_2 ratios by X-ray absorption fine structure spectroscopy, and established a new mechanism of interactions between Ch^+ cation and Cl-Zn-Cl ion pairs or Cl^- .

Ionic liquid, a special soft matter made of cation and anion, is considered a third liquid in the nature besides water and organic solvent. It has good electro-conductibility and thermo-stability and is widely used in organic synthesis, catalyze, electrochemistry, energy and material areas.

However, little research is carried out on the fine structural characters of ionic liquid due to lack of advanced methods. XAFS will make it possible for scientists to do more research on the analysis.

China's biggest large-scale scientific facility SSRF completed

(People's daily, 2009-04-30)

On April 29, China's biggest ever large-scale scientific facility - the Shanghai Synchrotron Radiation Facility (SSRF) - was officially completed in Shanghai Zhangjiang Hi-tech Park and opened to domestic and foreign users. The facility involves a total investment of about 1.2 billion yuan.

Hospitals use X-ray to take photos of human skeletons and blood vessels while the SSRF similarly uses ultra-strong X-ray to bring an "imaging revolution" to our understanding of the micro-world. It makes use of synchrotron radiation light, which is 100-million-fold brighter and one-million-fold stronger than light from common X-ray apparatus, to image microcosmic substances. It is regarded as an irreplaceable tool in the study of many cutting-edge subjects and is the most advanced of its kind in these subjects.

Among all 20 third-generation synchrotron radiation light sources that have been built worldwide, China's SSRF ranks fourth in terms of power, preceded only by Japan, the US and Europe.

Shanghai particle accelerator to open its doors for business

(People's Daily, 2009-04-30)

The building and testing of a machine that can create super X-rays capable of exposing the complicated structures of chemical compounds and proteins has been completed at Shanghai Zhangjiang High-tech Park in Pudong New Area.

The Shanghai Synchrotron Radiation Facility is expected to significantly boost China's capability and competitiveness in scientific research, especially in life sciences, officials from the Shanghai Institute of Applied Physics of the Chinese Academy of Sciences, the facility's key developer, were quoted as saying by Thursday's Shanghai Daily.

The 1.2 billion yuan (176 million U.S. dollars) particle accelerator, China's biggest light facility, will also help in the study of viruses and new drugs and the development of technology.

Next month the synchrotron will be opened to universities, scientific institutes and companies for approved research.

The trial operation of the facility in about 60 projects since last month has already yielded results.

"We have found seven new structures including one enzyme which can break down an environmental toxicant," said He Jianhua, head of the institute's synchrotron radiation experiment division.

The institute is cooperating with the Shanghai Institute of Material Medica on researching treatment

China Highlights April 2009

of bird flu and is expected to work with Sinopec on petroleum catalyzers.

"The machine will be an effective tool in research on viruses as well as for swine flu medicines although we haven't received a request yet," He said.

The facility was jointly proposed by the Chinese Academy of Sciences and the Shanghai government in 1995, with construction starting in December 2004.

The synchrotron's beamlines were adjusted from May last year to March. So far the facility has built seven beamlines and experimental stations for research and development in life sciences, new materials, physics and biochemical projects.

The particle accelerator can produce X-rays thousands of times stronger than normal X-ray machines capable of exposing the minute structure of human proteins.

"Thanks to the technology, we can know a protein structure within 20 minutes. Such a procedure usually took several months," said He.

The institute hopes to complete the facility's proposed 60 beamlines by 2020, and have 40 completed by 2015.

1.6 Transport and Space

CAS, University Build Astrophysics Center in Xinjiang

(CAS, 2009-04-08)

The National Astronomical Observatories (NAOC) of the Chinese Academy of Sciences (CAS) and Xinjiang University jointly built a center of Astrophysics to promote China's astrophysics studies.

The center will receive support from Nanshan Station, Urumqi Astronomical Observatory (UAO) and draw research resources from the School of Physics Science and Technology, Xinjiang University.

Nanshan Station, UAO now has a 25m-diameter radio telescope. It is the only station in China which can conduct pulsar surveys using single dish radio telescope.

Light pollution is becoming a bigger problem for astronomical observation. With little such pollution, remote area in Xinjiang Uygur Autonomous Region is one of the few "suitable places" for astronomical studies.

Snow mountains, deserts and continental plateaus keep Xinjiang away from the impacts of human activities, radio interference and light pollution, and make it a perfect place for astronomical observation, noted Yan Jun, director of NAOC.

Advanced large-scale observation facilities have been installed in Xinjiang over the years, and some are under planning. Xinjiang has become a hot spot for astronomical studies.

