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

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Special News for Helmholtz Scientists

There are two interesting news in this edition: [China is now producing the largest number of doctors ahead of US](#), around 60,000 a year, and an increase rate of about 20%. But their quality very worrying and half of these fresh degree holders have switched their career in the government. [Mr. Janez Potocnik, EU Commissioner for Science and Research, paid his visit to China](#). He and Dr. Wang Gang, the Chinese minister for science and technology, have declared focused interest in future collaboration on energy saving, energy efficiency increasing and climate change.

On 15th and 16th May, CO-REACH, the European consortium for the coordination of cooperation with China, has organized a workshop under the topic “ Sustainable Development and Energy” in Beijing. It was rather embarrassing than successful, as almost no participants from Chinese side showed up to meet the over 27 delegates from European countries. It was obviously caused by the misunderstanding of many things, like poor communication and cultural differences. China has many agreements with EU countries based on bilateral agreements, but no one responds or is the right partner to CO-REACH.

On the 17th –19th May, Dr. G. Subklew from FZJ and Helmholtz Beijing Office have coordinated a dedicated workshop in Chongqing on the Ecology and Sustainable Development in the Three Gorges Dam Area, as a complementing academic programme for the big culture event “Germany and China Moving Together”. 6 German colleagues (4 from FZJ, one from GKSS and one from Erlangen University) attended this workshop, whose international flight-tickets and local spending covered by DAAD through the DuC budget. Two colleagues from Helmholtz Office went to Chongqing for local assistance. On the Chinese side, the local organizer, Chongqing University collected over 20 senior researchers across the country, and some senior officials, heads of the Chongqing Commission for Science and Technology, Mr. Zhou, Deputy Director General of the Reservoir Department of the Standing Office of the Three Gorges Construction Commission, Mr. Xin Jijun, Director for European Affairs, Ministry of Science and Technology showed up and backed this workshop.

On the 28th and 29th May, the Sino-German Steering Committee Meeting for Geological and Oceanographic Research were held in Beijing, with the separate Chinese governmental partners: It was Ministry of Land and Resources (MLR) for Geology and State Ocean Administration (SOA) coordinating the Chinese partners on their own programmes. Some running cooperation projects were reviewed and some new ones approved during the meeting, including a remote sensing project involved with Prof. Kaufmann and Dr. Ye from GFZ. Chinese side expressed strong wishes to go for joint polar research programmes, but BMBF apologized for no funding from Germany side concerning this topic and an internal discussion would be needed to change this policy.

Combined with the Sino-German Steering Committee Meeting for Geological Research, a two days bilateral workshop on remote-sensing was organized in the same Xijiao Hotel on 16-27. May. Dr. Fischer from DLR and someone from GKSS attended the event. Dr. Ollig from BMBF proposed to help Chinese for developing an advanced warning system against goeharzards, such as earth-quakes.

Helmholtz Beijing Representative Office

1 Science News

1.1 Energy

China's Satellite Launch City Aims to Be Global Wind Power Giant (CRI, 2008-05-05)

The northwest Chinese city of Jiuquan, famous as the nation's satellite launch center, has been busy with a new mission to exploit its rich wind energy resources in the hopes of becoming a global giant in the field of renewable energy.

Altogether 28 new wind farms, with a combined installed capacity of 10.65 million kilowatts, will be built around Jiuquan, a far-flung Gobi desert city by the year 2015.

Wang Jianxin, chief of the development and reform commission of Jiuquan City, said the city's plan to construct a wind power base of more than 10 million kw had just passed scrutiny by China Hydropower and Water Resource Designing Institute.

"We hope to accomplish a new Three Gorges Project on land," said Wang, "for long-term development, the Jiuquan wind power base could be expanded to have a combined installed capacity of 35.65 million kw."

Jiuquan is a region rich in potential wind energy resources. Latest statistics given by the meteorological departments show wind energy reserve in Jiuquan is placed at 150 million kw, of which, 40 million kw is exploitable. And the applicable land covers nearly 10,000 sq km.

Liu Shengping, deputy chief with the energy affairs office of the development and reform commission of Jiuquan City, estimated that the massive wind power development would need a budget of some 120 billion yuan (about 17.14 billion US dollars).

"More than 20 large Chinese enterprises have made investments or sent representatives to make inspection tours," said Liu, who declined to give an exact amount of investment his city had attracted for the wind power development.

To ensure a stable operation of the local power grid, the city will have to construct new thermal power projects, with the generating capacity totalling 13.6 million kw, by the year 2020 in tandem with the wind power base's generating capacity, according to Wang.

Jiuquan city began to build wind farms for catching energy in 1996, but the progress has been slow. It is now home to five large wind power farms, with an installed capacity totalling 410,000 kw.

The 1st solar PV building: main structure completed (People's Daily, 2008-05-08)

The main structure of the 25-storeyed mansion, China's first solar PV (photovoltaic) building, was lately completed in the city of Baoding in China's northern Hebei Province.

The building will serve as a landmark for the country's new energy and energy equipment industry base. By applying large-sized breathable glass screen to its outside appearance, the building can generate 0.3 megavolts of electricity, tantamount to a mini-sized power plant, which will not only satisfy the needs of electric lighting for the building, but can be annexed with the power grid for electricity generation.

Shanghai Believes in Bright Idea to Save Energy**(CRI, 2008-05-10)**

Shanghai plans to apply more lighting semi-conductors to reduce energy consumption from everything including plasma TVs to crop planting, city officials said on Friday.

The plan is based on light-emitting diode, or LED, officials of the Shanghai Science and Technology Commission said.

"We are trying LED to improve people's lives in many ways," Guo Yansheng, director of the commission's high-tech production department, said during a Shanghai international LED industry exhibition today.

During the exhibition, the Shanghai Research Center of Engineering and Technology for Solid-State Lighting displayed its latest LED products such as plasma screens, car lights and crop planting.

LED is an energy-saving lighting semiconductor that has great market potential over the next decade because it uses only about 10 percent of the power of an incandescent bulb while providing the same amount of light, officials said.

An electricity meter showed that a LED plasma screen consumed about 50 percent less power than a conventional LCD screen. The LED screen also has better picture quality although it costs at least US\$300 more than a conventional one.

Yang Weiqiao, a researcher of the center, said that the center is now cooperating with SVA Group, the city's chief producer of electronics, to manufacture the new screens.

"Hopefully, the new screens will enter the local market by 2010," he said, noting that the technology is on par with international competitors and they are trying to reduce costs.

Shanghai has also started to use LED lights in the Yuyuan Garden area, the science commission officials said.

They said the project is part of the city's efforts to reduce overall energy consumption by 20 percent per unit of gross domestic product by 2010 compared with 2005.

Nuclear ties between Russia, China set to be upgraded**(People's Daily, 2008-05-23)**

Investment in the second two-reactor stage of the Tianwan nuclear plant may equal the first phase, a source close to the project has revealed.

The first phase also involved two reactors, each with the capacity of 1,060 megawatts (mW).

With an investment of 26.5 billion yuan (\$3.79 billion), it is by now the largest cooperative project between China and Russia.

A cooperation project on nuclear power may be signed by the two nations during Dmitry Medvedev's visit, said the source, who wished to remain anonymous.

Both parties signed a framework agreement for the Tianwan nuclear power plant phase II last November, he said.

Located in Lianyungang in east China's Jiangsu province, the Tianwan first reactor began operation in May 2007 and was followed three months later by the other.

The two reactors generated 10.02 billion kilowatt-hours (kwh) of electricity last year, double the original annual target.

Tianwan has now become an important nuclear power base in China, along with Qinshan in Zhejiang

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and Daya Bay in Guangdong.

The Tianwan site was designed to host eight nuclear reactors with a combined capacity of 8,000 mW. Plans for the other four reactors are still in the preliminary stage, said a source with Jiangsu Nuclear Power Corp, operator of the project.

Decisions have not yet been made about the technology to be used, according to the source.

China is now developing third-generation nuclear power technology.

Last year the country finalized an agreement with US-based Westinghouse to use AP1000 technology to build four nuclear reactors, two in Zhejiang and another two in Shandong.

China also signed an 8-billion-euro agreement with French nuclear company Areva for two third-generation European pressurized reactors in Taishan in Guangdong province.