China's first space telescope to be launched between 2010 and 2011

(People's Daily, 2009-04-09)

"Between 2010 and 2011, China's first space telescope will be launched, and it will roam in outer space together with the Hubble Space Telescope." said Su Dingqiang, an academician at the Chinese Academy of Sciences recently at the 19th academician and expert rostrum. "Several large-size telescopes independently developed by China in recent years have caught reached the world's most advanced level."

China Highlights April 2009

This year marks the "International Year of Astronomy" as well as the 400th anniversary of Galileo's first astronomical observation through a telescope. China, despite being a space power, has so far never launched a space telescope. Su said that the launch of the Hard X-ray Modulation Telescope (HXMT) – a telescope with the highest sensitivity and space resolution in the world— will mark the "zero breakthrough" for China's launch of space telescopes.

The HXMT's specific missions will include the study of high energy astronomical bodies and high energy radiation phenomenon as well as the directional observation of mysteries of the universe such as black holes and neutron stars. Its observed findings are expected to have major contributions to high energy astrophysics.

Model Explains Youthful Supernovae (CAS, 2009-04-14)

A team of astronomers, led by Dr. Bo Wang from the Yunnan Observatory of the Chinese Academy of Sciences, have developed a new model which explains the formation of the most youthful type Ia supernovae. In a paper published in Monthly Notices of the Royal Astronomical Society, Dr. Bo Wang and his team show how the transfer of material from a 'helium star' to a compact white dwarf companion causes these cataclysmic events to take place early on in the life of the galaxy they formed in.

Most type Ia supernovae are believed to occur when a white dwarf (the superdense remnant that is the end state of stars like the Sun) draws matter from a companion star orbiting close by. When the white dwarf mass exceeds the so-called Chandrasekhar limit of 1.4 times the mass of the Sun, it eventually collapses and within a few seconds undergoes a runaway nuclear fusion reaction, exploding and releasing a vast amount of energy as a type Ia supernova. Due to their high and remarkably consistent luminosities, astronomers use these events as 'distance indicators' to measure the distances to other galaxies and constrain our ideas about the Universe.

Scientists have confirmed more and more type Ia supernovae, and found that about half of them explode less than 100 million years after their host galaxy's main star formation period. But previous models for these systems did not predict that they could be this young so Dr. Wang and his team set out to solve this mystery.

Employing a stellar evolution computer code, they performed calculations for about 2600 binary systems consisting of a white dwarf and a helium star, a hot blue star which has a spectrum dominated by emission from helium. They found that if the gravitational field of the white dwarf pulls material from a helium star and increases its mass beyond the Chandrasekhar limit, it will explode as a type Ia supernova within 100 million years of its formation.

The team now plans to model the properties of the companion helium stars at the moment of the supernova explosions, which could be verified by future observations from the Large sky Area Multi-Object fiber Spectral Telescope (LAMOST, <http://www.lamost.org/en/>). Team member Prof. Dr. Zhanwen Han comments, "Type Ia supernovae are a key tool to determine the scale of the Universe so we need to be sure of their properties. Our work shows that they can take place early on in the life of the galaxy they reside in."

The team's results can be found at <http://xxx.lanl.gov/abs/0901.3496>

China Launches Second "Compass" Satellite for Global Navigation System**(CAS, 2009-04-14)**

China successfully launched its second navigation satellite early Wednesday, as part of the country's independent global satellite navigation system.

The carrier rocket, Long March 3C, blasted off from the Xichang Satellite Launch Center in southwest China's Sichuan Province at 0:16 am..

An official with the National Engineering Center of Satellite Navigation told Xinhua, the successful launch of the geostationary Earth orbit satellite was of great importance as it was the second one of the country's satellite navigation system independent from foreign technology.

The system, code named "COMPASS", is a crucial part of the country's space infrastructure for providing navigation and positioning services in transportation, meteorology, petroleum prospecting, forest fire monitoring, disaster forecast, telecommunications and public security among others. It can bring significant social and economic benefits, the official said.

The system can help clients know their location at any time and place with accurate longitude, latitude and altitude data, and will offer "safer" positioning, velocity, timing communications for authorized users.

Previous reports said China planed to complete its independent global satellite navigation system by launching about 30 more orbiters before 2015, with 10 navigation satellites into the space in 2009 and 2010. The current Compass system only provides regional navigation service within China and neighboring regions.

The second "Compass" satellite and its carrier rocket were respectively developed by the China Academy of Space Technology and the China Academy of Launch Vehicle Technology which are under the China Aerospace Science and Technology Corporation.

It is the 116th flight for the country's Long March series of rockets.

China launched the first "Compass" navigation satellite into geostationary orbit in April 2007 to build up its own positioning system following the United States' Global Positioning System (GPS), the Galileo Positioning System of Europe and Russia's Global Navigation Satellite System (GLONASS).

Network construction of Beidou navigation system to be completed in three years**(People's Daily, 2009-04-16)**

The second Beidou navigation satellite (Beidou II) was successfully launched into its designed orbit from the Xichang Satellite Launch Center at 0:16 am on April 15, according to China National Space Administration

An official from the National Engineering Center of Satellite Navigation said that Beidou II, a geostationary satellite, can provide services such as positioning, velocity measurements and time synchronization to China and peripheral regions.

Compared with "Beidou I," which is currently in operation, Beidou II has advantages in many aspects, including effective avoidance of electromagnetic interference and attack, and passive

China Highlights April 2009

location ability with highly improved accuracy. While Beidou I has an accuracy of within 10 meters, Beidou II has raised this to within one centimeter.

An official with the China Aerospace Science and Technology Corporation, this satellite's successful launch is a sign that the Beidou satellite navigation system, which China independently developed, has entered a peak time of satellite-based network construction. It is predicted that a satellite navigation positioning system covering the whole world will be completed by around 2020. Several Beidou satellites will be launched this year to complete the formation of a satellite-based network for a system that will be available for essential operation capabilities and will develop the system into a global service.

Since 2000, China has launched three Beidou navigation test satellites in succession and has established a test system. During the Wenchuan earthquake disaster last year, the system played an important role in providing navigation and positioning services. China is currently developing the second-generation Beidou satellite navigation and positioning system, and in April 2007 it launched the first satellite. The satellite it launched on April 15 this year is the second one in the system.

Beidou system listed as one of four major satellite navigation systems in the world

Beidou satellite navigation and positioning system consists of three sections. These are the four Beidou positioning satellites (two working satellites and two backup satellites), a ground control center and Beidou subscriber terminals. China's Beidou navigation system, the US-based Global Positioning System (GPS), Russia's Global Navigation Satellite System (GLONASS) and the Galileo Positioning System of the EU are the four major global satellite navigation systems. At present, the United Nations has already confirmed that the four systems are core suppliers in global satellite navigation.

Laboratory of Astronomical Optics and Technology Established in Nanjing (CAS, 2009-04-17)

Nanjing Institute of Astronomical Optics and Technology (NIAOT) set up its first key Laboratory on April 8.

The laboratory was set up to meet the needs of China's astronomical studies. It will also work to strengthen the collaboration between the Chinese Academy of Sciences (CAS) and research institutes at universities, said Cui Xiangqun, director of the Lab's scientific committee.

NIAOT is a subordinate unit of National Astronomical observatories, CAS. It has made important breakthroughs in active optics, high precision large aperture astronomical mirror, Chinese Small Telescope Array (CSTAR), extra planet imaging detection technology, and infrared extreme large telescope. It also successfully developed the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST). It not only maintained a leading position in China, but also made an impact in the international astronomical community.

Expert: China to offer free global navigation by 2020 (CAS, 2009-04-17)

China will be able to provide free global navigation and positioning services by 2020 with its own constellation of satellites named "Compass," an engineering expert said here Friday.

Compass would cover all of China and its adjacent regions by the end of 2010 or early 2011, and it would expand into a global network by 2020, Cao Chong, chief engineer of the China Electronics

China Highlights April 2009

Technology Group Corp., told Xinhua.

Cao's statement contradicted earlier reports claiming that China would complete the system before 2015.

Compass could provide civilian clients with positioning accuracy within 10 meters without charge, compared with the 5m to 6m offered by the U.S.-developed Global Positioning System (GPS), Cao said.

However, "the Compass system has its own advantages," he said.

The system would also be used to transmit text messages in remote or maritime areas largely beyond the reach of conventional satellites and provide "authorized services" for military purposes, Cao said.

On Wednesday, China launched its second Compass navigation satellite, about two years after the first Compass module went into orbit.

Cao said China would launch another 10 satellites within the next two years. The 12-satellite system could cover China and neighboring regions for the first phase of the Compass program.

But it would take far more time to carry out the second phase, under which Compass would expand into a global network, he said. That would require at least 30 satellites.

A military official, who would only give her surname as Tang, said the Compass system would eventually include 35 satellites.

"The European Union's Galileo Positioning System cost more than 3 billion Euros," Cao said. That amount is equivalent to 3.9 billion U.S. dollars).

In light of that figure, "I think the Compass system might cost China several dozen billion yuan," Cao added. "The first phase alone could cost more than 10 billion yuan," Cao said.