China now has 11 nuclear generating units in operation with a total capacity of 9,080 mW.

Three use domestic technology, two are Russian designed, while four others are based on French blueprints and two more on Canadian models.

These projects generated 62.6 billion kwh of nuclear power in 2007, up 14.1 percent year-on-year, according to the China Electricity Council.

In 2005, China planned to increase its nuclear power capacity to 40 gigawatts by 2020, when it will account for 4 percent of the nation's total power generation.

Australian, Chinese researchers make breakthrough in renewable energy materials (Xinhua Net, 2008-05-29)

A group of Australian and Chinese researchers have made a ground-breaking discovery which could revolutionize solar energy.

Max Lu, professor at the University of Queensland (UQ)'s Australian Institute for Bioengineering and Nanotechnology (AIBN), said here Thursday they were one step closer to the holy grail of cost-effective solar energy with their discovery.

"We have grown the world's first titanium oxide single crystals with large amounts of reactive surfaces, something that was predicted as almost impossible," Lu told Xinhua.

"Titania nano-crystals are promising materials for cost-effective solar cells, hydrogen production from splitting water, and solar decontamination of pollutants," he said.

He said what his team has done was to make such materials "easy and cheap."

Talking about the application of the highly efficient miniature crystals, Lu said it wasn't just renewable energy where this research could be applied.

"They are also fantastic for purifying air and water," he said, "One could paint these crystals on to a window or a wall to purify the air in a room."

"The potential of applications of this technology in water purification and recycling are huge."

Lu said it would be about five years for the water and air pollution applications to be commercially available, and about five to 10 years for solar energy conversion using such crystals.

Professor Lu also said the work was the result of very fruitful and long-term international collaboration with Professor Huiming Cheng's group from the Chinese Academy of Sciences, a world-class institution with which UQ has collaborated many times in productive research.

The research findings were published in the latest edition of scientific journal Nature Thursday.

1.2 Earth and Environment

NRSCC Launching Emergency Mechanism for Sichuan Earthquake

(MOST, 2008-05-16)

At 2:28p.m., May 12th, a 7.8 degree earthquake happened in Wenchuan, Sichuan province. According to the overall deployment of MOST, the National Remote Sensing Center got the emergency mechanism in gear. The emergency plan set by the newly established emergency work group included: providing the video documents of Beijing No.1 satellite to the State Disaster Prevention and Mitigation Committee, having real-time shooting to get the latest images of the disaster-stricken area and offering suggestions for earthquake relief and rescue in the area.

EU project on the Tibetan Plateau formally starts in Beijing

(CAS, 2008-05-16)



The kick-off meeting for CEOP-AEGIS, an international cooperation project between Europe and Asia to improve knowledge on hydrology and meteorology of the Tibetan Plateau and its role in climate, monsoon and extreme meteorological events. was held from 26 April to 2 May at the CAS Institute of Tibetan Plateau Research (ITP) in Beijing.

CEOP-AEGIS, which stands for Coordinated Asia European, long term Observing system of Qinghai-Tibet Plateau hydrometeorological processes and the Asian

monsoon system with Ground satellite Image data and numerical Simulations, is financed by the European Commission under FP7 topic ENV.2007.4.1.4.2 "Improving observing systems for water resource management.

Under the coordination of Université Louis Pasteur, France, the 3.24 million Euro, four-year project will involve researchers from 17 institutions and universities in eight countries. Its Chinese partners include ITP, the CAS Cold and Arid Regions Environment and Engineering Research Institute, the CAS Institute of Geographical Sciences and Natural Resources Research, CAS Institute of Remote Sensing Applications, the Chinese Academy of Meteorological Sciences, and Beijing Normal University.

More than 40 researchers from China, the Netherlands, France, Italy, Spain, Germany and Japan attended the launching meeting. Also present at the meeting were chief scientists of the project, including Massimo Menenti, YAO Tandong, LI Xiaowen and LIU Changming.

Chinese fern used to clean up heavy metal-polluted soil

(Xinhua Net, 2008-05-19)

One of China's leading soil cleaning experts Chen Tongbin uses a home-grown fern to accumulate heavy metals, mainly arsenic (As), out of contaminated soil near mines, which is encouraging to a country which has about 280,000 mines and heavy-metal polluted soil near those mines.

Chen, principal investigator at the Center for Environmental Remediation of the Chinese Academy of

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Sciences (CAS) Institute of Geographical Sciences and Natural Resources Research, and his team have improved the capability of Chinese brake fern, *Pteris vittata*, to collect heavy metals, mainly arsenic (As), from contaminated soil.

"The work we've done in Guangxi, Hunan, Yunnan, Zhejiang and Guangdong is quite impressive," Chen said here Monday in an interview with Xinhua.

The technology, scientifically named as soil remediation, includes assessment, clean-up, rehabilitation of soil polluted by chemicals, heavy metals, in organics and radioactive wastes, which can be found near mines, oil fields, factories and waterways.

Chen's team discovered the arsenic-collecting Chinese brake fern, *Pteris vittata*, in 1998 in central China's Hunan Province. Besides *Pteris vittata*, the researchers found and cultivated a dozen more such pollution-extracting plants, called by scientists' hyperaccumulators.

Investigation showed Chinese brake fern had a strong capacity to extract arsenic from soil, and had been proven to effectively aid recuperation of As-contaminated land. Chinese brake fern had extraordinary accumulating capacity for arsenic.

The concentration of arsenic was the biggest in leaves. It decreased to leafstalks and roots, which was rarely seen in other plants, Chen said.

According to their study, greenhouse cultivation doubled As-accumulation in fern leaves than that in field samples. The highest concentration of arsenic reached 5070 mg/kg on a dry matter basis.

Besides the extraordinary tolerance and accumulation of arsenic, China brake fern grew rapidly with great biomass, wide distribution and easy adaptation to different conditions, he said.

The latest study of Chen's team -- "Arsenic Transformation and Volatilization during Incineration of the Hyperaccumulator *Pteris vittata* L." which was published in April in *Environmental Science & Technology* -- analyzed as behavior in incineration of As-hyperaccumulators, indicated that carbon originating from biomass incineration, during which furnace temperature was carefully controlled, might catalyze as reduction.

The next step might be to collect and reuse the arsenic and other heavy metals extracted from the plants, Chen said.

Scientists puzzled by foreshock-less SW China quake

(Xinhua Net, 2008-05-20)

Some scientists were puzzled by the unusual quiet period of quakes before the 8.0-magnitude earthquake struck southwest China. But others believe there had been precursors, which stood as warnings for a major quake.

"There were no foreshocks and the activity level of minor quakes around the epicenter was low for quite a long time before the earthquake," said Xiu Jigang, deputy director of the China Seismological Bureau (CSB).

He said there were no short-term anomaly of animals, underground water and other typical precursors, which can lead to a prediction of a major earthquake.

Chinese netizens cited tens of thousands of migrating toads before May 12 in Mianyang, a city close to the epicenter of the earthquake in southwestern Sichuan Province, and unusual cloud formations in east China's Shandong Province as quake precursors. But experts said they might not be related to the quake.

"There are complicated reasons for the anomaly of animals and underground water. An earthquake is

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only one of them along with climate change and weather conditions," said Zhang Guomin, a research fellow with the Research Institute of Seismology under CSB.

Another expert with CSB, He Yongnian, said cloud formation was put forward by Japanese scientists as a way of forecasting earthquakes. But like many other methods of prediction, it is not mature enough.

Besides all those, a Taiwan satellite recorded a sharp drop in ionospheric density above Sichuan before the Wenchuan earthquake, according to a Taiwan newspaper.

The newspaper said that the province's Formosa-3 satellite recorded ionospheric density in the atmosphere of 1.2 million electrically charged particles in some 1,000 square kilometers around Wenchuan six to 15 days before the May 12 earthquake. On May 11, the eve of the quake, ionospheric density had dropped by half to 600,000 charged particles, it said.

"There is absolutely no doubt that there were electronic precursors," said Gary Gilson of the Seismology Research Center at Monash University in Melbourne, Australia.

But he said the satellite recording of ionospheric changes may not be practical to use in earthquake forecasting and it would be difficult to do it quickly.

China's earthquake prediction program, which was born with the founding of CSB in 1971, has proved successful at least for two major earthquakes. The bureau made its first successful short-term prediction 13 hours before a 7.3-magnitude quake hit Haicheng in northeast China's Liaoning Province on February 4, 1975. There were frequent foreshocks as well as other anomalies, which clearly pointed to a strong earthquake, the CSB said.

Then in 1995, scientists used various precursors including foreshocks and variation in water levels and temperature to warn local authorities one day before a major earthquake struck Menglian County in southwestern Yunnan Province.

However, the precursors were still elusive, with the lack of a short-term prediction before the 7.8-magnitude Tangshan earthquake in 1976. So the successful prediction was limited to a small percentage of quakes mainly with frequent foreshocks, said He Yongnian.

"The methods Chinese scientists use for earthquake prediction are mainly empirical," said Gibson, "but they are still useful."

Some Chinese experts said that the long-term and medium-term quake prediction is much more successful in China than short-term prediction.

Deputy director of the Institute of Geology of CSB Xu Xiwei said short-term prediction means a warning of "time, place and magnitude of an earthquake" shortly before it takes place, which is a very complicated issue.

"Earthquake forecasting remains a puzzle for the world," said deputy director of China Earthquake Networks Center Zhang Xiaodong.

However, research fellow with the Institute of Crustal Dynamics of CSB Qiu Zehua said, China would be able to make substantial progress in short-term prediction if more monitoring stations could be set up in areas which have been found prone to earthquakes.

"I believe that there must be precursors before an earthquake, but they might only happen in areas around the epicenter," said Qiu. "The problem is that our monitoring stations are too scattered to observe them. We should focus our monitoring efforts in certain targeted areas."

Researchers in China, a country which suffered 33 percent of the world's inland earthquakes in the 20th century, are catching up with international seismological studies. In the measurement of the earthquake in Sichuan, the first report by CSB set the magnitude at 7.6 on the Richter scale after the quake on May

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12. The quake was shortly upgraded to 7.8, based on more statistics from monitoring stations. Then the bureau revised the magnitude to 8.0 on Sunday, with reference to foreign observatories.

The magnitude was revised upward after specialists carried out "real-time and detailed measurements of the quake according to international practices," said Luo Zhuoli, an expert with CSB.

The quake, claiming 34,073 lives as of 4:30 p.m. Monday and leaving 245,108 injured so far, has caused serious damage to buildings, bridges and other public facilities in an area of more than 100,000 square kilometers.

Special Session of XSSC focuses on devastating earthquake in Wenchuan (CAS, 2008-05-22)

An emergency session of the Xiangshan Science Conferences (XSSC) was held in Beijing on 19 May, seven days after the earthquake in Wenchuan County in Sichuan Province which rocked half of the Asian continent.

The meeting brought together more than 40 experts in seismology and geophysics to discuss China's most destructive tremor since the founding of the People's Republic in 1949.

Under the theme of the Formative Mechanism & Scientific Analysis of the Consequent Aftermath of the Mega-earthquake in Wenchuan County, Sichuan Province, the participants made an exhaustive and multi-disciplinary scrutiny on the disastrous seism's early warning and all-round assessment of its devastating consequences. Some scientists working or residing in the quake-hit areas brought in a great number of first-hand data on the killer quake to the meeting, which was presided over by three authoritative scientists: Prof. ZHANG Peizhen from the State Bureau of Seismology (SBS), Prof. XU Zhiqin with the China Academy of Earth Sciences and Prof. WANG Guangqian with Tsinghua University.

At the meeting, three keynote reports were given respectively by Profs. ZHANG Guomin with SBS, WANG Guangqian and XU Zhiqin under the titles of "A brief introduction of the Wenchuan Earthquake measuring 8.0 on the Richter Scale," "The Wenchuan Mega-earthquake & Water Conservancy Projects," and "Tectonic Background, Seismic Fractures & Analysis of the Aftershocks in the Wenchuan Mega-earthquake."

In his roundup report, Prof. Xu presented his idea that the tremor resulted from the eruptive displacement occurring in the Yingchuan-Beichuan Fault which is located in the Longmenshan nappe structure belt at the eastern fringe of Qinghai-Tibet Plateau and the fracture's chief role was a reverse thrusting reaction overlapped with a clockwise component of slipping-off. According to LIU Jing with the CAS Institute of Qinghai-Tibet Plateau Research, the earthquake poses a theoretical challenge to the prevailing view on the lower mantle's flowing model. Also in the discussion, the experts universally maintained the whole process of the tectonic fracture in the Wenchuan mega-earthquake was extremely complicated but they were convinced that it would be conducive to raising the precision level in the prediction of such a destructive tremor if all materials and data obtained before and after the quake are sorted out, analyzed and summarized in an all-round way.

Experts present at the meeting came to a consensus in making the following suggestions: the studies on the sequence of the serialized aftershock activities have to be strengthened; it is advisable to strive to carry out the effective forecasting of the quake's powerful aftershocks with tangible and substantial effects. They urged the related governmental departments to summon and organize scientists to make investigative surveys of the Wenchuan earthquake, probing the tectonic causes responsible for the

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disaster, the structure of the fractured belt and its dynamic process. The theoretical exposition should be highlighted in the following questions: the formative mechanism of the nappe structure thrusting earthquakes and objective laws on the powerful even disastrous outbreaks of these quakes; comprehensive estimate of the losses and damages caused by a destructive quake and its devastating mechanisms. In the aspect of the field work for monitoring and on-the-spot observation, the following investigative subjects must be stressed: the correct and timely diagnosis on a reservoir's damaged conditions, the possible collapse of the barrier lakes formed by a stemmed river flow by landslides as a result of the powerful earthquake, preventive measures designed to get rid of all secondary calamities after the massive earthquake. The last but not least, a nationwide survey on the anti-quake safety of all public buildings such as premises in primary and middle schools and hospitals must be carried out in earthquake-prone localities or areas potentially situated in places likely hit by high earthquake intensities throughout the country.

China starts biggest ocean expedition

(CAS, 2008-05-22)

A ship with 145 scientists aboard on Thursday set sail for the Pacific, starting a 250-day expedition. The expedition, 20th of its kind, has the largest yet complement of scientists, drawn from 24 domestic scientific and educational institutions, according to Wang Fei, deputy chief of the State Oceanic Administration (SOA).

Tao Chunhui, chief scientist for the expedition, said the mission would focus on subjects ranging from deep-sea environment, sulphide in seabed hydrothermal activity in the Pacific, bio-genes and biodiversity in the Indian Ocean.

Tao, who is also a fellow researcher with SOA's No.2 Institute of Marine Studies, was upbeat about the prospects.

"We are better equipped and will achieve more: much of the equipment we have brought along this time is high-tech and new devices developed by the country itself, including an unmanned, remotely operated underwater vehicle (ROV) that could observe the sea and collect samples as deep as 3,500 meters," he said.

China has accomplished a number of feats since 1995 when the country began its first ocean-going scientific expedition, including circumnavigating the globe between April 2005 and January 2006, and finding a new seabed hydrothermal activity area from the depth of 2,800 meters in Mid-Indian Ocean Ridge on its 19th expedition.

During the round-the-globe voyage more than two years ago, Chinese scientists brought back more than 1,000 kilograms of hydrothermal sulphide samples containing copper, zinc and precious metals such as gold and silver.

The vessel, "Dayang Yihao (Ocean No.1)", is scheduled to return to Qingdao, a port city in east China, late next January.



Chinese researchers take stock after quake

(CAS, 2008-05-26)

WEI Fangqiang knows what it's like when a mountain crumbles: The Longmenshan, or

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Dragon's Gate Mountain, is prone to landslides. But when the physical geographer and seven colleagues with the Chinese Academy of Sciences' Institute of Mountain Hazards and Environment (IMHE) in Chengdu trekked into the area devastated by the Sichuan earthquake, they were stunned. It looked as though the hills had been blown apart. Landslides had flattened several-story buildings in the town of Beichuan and annihilated villages that clung to the steep slopes.