China is one of a few countries able to develop a navigation satellite system. By 2007, China had successfully put four experimental navigation satellites into orbit, forming the Beidou ("Big Dipper") system, which can provide positioning accuracy within 20m.

The Beidou-based Compass system is expected to rival the U.S.-developed GPS, the EU's GPS and Russia's Global Navigation Satellite System, but Cao added: "It is hard to say which one is better for now."

China Launches "Yaogan VI" Remote-sensing Satellite (CAS, 2009-04-22)

China on Wednesday launched a remote-sensing satellite, "Yaogan VI," from the Taiyuan Satellite Launch Center in north Shanxi Province.

The satellite was successfully launched into the space on a Long March 2C carrier rocket at 10:55 a.m., the center reported.

It will be mainly used for land resources survey, environmental surveillance and protection, urban planning, crop yield estimates, disaster prevention and reduction, and space science experiments, according to the center.

The satellite's predecessor, "Yaogan V," was launched last December, also from Taiyuan.

"Yaogan IV" was launched from the Jiuquan Satellite Launch Center in northwestern Gansu Province last December and "Yaogan III" from Taiyuan in November 2007.

"Yaogan I" and "Yaogan II" satellites were launched in April 2006 and May 2007, respectively.

The satellite was developed by the Shanghai Academy of Space flight Technology under the China Aerospace Science and Technology Corp. The rocket was designed by the China Academy of Launch

China Highlights April 2009

Vehicle Technology, also under the corporation.

The flight was the 117th of the Long March series of carrier rockets.

China to launch sixth remote-sensing satellite

(CAS, 2009-04-22)

China is scheduled to launch a new remote-sensing satellite into the space Wednesday, a spokesman with the Taiyuan Satellite Launch Center in north Shanxi Province said Tuesday.

Both the satellite, "Yaogan VI," and the Long March 2C carrier rocket were in sound condition and the preparation work was well underway, said the spokesman.

China has so far launched five remote-sensing satellites.

The spokesman didn't specify the usage of the satellite, but the previous ones have been used for data collection and transmission involving scientific experiments, land resource surveys, crop yield estimates, and disaster prevention and reduction.

The first Chinese remote-sensing satellite blasted off in April 2006, and four more were launched in 2007 and 2008.

Chinese mainland's space tracking ship Yuanwang VI arrives in HK

(People's Daily, 2009-04-29)

The Chinese mainland's space-tracking ship Yuanwang VI arrived in Hong Kong on Wednesday for a six-day visit.

The visit kicked off a string of activities in the special administrative region to celebrate the 60th anniversary of the founding of the People's Republic of China.

At about 9:45 a.m., the ship sailed toward the Ocean Terminal, Tsim Sha Tsui. A hundred local primary school students at the pier waved national flags and regional flags to welcome the ship.

Representing the Hong Kong government and members of the public, the city's Chief Secretary for Administration Henry Tang held a welcoming ceremony for members from the ship.

Yuanwang's Captain Ling Yuan told reporters that Yuanwang had just finished a mission at the Pacific Ocean area before coming to Hong Kong, saying he would welcome Hong Kong people on board and answer their questions.

There will be an exhibition on board running from April 29 to May 4 for the public. A free public lecture will be held on April 30 at the Science Museum of Hong Kong conducted by the ship's captain and scientists.

Construction of Yuanwang VI was completed in 2008. It represents a new generation of space-tracking ships designed and manufactured in the Chinese mainland. On its maiden voyage last September, Yuanwang VI was engaged in maritime tracking of the Shenzhou VII manned space mission.

In all, China boasts a fleet of six Yuanwang space tracking ships which have carried out some 70 expeditions and traveled more than 1.5 million sea miles in the Pacific, Atlantic and Indian oceans.

The tracking ships constitute China's space telemetry network together with some 20 terrestrial surveying stations.

CAS Academician: China Should Strengthen International Co-op in Large Scale Astro-observation Research**(CAS, 2009-04-30)**

"China's astronomy research should be more active in international cooperation, so as to shorten the gap with the advanced astronomy research in the world," said Chen Jiansheng, researcher from China's National Astronomical Observatories (NAOC) and academician of the Chinese Academy of Sciences (CAS), in the Commemorative Conference for The International Year of Astronomy 2009.

China may participate in international construction of large scale astronomy equipments selectively, Chen suggested. The cooperation will help to improve China's science and technology research, and to promote the development of the country's high-tech and fabrication techniques.

China has made great progress in major astro-observatory constructions in the past 30 years. The completion of LAMOST (The Large Sky Area Multi-Object Fiber Spectroscopic Telescope) is expected to bring Chinese astronomy to a leading position in the large scale observations of optical spectra, and in the field of wide field astronomy.

The undergoing FAST (Five-hundred-meter Aperture Spherical Radio Telescope) and HXMT (Hard X-ray Modulation Telescope) as well as SST (Space Solar Telescope) made China one of the few countries that are able to construct modern mega astronomical telescopes.

However, "gap on astro-research between China and the world's advanced countries are widening instead of decreasing," Chen worries.

China seldom participates in international mega astro construction projects, while few international astro-organizations join Chinese projects. "Today's mega astro facility constructions are beyond the capability of a single country. Analysis of the data also call for jointly efforts of scientists from many countries," said Chen.

The International Year of Astronomy 2009 is a global effort initiated by the International Astronomical Union (IAU) and UNESCO to help people rediscover their place in the universe by engaging a personal sense of wonder and discovery.

2 News from Universities

Chinese government offers more scholarships to foreign students in China

(People's Daily, 2009-04-02)

Reporters learned from the "2009 Chinese Government Scholarships for Foreign Students in China Work Conference" currently being held at Fudan University, that the Chinese government will gradually increase investment over the next several years to sharply boost the number of foreign students receiving scholarships from the Chinese government. It is estimated that by 2013, the number of foreign students in China receiving government scholarships will double from the current figure.

Over the past 30 years, the number of foreign students in China has increased considerably. In 1978, the number of foreign students in China was only 1,236, while in 2008 the number has reached 223,500, representing nearly a 180-fold increase. These foreign students come from 189 countries and regions worldwide, and have studied in 592 universities and institutions across China. In 2008, the number of foreign students financed by scholarships from the Chinese government reached 13,516, up 33.15 percent from the previous year. This was the first time that the number of foreign students receiving scholarships from the Chinese government had exceeded the target of 10,000.

Studying abroad grows in three trends

(People's Daily, 2009-04-30)

According to statistics the current market for Chinese studying abroad has shown growing trends in three areas, more self-financed, more classified and more schools and majors available to choose from.

Self-financed students have become the majority

As stated by Zhang Xiuqin, Director-General of the Department of International Cooperation and Exchanges under the Ministry of Education, the number of Chinese students who went to study abroad in 2008 reached 179,800. Of these students, 161,600 were self-financed, accounting for 90 percent of the total. Self-financed students have become the majority of Chinese students studying abroad.

In 2007, Zhu Jiani, a 2008 master's degree graduate of the Graduate School of Education at Shanghai Jiao Tong University, made a survey via the Internet of Chinese students studying abroad. According to 454 questionnaires received, 62 percent of the students declared their family as the main source of funding for their tuition for studying abroad, ranking it still the top financial source. Zhang, mother of a self-financed student studying abroad, said in an interview that nowadays people could more easily afford to study abroad as their income has increased while expenses for studying abroad have not changed much.

Experts believe that the recent market for studying abroad has benefited from two policies. The first one was the four trillion yuan stimulus package adopted by the Chinese government to boost domestic demand. This has benefited many industries, and therefore directly or indirectly affected the common family. The second policy related to the fact that in recent years, popular studying abroad destinations such as the UK, the US, Australia and Canada all adjusted their policies one after another, relaxing visa restrictions, adjusting the percentage of new students admitted and cutting down the

threshold for enrollment, therefore increasing the number of foreign students from China and other countries.

Students studying abroad become more diversified

A consultant who works at an intermediary agency for studying abroad called Chivast Education International said that "the number of candidates applying as graduate students increased by 30 to 40 percent and as undergraduates increased by 50 percent in 2008."

Recently, Chinese students studying abroad have become increasingly diversified. Aside from undergraduates, other students such as graduate students, doctorate students, and advanced research scholars have gradually increased. Apart from students, young white-collar workers are also looking for the opportunity to study abroad.

According to overseas study experts, children are primarily sent to study abroad due to the high pressure and great competition of university entrance examinations in China and the fact that it would be relatively easier to study in a foreign university. Second, it could help the children adapt earlier to the international environment and lay the foundations for them to enter relatively good universities for postgraduate education. Third, the parents of many high school students were previously overseas students and advise their children to study abroad.

Experts believe that studying abroad is no longer an exclusive right for certain classes as the market for overseas studies at present has become a "supermarket for everyday people," resulting from the increasingly lower costs and higher value of studying abroad.

A larger selection of schools and majors to choose from

During the China International Education Exhibition Tour held recently, of the over 400 colleges and institutions that participated in the exhibition, 149 were new participants, including first time exhibitors from Australia, France, the Netherlands, Ireland, Malaysia, New Zealand, Singapore and the UK. They offered Chinese students a series of education programs covering high school education, vocational education, continuing education, undergraduate education and postgraduate courses.