At 2:28 p.m. local time on 12 May, the Sichuan earthquake struck with a magnitude of 7.9. It "was not a total surprise to geophysicists," says Mian Liu, a geophysicist at the University of Missouri, Columbia. It occurred on a well known, active fault system, he notes, which in 1933 produced a magnitude-7.5 quake that killed about 9000 people. But the death toll of the Sichuan earthquake is horrific. As of 20 May, more than 40,000 people are known to have perished, including thousands of children.

Landslides unleashed by the rupture of a more-than-200-kilometer section of the Longmenshan fault, followed by powerful aftershocks, dammed parts of nine rivers, creating 24 new lakes. The biggest and most threatening is 3.5 kilometers upstream of Beichuan. If the debris dam were to break, the resulting flood would threaten relief workers and researchers in Beichuan. "We're worried about another catastrophe," says Wei. The IMHE researchers plan to head into the field as early as next week to sample landslide material and draw topographic maps. A future task is to advise authorities on a safe place to rebuild Beichuan city. The original site will almost surely be abandoned.

Down the road from IMHE, researchers with the Chengdu Institute of Biology (CIB) are mourning three senior staff members who died when the wall of a hostel in the mountains collapsed as they were dashing out of the door for safety. A week after the quake, 10 of their colleagues were stranded at CIB's Maoxian Mountain Ecosystem Research Station in a pine forest 220 kilometers northwest of Chengdu. The institute had a couple of dozen long-term projects in the disaster area, a biodiversity hot spot that encompasses 22 nature reserves. They'll have to write a new research plan. "The earthquake has dramatically changed the landscape," says CIB ecologist Luo Peng. One urgent task is to monitor bamboo. The plant flowers once every 70 years or so. Shortly after a powerful earthquake in the 1970s, large swaths of bamboo suddenly flowered and died, says CIB ecologist Pan Kai-Wen. How a quake might trigger flowering is a mystery, but a large-scale die-off, he says, could pose a big threat to China's endangered giant pandas.

Meanwhile, some experts argue that the Sichuan disaster should stimulate China to rethink its entire approach to earthquake research. "In recent decades, geophysicists have spent too much energy and funding on research on deep-earth structure or tectonics," says Zhou Shiyong, a geophysicist at Peking University. He argues that more attention should be devoted to earthquake prediction.

One thing that will surely come under scrutiny is China's construction standards. "More effort should be devoted to earthquake hazards analysis and management, including developing and enforcing proper building codes, especially for schools, hospitals, and other public buildings," Liu says. For thousands of victims in Sichuan, that lesson came too late.

Developed Countries Should Take the Lead in Reducing GHG Emissions: Chinese Delegate (CRI, 2008-05-26)

The Chinese delegate on Sunday called on developed countries to take the lead in cutting Greenhouse Gas (GHG) emissions and provide financial support and technology transfer to developing countries. According to the United Nations Frame Work Convention on Climate Change (UNFCCC) , the Kyoto

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Protocol as well as the Bali Roadmap, developed countries should first meet the above requirements, said Xie Zhenhua, head of the Chinese delegation, on the sideline of the G8 environment ministers meeting.

Upon this condition, developing countries can then proceed from their actual national situations and adopt measures and policies to pursue their sustainable development, said Xie, deputy chief of China's National Development and Reform Commission (NDRC), in a joint interview with Xinhua and other foreign media.

In this respect, technology transfer is a key element to implement the Bali Roadmap, said Xie, adding that in another sense, whether developed countries achieve their goal of GHG reductions or developing countries pursue their domestic policies on sustainable development, there must be a profound technological innovation to tackle climate change.

He said that only with a technological innovation could the goal of developing economy and preserving the biological environment be attained.

What China need most is the technologies in areas of energy conservation, energy efficiency and renewable energy development, said Xie.

Concerning the medium- and long-term goals of tackling climate change, Xie said that the parties concerned, typically Japan and the European Union (EU), differed greatly over the long-term goal, and the United States said that it will deliberate on the issue of the long-term goal but has not presented a concrete proposal.

We maintain that the establishment of a long-term goal needs thorough studies and scientific appraisals, said Xie. A country should adopt a rational and practical attitude and set a long-term goal on the basis of their actual conditions and their phase of development as well as the general trend of climate change.

In our opinion, the discussion on the long-term goal will still go on for some time, said Xie, suggesting that is better to formulate the medium-term goal and determine what the international community should do by the year 2020 than to engage in a lengthy debate over the long-term goal, so that we can adopt measures to protect the environment of our earth as soon as possible.

In the past 15 years, China has registered a 47 percent decrease in its per capita GDP's energy consumption, said Xie.

And China is anticipating another 20 percent decrease in 2005- 2010, he added.

The G8 environment ministers meeting opened Saturday in the run- up to the G8 summit scheduled for July 7-9 at the Lake Toya resort in Japan's northern main island of Hokkaido.

Three major issues of biodiversity, climate change and 3Rs (Reduce, Reuse and Recycle) are on the agenda of the three-day conference.

Environment chiefs and relevant officials from the European Commission, 10 emerging economies, including China, India and Brazil, and eight international organizations have also been invited to be present at the gathering.

The Group of Eight is composed of the United States, Japan, Germany, France, Britain, Italy, Canada and Russia, the eight leading industrial nations, whose heads of government hold regular meetings known as the G8 summit.

Results from CO2 emission studies released in Beijing (CAS, 2008-05-29)

The findings of a research project on CO2 emissions, led by Prof. WEI Yiming from the CAS Institute

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of Policy and Management (IPM), were recently reported in monograph entitled the China's Energy Report in 2008.

Off the press on May 15 in Beijing, the book deals with the topic from various aspects: the relations between CO₂ emissions and energy source utilization, the characteristics of China's energy consumption and CO₂ emissions, factors influencing CO₂ emissions under different economic development levels, evolution features of the CO₂ emissions by carbon-intensive departments in China, evolution of CO₂ emissions in China, capacity of the technologies for reducing CO₂ emissions and their impacts, policies for CO₂ emission, International carbon market mechanism and its impacts on the reduction, perspective for reducing CO₂ emissions in China and related approaches.

The publication is the second volume of the China's Energy Report completed by the IPM Center for Energy Research. The First one, published in 2006, was focused on strategy and policy research for energy sources.

1.3 Health

Study: Cilostazol may be safer than aspirin for post-stroke

(Xinhua Net, 2008-05-05)

The anti-platelet drug cilostazol is as effective as aspirin at preventing recurrent stroke and appears to be linked to fewer bleeding events, a study in China has shown.

Published in the online version of The Lancet Neurology Monday, the study suggests that cilostazol could be a safer alternative to aspirin for post-stroke patients, who seem to be at higher risk of cerebral haemorrhage, according to previous studies.

Anti-platelet drugs have an "anti-clotting" effect and long-term, low doses may prevent heart attacks and blood clot formation in people at high risk for developing blood clots.

In the study, 719 patients around the age of 60 were divided into two groups, with the first given cilostazol and the second given aspirin for 12 to 18 months. Twelve patients in the cilostazol group suffered subsequent stroke, compared to 20 people in the aspirin group. Brain bleeding was detected in 1 patient in the cilostazol group versus 7 in the aspirin group.

While the researchers said cilostazol appeared to be more effective and a safer alternative to aspirin for patients for a larger clinical trial. Manufactured by Otsuka Pharmaceutical Co., cilostazol is known by its brand name Pletal.

In China, stroke is the second leading cause of death, with about 7 million people affected.

Chinese Scientists Achieve Unique DNA Sequences of Chinese Bees

(CRI, 2008-05-12)

After years of research, Chinese scientists have made a breakthrough in identifying the DNA sequence of bees in the mountainous area of Changbai in northeastern China.

Scientists from Jilin province carried out a project on DNA polymorphism - which refers to the genetic variation within a population that natural selection can operate on.

Using results from the study, experts will be able to plot a genetic map of the two species of bees present in Changbai. The findings are expected to help authorities protect and explore bee resources in

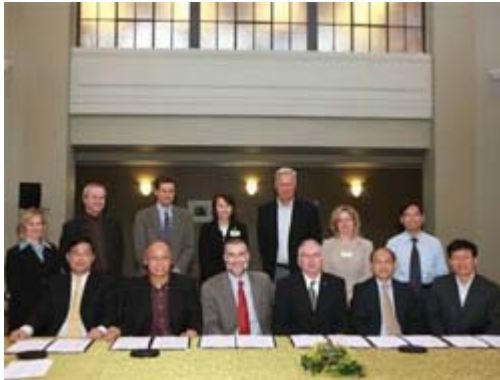
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the area.

An expert panel recently approved the results of the research, Xinhua reported on Monday.

CAS acts as central node for Int'l program of life barcode

(CAS, 2008-05-14)



An agreement was stricken between CAS and International Barcode of Life (dubbed as iBOL) that, on behalf of China, CAS would be one of the four central nodes of the US\$100 million and five-year worldwide consortium to assemble the DNA Barcode library of life. The other three central nodes of the program, which is slated to kick off in 2009, are Canada, US and EU.

A memorandum of understanding for the cooperation was signed by a CAS delegation and iBOL at the 2nd Scientific Symposium of the Canadian Barcode of Life

Network held in late April in Toronto. As a central node, China will take the responsibilities of coordinating the implementation of the iBOL program in Asia, and providing technical support and training in the region. For the smooth development of the initiative, a high-caliber iBOL delegation is to visit China in this coming October when a regional workshop is to take place in Beijing.

CAS expert offers suggestions for epidemic prevention in earthquake aftermath

(CAS, 2008-05-23)

The prevention of communicable disease outbreaks has become a key public health issue after a major earthquake stroke southeast China on May 12. While rescuers are still trying their best to find life beneath debris, experts suggest effective ways to fight against possible illnesses such as diarrhea and gas gangrene among the survivors.

Except for water-related epidemics which are now on top of the list due to the likely contamination of drinking water, arboviral and zoonosis-borne illnesses should also be avoided, said Dr. YANG Rongge, senior researcher on molecular epidemiology with the Wuhan-based CAS Institute of Virology (WHIOV), during a Xinhua online interview on May 19.

Safe drinking water and good sanitation are most urgent needs since they imply basic transmission routes of communicable diseases. To eliminate diarrhea, one of the most common water-related diseases usually observed in disaster-hit areas, people should drink clean water, keep bottles capped and remember to wash hands before they drink or eat.

As to the widely reported 58 cases of gas gangrene across Sichuan, Dr. Yang said that gas gangrene is a bacterial infection which produces gas within gangrenous tissues. Isolation of patients, their clothes and other infected items can prevent cross-infection.

However, according to him, the disease is not that terrible in nature, and can be controlled with appropriate treatment within six hours.

The expert also urged to prevent arboviral and zoonosis-borne diseases, suggesting that rats, mosquitoes and flies should be kept away, and that dead bodies of animals or livestock get immediate deep-burial or cremation.

Meanwhile, Dr. Yang warned of diseases associated with crowding. With displacement of population in

quake aftermath, masses of injured people should be scattered to prevent cross-infection.

He is confident that the possibility of major epidemic outbreaks in Sichuan is going to be rather slim.

Dr. Yang has been a researcher on molecular epidemiology and molecular biology of HIV/ AIDS studies for over two decades. Before being recruited to WHIOV through the CAS-piloted Beiren Program in 2005, he had been working at Yamanashi Medical University and the National Institute of Infectious Diseases of Japan.

1.4 Key Technologies

Semi-conductor Lighting R&D Fund is set up

(MOST, 2008-05-04)

The Management Office on the Semi-conductor Lighting Project of the National “863” Program organized a meeting on the launch of the Semi-conductor Lighting R&D Fund. The fund was established with an aim to helping bridge the gap between our enterprises and overseas ones in terms of technology commercialization. The top priority is to foster a community of interests through joint input, resolve key technological issues in the development of semi-conductor lighting industry, and upgrade product grade, so as to jointly face international competition.

The establishment of the fund represents a positive step towards cooperation between enterprises with strong strength and sharing risks and rewards in China’s semi-conductor lighting industry, which is a gratifying exploration of how the emerging S&T industries jointly participate in the international competition.

Progresses in iron-based High-Tc superconductors shedding light on superconductivity mechanism

(CAS, 2008-05-09)

The spring of 2008 sees a special blossom of substantial breakthroughs in superconductivity research. Three groups of physicists with the CAS Institute of Physics (IOP) and one with the University of Science and Technology of China (USTC), one after the other, make remarkable progresses in the study of iron-based materials after the breakthrough made by H. Hosono's group in Japan, heralding renewed insights in the fundamental mechanism of high-temperature superconductivity (HTSC), a perplexing enigma on the frontier of condensed matter physics.

Enigma of high-temperature superconductivity

Superconductivity, the fascinating quantum phenomenon that occurs in certain materials at extremely low temperatures featuring the vanishing of electrical resistance and interior magnetic field, has attracted intense attention from scientists. The discovery of HTSC in copper oxides, or cuprate in 1986 has fueled new waves of enthusiasm for this topic and various cuprate high-temperature superconductors have been synthesized. For a long time, however, the underlying mechanism of HTSC remains elusive, though scientists have achieved a greater agreement with the mechanism of conventional superconductivity.

So far, a well-known effort to explain this magical effect in conventional superconductors is the BCS theory based on electron-phonon interaction coupling. This theory, which was developed by John

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Bardeen, Leon N. Cooper and John R. Schrieffer in 1957 and reaped the 1972 Nobel Prize for Physics, suggests that the disappearance of electrical resistance is due to the formation of electron pairs at extremely low temperatures, through their interactions with the crystalline lattice. Based on the understanding that electrical resistivity is resulted from the energy loss produced when traveling electrons collide with the vibrations of the crystalline lattices or defects in the material, it argues that at extremely low temperatures, no sufficient energy is available to separate these pairs, making it impossible to deflect them. In other words, no electrical resistance can arise in this case. Nevertheless, it is widely doubted that this theory can explain the superconductivity of cuprate materials, as the latter's electrical resistance turns into zero at a critical transition temperature (T_c) as high as over 138 kelvin (-135.15oC), which makes available the energy necessary for breaking the electron pairs (named Cooper pairs amongst the physics community). The limited materials available for theoretical exploration-the cuprate system had long been the only high- T_c superconductors known by human societies-made this mechanism even more mysterious. Against this background, the physicists have long been awaiting a non-cuprate system of high- T_c superconducting materials to gain new inspirations.

Breaking through

The latest confluence of discoveries of iron-based high- T_c superconductors by Japanese and Chinese scientists, as well as the ensuing debate is fostering new hopes for solving this predicament. Soon after the synthesis of the lanthanum oxygen fluorine iron arsenide ($LaO_{1-x}F_xFeAs$), a superconductor with a T_c of 26 kelvin (-247.15oC) by a Japanese group with the Tokyo Institute of Technology (TIT), three groups of researchers at the IOP and one group at the USTC reported their successes in inducing HTSC in different iron-based materials.

The IOP gained first limelight when two of its research groups, respectively headed by Profs. WANG Nanlin and WEN Haihu, confirmed the result obtained by the TIT group within one week after its publication. Then on March 25, a USTC group headed by Prof. CHEN Xianhui announced their successful identification of superconductivity at a T_c of 43 kelvin (-230.15oC) in the samarium oxygen fluorine iron arsenide ($Sm_{1-x}O_xF_xFeAs$). Only one day later, Prof. Wang Nanlin's group reported another superconductor, the $Ce(O_{1-x}F_x)FeAs$, with a T_c of 41 kelvin. These two results, each independent from the other, mark a breakthrough, as the T_c went beyond 39 kelvin, the commonly assumed McMillan Limit and can be defined as unconventional superconductors. Subsequently, the later group also reported that the T_c could be further increased to almost 50 kelvin by substituting the element La with other smaller rare earth elements, for example, Nd.

The seemingly surprising blossom of significant discoveries at IOP is actually not so accidental as it looks. When asked about what has made it possible for IOP to respond so quickly and achieve so many breakthroughs in so short a time, IOP Director Prof. WANG Yupeng, a theorist specialized in condensed matter physics, attributes this to the IOP's build-up accumulated over its decades of efforts gone to research on cuprate high- T_c superconductors. We benefit from a powerful faculty, a very good environment for research and lasting support from the government which helps scientists focus on important issues on the disciplinary frontiers. This institute is emerging as a world known center of scientific excellence with a quite low annual budget of \$25 million compared to those of western countries.