Colleges from countries and regions visiting China to recruit new students are also providing more choices in terms of what they can major in. After analysis, experts believe that in past years, most students going abroad to study chose business administration, finance, accounting or IT, which has almost saturated the market for these majors. In recent years, the majors which were relatively less popular in the past, such as engineering, logistics, environment, education, nursing, cosmetology and hairdressing and vehicle maintenance and repair, have become the choices of many students that study abroad.

Experts suggest that when choosing what to major in, one should first establish a goal, ascertaining what one wants to learn about and should not blindly follow the trend. The appropriately chosen major should be selected in accordance with the basis of learning, background, mode of thinking and individual character. One should anticipate the job prospects of the chosen major in order to avoid "learning something useless."

3 Innovation Management

Engineering Studies to Back up National Strategies Implementation

(CAS, 2009-04-02)

Scholars and experts gathered to discuss how academia could help promote China's engineering innovation and national strategies at the 344th Session of the Xiangshan Science Conferences (XSSC), which convened from 31 to April 2 in Beijing.

Engineering is a direct productive force and a main theater for national innovation. Engineering, major construction engineering in particular, is vital in realizing national strategies. Relevant engineering projects are necessary steps for implementing any national strategies. At the same time, engineering has to serve these strategies on its own initiative.

Large-scale engineering projects not only give a dramatic facelift to China in terms of social and economic development, but also promote China's status in the international community, for example, Qinghai-Tibet Railway and manned spaceship.

China will carry out industrial upgrading in the current global economic crisis. In order to give council for the formulation of the national strategies and the implementation of these engineering projects in the new scenario, engineering scientists from across the country team up to review experience and lessons from China's engineering practice from an interdisciplinary perspective, to explore the relations between major construction projects and national strategies, and to unravel the laws of engineering development.

The main topics at the meeting are: "basic experience in China's major construction engineering projects," "major engineering projects, indigenous innovation and national strategies," and "national strategy-oriented engineering studies."

The interdisciplinary studies of engineering is the basic features of the new academic area of engineering studies.

XSSC stands for a series of small-scale academic workshops, with the objective of promoting free academic exchanges and discussions, fostering interdisciplinary cooperation and integrated studies in various areas of excellence and exploring new frontiers.

The XSSC was initiated by the former State Science and Technology Commission, now the Ministry of Science and Technology of China (MOST). It was officially inaugurated in 1993 under the joint sponsorship of MOST and the Chinese Academy of Sciences (CAS).

CAS Opens Large-Scale Scientific Facilities to Enterprises

(CAS, 2009-04-15)

Chinese Academy of Sciences (CAS) launched a website (<http://www.cas.ac.cn/10060/index.htm>) on April 10 to help enterprises use its large-scale scientific facilities for free.

CAS will make 1000 general instruments and equipments available to small and medium-sized enterprises (SMEs), in an effort to help them develop new technology to survive the financial crisis.

The academy will also provide free analysis service for a year or so to help SMEs tackle technological bottlenecks in the industrial structure upgrading and enhancing their capacity for independent innovation.

CAS has set up a complete system of R&D facilities in the past few decades. It owns nearly 3000 research equipments by the end of 2007, and 1000 of them are general instruments and equipments,

China Highlights April 2009

noted Bai Chunxi, vice president of CAS.

These facilities can not only facilitate scientific research, but also remain important tools for quality testing, product analysis and technological breakthroughs. CAS boasts a highly competent expertise team who can provide solutions to the enterprises.

The website is built to serve the needs of businesses. It has the most-updated information of CAS' general instruments and equipments. Enterprises could easily find info of the facilities scattered around China and whether they are available for use. The website also allows users to make preservation online and make inquiries to CAS experts.

Some 1020 large-scale facilities owned by 46 institutes were presented at the website by the end of March and more will be added by the end of May. Ultimately there will be nearly 15,000 items available to the enterprises.

Airbus A320 assembly line in Tianjin signs orders until 2016

(People's Daily, 2009-04-17)

The Airbus A320 final assembly line project in Tianjin has currently received 284 orders for Airbus A320 aircraft from China's domestic market, some of which will not be delivered until 2016. Dong Weizhong, Director of the Tianjin Binhai New Area Aviation Industry Park (also referred to as Tianjin Aviation City) said on April 16.

On the same day, Shang Luguo, General Manager of Airbus (Tianjin) Final Assembly Company, also revealed that it is predicted the Airbus A320 final assembly line project in Tianjin will reach an annual production capacity of 48 aircraft by 2011. According to this the six years from 2011 to 2016, the Airbus A320 final assembly line project in Tianjin will produce 288 aircraft, and almost all of them will be bought by the Chinese domestic market.

Shang said that the financial crisis has had a negative impact on global aviation markets, so it has been difficult for Airbus to avoid the impact. He added, however, that even if Airbus no longer receives orders from one place, it may still have new orders from another place. In general, the financial crisis has not had too much impact on Airbus (Tianjin) Final Assembly Company.

A report issued by Tianjin Aviation City indicates that China has to date become the world's second largest aviation market, preceded only by the US. Over the next two decades, the Chinese mainland is likely to purchase 2,670 aircraft. At present, Airbus and many other large international aviation manufacturing enterprises are increasing their investments in China while scaling back their investments abroad. These favorable factors have all created precious opportunities for the development of the aviation industry in Tianjin Aviation City.

NSFC, CAS to Carry out Strategic Studies on Scientific Disciplines

(CAS, 2009-04-20)

National Natural Science Foundation of China (NSFC) and the Chinese Academy of Sciences (CAS) signed an agreement on April 16 to carry out research on China's development strategies for scientific disciplines from 2011 to 2020.

The program aims to foster a balanced sustainable development in all disciplines, and bring the talent of CAS, China's major think tank into full play. The main task involves investigation of the development patterns of scientific disciplines, basic research, talent-training and environment construction.

NSFC and CAS also established a steering committee in line with the agreement to carry out strategic studies and set up research teams led by scientists of strategic studies. The project will propose about which disciplines should be given priority for development within two years.

The research result will provide foundation for strategic planning in basic research and researchers will also offer suggestions and policies on enhancing China's basic science research.

A balanced sustainable discipline composition lays the foundation for scientific research and the training of scientists and technicians. China is undergoing a critical period in terms of science and technology development. It is of great importance to conduct strategic research in discipline development so as to make key breakthroughs and foster scientific progress, noted CAS officials.

4 China's International Science Cooperation

China to host International Conference on Conservation Biology (CAS, 2009-04-10)

The 23rd annual of the Society for Conservation Biology (SCB) is to be held in Beijing this July, to discuss topics including climate change and environment conservation, biodiversity conservation, and endangered species protection.

Being one of the most important international academic conferences on conservation in 2009, the meeting will feature the theme Conservation: Harmony for Nature and Society. Issues on conservation will be discussed during the session, according to the meeting's two sponsors, the Institute of Zoology, Chinese Academy of Sciences and the SCB.

The meeting will also discuss topics covering marine species conservation, bio-energy, conservation and sustainable development, conservation management, conservation policy formulation and education, conservation research and its integration with politics, community management and protection, conservation in social economy development, and the use of economic methods in biodiversity protection.

A large-scale public exhibition that shows examples in global conservation research will be held at the same time. The exhibitions, namely "2009 Conservation Story", supported by the China Association for Science and Technology, Conservation International, the Wildlife Conservation Society, and the EU-China Biodiversity Program, will open to public in June in Beijing, Tianjin and Hangzhou.

SCB is an international professional organization dedicated to advancing science and practice of conserving the Earth's biological diversity. The first Society for Conservation Biology meeting was held in 1988 in the United States. Since then, the SCB Annual Meetings have been held each year in Africa, Australia, Europe, and North and South America.

The meeting is a forum for addressing conservation challenges, and for presenting and discussing new research and developments in conservation science and practice.

CAS, HKUST Built Laboratory of Intelligent Recognition (CAS, 2009-04-13)

Institute of Automation, Chinese Academy of Sciences (CASIA) and Hong Kong University of Science and Technology (HKUST) set up a joint laboratory of intelligent recognition in Beijing on April 9, 2009.

China Highlights April 2009

CASIA and HKUST had been cooperating in mode recognition, artificial intelligence, wireless sensor networks, and radio frequency identification (RFID) before the founding of the laboratory. "It opened a long-term thorough cooperation on both sides," commented Yuan Minghui, the vice president of HKUST.

The laboratory is an excellent platform for Researchers to collaborate further to explore the fronts of intelligent recognition science, added He Lin, deputy director of CASIA.

The laboratory is the 13th of its kind established by CAS and Hong Kong Special Administrative Region.

Workshop Boosts Sino-French Collaborations in Particle Physics Research (CAS, 2009-04-16)

The second workshop of France China Particle Physics Laboratory (FCPPL) was held in Huazhong Normal University on March 22 to 24. More than 120 scholars and scientists from major partners in particle physics in both countries attended the meeting.