Achieving high-temperature superconductivity

Truly, opportunities favor those who are well prepared. Prof. Wang Nanlin's group has engaged in

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growing single crystals of LaOFeAs since last December in a hope of investigating their electronic properties. Another IOP fellow, CAS Member Prof. ZHAO Zhongxian made significant contributions to cuprate high-Tc superconductor research as early as in 1987. Once again in this spring, Zhao's team scored -quick and arresting achievements. On Mar 28, his group reported a Tc of 52 kelvin (-221.15oC) in a new superconductor, the praseodymium-arsenide compounds (PrO_{1-x}F_xFeAs). This was the first time ever a Tc above 50 kelvin to be achieved in a non-cuprate system, suggesting the discovery of a new high-Tc superconductor. Soon after that they reported another new system, the Nd[O_{1-x}F_x]FeAs with a Tc of 51.9 kelvin, explicitly confirming the potential of the quaternary iron-arsenide compounds as a new family of high-Tc superconducting materials. Again on 13 April, they further raised the Tc to 55 kelvin (-218.15oC) in Sm[O_{1-x}F_x]FeAs by using a novel method- a high-pressure synthesis method, which could make more fluorine doping to the oxygen site and get higher Tc. So far this remains the highest Tc achieved in all non-cuprate systems. Just several days later, moreover, they reported similar superconductivity in five lines of materials from the same quaternary family, depicted as ReFeAsO_{1-d}, where Re indicates rare earth elements Sm, Nd, Pr, Ce or La. Rather than F-doping, in this work the superconductivity is induced by oxygen-vacancies in the crystal lattice, which they proved to be applicable to all the five lines and actually more effective an approach. The discovery of this general applicability is expected to facilitate later experiments and theoretical research in this direction by providing a much simpler studying platform.

Naturally, the exceptionally high critical transition temperatures achieved in this wave of discoveries have gained due acclams over the world. Although some of the compounds in the parent family of the new system were found to show superconductivity at extremely low temperatures, for example between 3 to 5 kelvin, none was ever found to undergo any superconductivity above 20 kelvin. What is more striking, however, is the fact that HTSC could even be induced in iron-based compounds, which was widely believed to be a mission impossible because of the ferromagnetism of these materials, the natural foe of superconductivity. This anomaly is especially interesting for theorists because of the implied potential of greater discoveries.

Working on the theoretical frontier

Particularly, the identification of the possible connection between the spin-density-wave (SDW) instability and the resistivity anomaly in a new system is deemed to be an encouraging effort to reveal the HTSC mechanism. In cooperation with another IOP group led by Prof. Fang Zhong, Prof. Wang Nanlin's group discerned that a phase, the antiferromagnetic SDW instability, was competing with superconductivity in the LaO_{1-x}F_xFeAs system. The two groups demonstrated that this SDW instability might be responsible for the resistivity anomaly occurring at about 150 kelvin in undoped LaOFeAs. When the samples are treated with F-doping, however, the instability is suppressed and hence leading to the superconducting ground state. They further show that similar competing orders exists in other rare-earth substituted systems. The SDW instability in the undoped compound was later confirmed by the neutron diffraction studies conducted by two independent groups in the USA. The surprisingly high Tc achieved by Wang's group in CeOFeAs samples, as high as 41 kelvin, has suggested intriguing prospects implied in the competing phenomenon. In fact, being consistent with this work, Prof. Zhao's group has proved that producing oxygen vacancies in the system is more efficient an approach than F-doping to inducing superconductivity in this kind of materials and higher Tc has been achieved. It is believed that this discovery will inspire further pursuit of the fundamental mechanism of HTSC.

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On the other hand, the discovery made by Prof. Wen's group also attracts extra attention, as it directly challenged the latest hypothesis proposed by the TIT group led by chemist Hideo Hosono. The TIT group explicitly stated in February in their paper that a critical factor for the occurrence of superconductivity in the new system of superconductors was electron doping, rather than hole doping. This implies that superconductivity can only be obtained by introducing extra electrons rather than "holes" (provided by positive ions) into the structure of the material. In only a month, however, the new results from Wen's group subverted this hypothesis by successfully inducing superconductivity in hole-doped materials of the same system. If confirmed by further experiments, this result might also provide some novel thoughts for the related exploration.

Looking at the future

The newly made progresses in iron-based materials, the only high-T_c system other than cuprate chemicals to date, might lead to greater clarity in superconductivity mechanism, one of the most abstruse problems in condensed matter physics, as believed by the researchers and some renowned theorists, including Nobel Prize winner Philip Anderson with the Princeton University of USA, as reported by the Science Magazine. Some researchers, including some from the IOP groups, are more cautious, however, believing that there is still a long way to go before we can really knock on the door to the core mysteries of HTSC mechanism.

Nevertheless, the people are optimistic about the future because of something beneath the surface. "This time we are thought to have taken over the lead," remarks Director Wang: "China is becoming a strong country in science due to the increased investment in fundamental research and the excellent team of scientists. Some young scientists have made outstanding contributions during the few months since their joining us, like Dr. CHEN Genfu with Prof. Wang Nanlin's team and Dr. REN Zhi'an with Prof. Zhao's group. We still have problems, of course. Most scientists are expecting more stable support from the government and more reasonable an evaluation mechanism, given their essential roles in generating innovative results."

Forum on Technological Sciences convenes to addresses optics

(CAS, 2008-05-13)



Under the theme of Optical Science and Its Technological Frontiers, the 29th Session of the Forum on the Technological Sciences was held April 28 and 29 in Shenzhen in south China's Guangdong Province.

Under the joint sponsorship of the CAS Academic Divisions of Technological Sciences and Academic Division of Technical Information Sciences, Government of Nanshan District in Shenzhen, Shenzhen City's S&T Association and Shenzhen University, the meeting brought together more than 40 experts and

scholars in the field, including 15 CAS Members such as WU Guoguang, LIU Shenggang, PENG Kunchi and ZHOU Bingkun.

The forum invited 15 renowned experts to make reports on such topics as the current states, developmental trends, applicability demands and core technologies in the fields, ranging from quantum optics, sub-long wavelength optics, super-strength or super-fast photonics, space optics, bionic optics to

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super-high Hertz waves and related expertise. The magnificent reunion epitomizes the current state and latest R&D level of the discipline and related technological progresses in China.

Centering on the reports, the participants reviewed the basic and applied research achievements scored at the discipline's technological forefront as well as some issues cropping out from their technical development. Also, they discussed the new disciplinary trends, methodology and schemes for the disciplinary future in its macroscopic context and put forward some constructive ideas and suggestions.

Nano-researchers encouraged to set up new application systems

(CAS, 2008-05-27)

While sticking to its presented orientation, the National Center for Nanoscience and Technology (NCNT), as a State taskforce in the field, should strengthen its strategic research and further clarify its strategic objectives, urges CAS President LU Yongxiang at a meeting of the NCNT governing board held on 23 May in Beijing.

Prof. Lu called on nano-researchers to step up their efforts in promoting the application of nanoscience and technology in energy sources and public health as well as information technology. He emphasized that attention should be made to the impact of nanotechnology on ecology and human health. He said that the researchers should be bold enough to set up a new service system, and play a constructive role to guide, support and drive the sound development of Chinese society.

Jointly established by CAS, Peking University and Tsinghua University in 2003, NCNT is affiliated to CAS. It adopts a system that its director takes full responsibilities under leadership of a governing board.

At the 2008 annual conference of the board, which is chaired by Prof. Lu, Prof. BAI Chunli, CAS executive vice president and director of NCNT, made a report on the work of the center over the past four years.

The conference also adopted a resolution on the revision of the bylaws of board and the center, elected the new session of the board, which Prof. Bai its new chair.

1.5 Transport and Space

China sets up first space station for spacecraft data relay

(People's Daily, 2008-05-02)

China successfully established a space station for the data relay of its space vehicles on Thursday. This was accomplished by settling its first data relay satellite, "Tianlian I", at E. 77 degrees over the equator at 4:25 p.m..

The satellite was launched on April 25 on a Long March-3C carrier rocket from the Xichang Satellite Launch Center in the southwest Sichuan Province. Since then, the satellite has carried out a series of actions including the unfolding of its solar sail, the ignition of its engine and changing its positioning on four occasions.

The successful positioning has largely increased the coverage of the country's space measuring network, timely transmission of space data and reduced the risk of future space missions. It also improved the efficiency of ground control and its command, and in carrying out problem analysis and space rescue,

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according to an expert with the Xi'an center.

In the coming days, the center will conduct comprehensive measuring on the satellite. The satellite will be officially handed over to clients after it is confirmed to be operating in a normal and stable manner.

The satellite would not go into operation until the launch of the Shenzhou VII manned space mission, scheduled for the second half of 2008.

The satellite was developed by China Aerospace Science and Technology Corporation and aimed to increase the communication time of the Shenzhou VII spaceship with ground control, and to improve the amount of data that could be transferred.

The Yuanwang space tracking ships, along with the more than 10 ground observation stations, can only cover 12 percent of the Shenzhou VII spaceship's space orbit. The "Tianlian I" satellite alone covers 50 percent of the orbit of Shenzhou VII or any other Chinese spacecraft.

With the help of the satellite, scientists can collect more data without delay, and can identify earlier when a malfunction is taking place in a spacecraft.

The launch was the 105th mission of China's Long March series of rockets, and the first mission of the Long March-3C carrier rocket.

The 55-meter carrier rocket with two boosters is capable of launching satellites weighing between 2,600 kilograms to 3,800 kg into space.

Seven Long March-3C carrier rockets are currently in production and will carry "several domestic and foreign satellites" into space.

China has planned 10 space launches this year, including the Shenzhou VII spaceship. It will be launched from the Jiuquan Satellite Launch Center in the northwestern province of Gansu late this year and the astronauts will leave their spacecraft for the first time.

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

Two years later, Fei Junlong and Nie Haisheng completed a new Chinese record with a five-day flight on the Shenzhou VI. All returned safely.

Chang'e-I to Take Microwave Moon Exploration

(CRI, 2008-05-08)

China's first lunar probe Chang'e-I has been instructed to take microwave pictures of the moon. It will be the first time in the moon exploration history such an act has been done, vice general designer of China's moon exploration project Jiang Jingshan said.

Website qq.com reported on Thursday that Jiang released the plan in an interview with the site.

Compared to visible ray pictures and infrared ones, it will be the first time to use microwaves to describe the details of the moon.

According to Jiang, only less than one percent of the image scanning of the moon surface is left at the moment and the work is expected to be finished in around one month, then a complete moon map will be obtained.

He also disclosed that Chang'e-I will use microwave techniques to explore the mystery whether there is water at the two poles of the moon or not. If water can be found, it could be a supply for when human beings construct bases on the moon.

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Chinese Premier Underscores Innovation in Jumbo Aircraft Manufacture

(CRI, 2008-05-11)

China should unswervingly adhere to self- innovation in research and development of large aircraft, said Chinese Premier Wen Jiabao.

China's first ever jumbo passenger aircraft company was officially inaugurated in Shanghai on Sunday. The company, named Commercial Aircraft Corporation of China Ltd.(CACC), will be responsible for researching, developing, manufacturing and marketing the homegrown large passenger aircraft.

China should by all means conduct overall design and final assembly of large aircraft by itself. The research and production of engines, airborne equipment and material will also demand independent effort, said Wen.

"On one hand, we should notice that China is far behind the world advanced level in hardware, software and talent; on the other hand, China has certain conditions including economic strength, industrial foundation, demand from the market and opening up degree," said Wen.

The country should attach great importance to using world technical resources in an effective way, and introducing and adopting advanced technologies, said Wen.

Wen underscored the importance of mechanism innovation, saying that a good mechanism is a must for the implementation of the large aircraft project. Related sectors should correctly understand and deal with the relationship between mechanism innovation and existing technology, talent and enterprise.

He also called for efforts to optimize and integrate all kinds of technical resources and production factors to establish large aircraft project companies that are in line with modern enterprise mechanisms. Management and operation innovation should be focused on research and development of products, marketing, after-sale service as well as fund-raising, said Wen.

"Innovation itself can not exist without the environment and condition of a market-oriented economy. The aviation enterprises should actively take part in market competition and deepen mechanism reform," said Wen.

Fengyun-3 Sends Back First Nephogram

(CRI, 2008-05-31)

China's second Olympic weather forecasting satellite, Fengyun-3 (FY-3), sent back its first satellite nephogram Friday morning.

This nephogram covers the area of southern China's Guangdong province, showing rainstorms in several regions throughout the province.

China launched the weather forecasting satellite on Tuesday morning by a Long March-4C carrier rocket from the Taiyuan Satellite Launch Center in northern Shanxi Province.

The satellite is equipped with a dozen advanced detectors such as the infrared scan actinograph and the microwave formatter.

It is able to carry out a three-dimensional, all-weather, multi-spectrum quantitative detection to acquire data from the ground surface, the ocean and the space, according to sources with the China National Space Administration.

The satellite can send back images with the highest spatial resolution of 250 meters and its temperature sensitivity would reach 0.1 degree Fahrenheit. Both indices are close to the most advanced level of similar satellites in the world.

The highest spatial resolution of existing satellites in China had been 1.1 kilometers.

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It will also contribute to gathering key geographical data for research on aviation, navigation, agriculture, forestry and oceanography.

The 2,295-kilogram satellite will provide accurate and timely information about weather changes for more precise weather forecasts during the Beijing Olympic Games.

2 News from Universities

China curbs rapid enlargement of doctoral programs

(People's Daily, 2008-05-01)

The Ministry of Education has decided to curb rapid expansion of doctoral programs at universities as China sees more doctoral degree holders being churned out annually than the United States.

Yang Yuliang, who heads the office of the State Council Academic Degrees Committee, said China produced about 50,000 doctors in 2006, a similar figure with the United States, according to the Shanghai-based Evening News.

The national expenditure on research and development, however, was roughly one ninth of the U.S. federal R&D spending in the same year, according to statistics.

The number of people who got their doctoral degrees in 2007 is not available. But considering the base of 50,000 in the previous year and the average annual growth rate of PhD candidates' admission of 26.7 percent from 1999 to 2003, at least more than 60,000 people obtained their highest academic degrees from Chinese universities, which made the country the biggest producer of PhDs in the world.

Unlike the U.S. where most doctoral degree holders go to higher learning and research institutions, China sees more than half of graduating doctors swarmed into the government.

Due to the fact that tuitions and living expenses of doctoral candidates are mostly covered by the tax money, Yang said, it is a waste to produce so many doctors for non-academic organizations.

Yang said the ministry is going to keep the doctoral program admission growth rate under two percent each year while setting aside more resources to professional graduate training, such as masters of business administration, law and education.

China sees soaring numbers of doctoral degree holders. In 1983 the country for the first time produced 19 doctors. Too rapid expansion of doctoral programs in recent years resulted in mass production with its quality being questioned. It's not rare to see one professor advises more than two dozens of doctoral candidates in research institutes or universities.

Another threat of the over-heated doctoral education, Yang said, is that universities, usually in prosperous areas, siphon too many talented young people away from their under-developed homes. They would usually find jobs in big cities after graduation.

3 Innovation Management

Beijing Offers 5 Mln Yuan Reward for Patents for Invention

(CRI, 2008-05-10)

Beijing will launch the first selection of outstanding patents for inventions this month and will offer a total money reward of 5 million yuan to the winners, the city's Intellectual Property Bureau announced on Friday.

Liu Dongwei, vice director of the bureau, said the top winner whose patent contributes greatly to the city can win one-million yuan.

Five first-prize patented inventions will each win 200,000 yuan, 15 second prize inventions will each be rewarded 100,000 yuan and 50,000 yuan will be given to each of the 30 third prize winners.

Qualified applicants should be patentees that hold Beijing residency and work permits in Beijing or those registered in the city. Other applicants, including organizations and individuals from other cities or countries, can also apply if their inventions make outstanding contributions to the city's public interest. The patented inventions that have already won a national patent prize will not be included in the competition.

The bureau will receive applications for the award from May 12 to June 20 this year. Expert selection process will run from July to September, and the awards are expected to be presented earlier next month.

The award will be held biennially in the future, said Liu Dongwei.