The main purpose of the second workshop is to present, review and discuss the various current and future activities performed by Chinese and French scientists within the FCPPL framework.

The meeting is mainly devoted to reinforce the collaborations in particle physics, with a focus on Large Hadron Collider (LHC) and International Linear Collider (ILC) activities, including computing development and deployment, as well as accelerator studies and astroparticle studies. The partners will also discuss a work plan for new collaborations in other particle physics domains and exchanging scholars and Ph. D fellows.

FCPPL was established according to the agreement between Chinese Academy of Sciences (CAS), Centre National de la Recherche Scientifique (CNRS) and French Commission for Atomic Energy (CEA) in April 2007. Chinese partners also include the Tsinghua University, Peking U., Shandong U, Huazhong Normal U., Nanjing U., Dalian U. of Technology

The aim of the joint laboratory is to promote the cooperation between France and China in particle physics. Cooperation programs have been set up and funded through the laboratory following its founding in 2007. Its steering scientific committee established an official dialogue on a regular basis and a decision-making mechanism to validate the quality of the joint projects.

China-UK higher education exchanges benefit both (People's Daily, 2009-04-24)

The higher education exchanges are increasing and should be further increased to benefit students of both countries, said Mr. Rick Trainor, Principal of King's College London and President of Universities UK which represents the heads of all the UK's universities.

Mr. Trainor made his fourth visit to Beijing last week during which he signed agreements with the China Scholarship Counsel and with Renmin University to facilitate exchanges of students and academics between the two countries.

Prof. Trainor himself is a good example of gaining benefits of having education in more than one country. He got his first degree in the US and his doctorate in the UK. In the US, he recalled, students are encouraged to look across different disciplinary boundaries while in the UK in-depth studies are more emphasized.

He hopes that more British students come to China "to get the benefit of two university systems".

China Highlights April 2009

"Chinese universities are much more international than they were 10 or 15 years ago," said Mr. Trainor. There are international students, for example, from the UK, although the number is still small.

With some 60,000 Chinese students in universities in the UK, China is the largest source of international students to British universities.

Prof. Trainor highlights the importance of free flow of ideas for the international academics. At King's College London there is China Institute which teaches students and scholars about all aspects of China, including traditional Chinese medicine, Chinese history and philosophy. Chinese students also learn about other countries in universities in China.

Globalization in education in that way, according to Prof. Trainor, benefits prosperity and world peace. He expects that education will be much more globalized in 10 or 15 years.

British collaborative researches with China are increasing faster than with any other country. In October 2007, the Research Councils UK (RCUK) established its China office, its first overseas office outside Europe.

It is true that it is more difficult for people to find a job in the current economic downturn. However, people with a degree have much better chance than those without a degree. Prof. Trainor noted that universities provide students with skills of analysis and technical skills to enable students to adapt to different jobs while employers provide training for particular jobs.

He has not seen any evident changes on students' choices of majors in Britain or the application from Chinese students to study in Britain. But he hopes that students have long objectives for their future careers after the financial recovery.

That desire of preparing for the future is the biggest similarity he has observed between Chinese and British students. "They want to acquire knowledge; they want to develop skills that will help them in their future employment". And that similarity helps the internationalization of higher education.

2009 China-Australia Young Scientist Exchange Program Kicks off (MOST, 2009-04-29)



2009 China- Australia Young Scientist Exchange Program kicked off in Beijing on April 16th. More than 20 participants attended the opening ceremony, including representatives from MOST, Chinese Academy of Sciences (CAS), National Natural Science Foundation of China (NSFC), and Australian Embassy in China, and young scientists from the two countries.

On the meeting, representatives from MOST, CAS and NSFC introduced China's S&T policies and R&D systems, functions of competent S&T departments, national S&T programs, and international S&T collaboration, particularly the collaboration between China and Australia .

China Highlights April 2009

CAS, CEA Strengthen Collaboration in Renewable Energy

(CAS, 2009-04-28)

The Chinese Academy of Sciences (CAS) and the French Commission of Atomic Energy (CEA) renewed their agreement on April 22, 2009 to strengthen collaborations in energy, information, material, biomedicine and large-scale scientific facilities.

CAS President Lu Yongxiang, and CEA chairman Bernard Bigot signed the five-year agreement in Beijing, to mark the 30th anniversary of CAS and CEA cooperation.

Both parties agreed that it is of great importance to develop renewable energy and to conduct basic research in physics, chemistry and biology to support energy research.

They also agreed to strengthen research capacity by sharing scientific equipments and facilities and aimed to continue and solidify the partnership by supporting scholar-exchange and building joint laboratories.

Abbreviations

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