China to invest over 5 bln yuan into scientific funding

(People's Daily, 2008-05-28)

The Chinese government plans to invest 5.359 billion yuan into scientific funding this year, 25% more than last year. The planned investment was announced at the first session of the sixth National Natural Science Foundation meeting held on May 27.

In recent years, the State's scientific funding investment has been growing steadily, increasing from 2.047 billion yuan in 2003 to 4.298 billion yuan in 2007. The annual growth rate exceeds 20%, and the total investment has doubled, explained Chen Yiyu, director of the National Natural Science Foundation. He added that the environment for innovative research is improving.

In 2007, 14,700 projects were subsidized by the National Natural Science Foundation worth 4.975 billion yuan. This year, the National Natural Science Foundation has received applications for 80,393 projects from various departments; and plans to allocate 6.4 billion yuan in subsidies.

4 China's International Science Cooperation

CAS/MPS partner group makes fruitful achievements

(CAS, 2008-05-09)



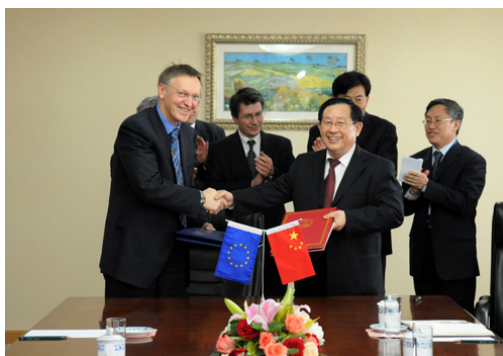
After five years of development, a partner group between CAS and Max Planck Society (MPS) on interfacial and amorphous structure in advanced ceramics has scored encouraging progress, commented the Scientific Advisory Board of the group, which convened on 15 April in Shanghai.

Headed by Prof. GU Hui from the CAS Shanghai Institute of Ceramics (SIC), the group was formally set up in April 2004. Over the past five years, the group has conducted joint research projects with colleagues from

Max Planck Institute for Metals Research. The collaboration has resulted in a large number of high-level papers, and Prof Gu was invited to take part in workshops hosted by the German partners. The research work of the group has received close attention and spoken highly by international peers. The advisory board is composed of international prestigious scholars, including Prof. Joachim P. Spatz of the Max Planck Institute for Metals Research, Prof. Yet-Ming Chiang from the Massachusetts Institute of Technology, Prof. Michael Hoffmann from the University of Karlsruhe, SIC Director-general Prof. LUO Hongjie and Prof. GUO Jingkun from SIC.

Minister WAN Meets with EU Science and Research Commissioner Janez Potocnik

(MOST, 2008-05-11)



On April 24th, 2008, Minister WAN Gang met EU Science and Research Commissioner Janez Potocnik. They exchanged views on climate change and promotion of China-EU cooperation in science and technology.

WAN welcomed Commissioner Potocnik's keynote speech on the International Forum on Climate Change and Science & Technology Innovation and introduced the Chinese government's work in energy conservation

and emission reduction, especially the advanced technologies adopted in the 2008 Beijing Olympics for the purpose. The Commissioner emphasized the importance of climate change in international cooperation and appreciated Chinese efforts and achievements in energy conservation and emission reduction.

At the end of the meeting, they signed the Agreement between the Government of the People's Republic of China and EURATOM on the Cooperation in Peaceful Use of Atomic Energy.

5 Miscellaneous

Successful application of a 4,000m submarine survey system

(CAS, 2008-05-05)



DTA-4000, a deep-tow acoustic system jointly developed by researchers from the CAS Institute of Acoustics and their domestic co-workers, has accomplished the task of examining an international submarine cable route in the northern part of South China Sea in February. The system worked stably for 145 hours undersea, checking the cable for 640 km with plenty of reliable data.

Based on previous research results of the researchers, the new system innovatively put forward a new signal processing method, which could get a high-resolution benthonic terrain image. The system overcame many key research and design problems, such as deep withstanding-voltage sonar array, deep-sea high-stability tow platform and high-performance and low-power mini sonar electric system. Moreover, it could run stably below 4000 meters undersea.

DTA-4000 deep-tow acoustic system could realize the definite goal to search and facilitate the large devices to work. The system has a promising future in marine resources exploration and marine engineering.

A volume of translated *Science* articles published in Beijing

(CAS, 2008-05-09)



The releasing ceremony for a collection containing the Chinese translation of 31 high-impact papers published in the journal *Science* over the past decade was held on 7 May in Beijing.

The works were selected from more than 200 *Science* papers in various fields, ranging from cellular and molecular biology, biochemistry, bio-medicine, to chemistry and materials science, according to Prof. TAN Tieniu, vice secretary-general of CAS.

"Taking young scientists, graduate students and science fans as its target audience, the new publication is to encourage more young people to take part in scientific research," notes Prof. Tan.

The agreement for the publication of the translations was signed on 25 September, 2007 in Beijing by CAS President LU Yongxiang and Dr. Alan Leshner, chief Executive Officer of the American Association.

Graduate University of Chinese Academy of Sciences celebrates 30th founding anniversary

(*People's Daily*, 2008-05-11)

The Graduate University of Chinese Academy of Sciences (GUCAS) celebrated its 30th founding anniversary on Saturday, boasting that it has trained more than 30 academicians and nearly 70,000 advanced science and technology talents in 30 years.

China Highlights — May 2008

Bai Chunli, president of the GUCAS, said during the past 30 years, the GUCAS took the national lead in restoring a graduate recruitment system, trained China's first doctor of Science and first doctor of Engineering and trained China's first female doctor.

The GUCAS also boasts of the biggest number of graduate students. Currently, there are 34,200 graduate students studying in the GUCAS and about 50 percent of them are pursuing doctoral degrees.

Lu Yongxiang, vice-chairman of the National People's Congress Standing Committee and president of Chinese Academy of Sciences, on Saturday praised the achievements and contributions made by the GUCAS during the past 30 years.

He also demanded that the GUCAS to always stick to the 'people first' education principle, to pursue reform and innovation in education, to build an environment and a system that is conducive to training talents, so as to foster more outstanding science and technology professionals with innovative spirits who can make bigger contributions in building an innovative country and in the nation's renaissance.

China Energy Project Shortlisted for Global Green Awards (CRI, 2008-05-30)

The world's leading green energy prize announced in London on Thursday that a China renewable energy project has been shortlisted along with projects from Africa, Asia and Latin America for energy champion.

Shining a light on the yak-herders of China, a solar revolution for tent-dwellers which represents Renewable Energy Development Project (REDP), will compete to be the Ashden Awards' Energy Champion, with prize money of up to 40,000 pounds (some 80,000 U.S. dollars), said a press release from the Award.

Since 2001, REDP has enabled sales of over 402,000 photovoltaic (PV) solar-home systems to rural people who live off the land by tending yaks or other animals in remote areas of western and northwestern China. Previously most relied on kerosene, butter lamps and candles for light.

Around 1.6 million people, who live in tents for at least part of the year and had little access to electricity, now have an improved quality of life through better light, communications and entertainment. The portable systems are ideally suited to the lifestyle of these semi-nomadic users who are able to take them with their tents into the summer pasture in the hills.

The solar-home system comprised of two lights, a radio and a mobile phone charger was installed through the REDP-subsidized program between 2001 and 2007 in a portable metal carry-case. Larger systems can power radio-cassettes, TVs and DVD players. The average sale price in 2007 was 1,221 yuan (about 176 dollars), about the same as the price of a yak. For users, the main benefit of the REDP program was brighter, cleaner lighting, for study, work and recreation. Use of radio-cassettes and mobile phones, to keep in touch with the outside world, is also greatly appreciated.

Yak herder Yongzang, said from his tent: "We bought the system just in time for the spring festival last year. We had the money saved up from selling fungus .. it's so much better than before -- we used to just have candles .. It's good for charging the phone, and for the music. It's good that we can carry it with us -- we came here just a week ago for the spring pasture now that the snow 's melted."

The China project, set up in 2001 by the National Development and Reform Commission and the World Bank, with funding from the Global Environment Facility, aims at promoting the solar-home systems in remote off-grid homes in nine western Chinese province and facilitating cooperation between the PV sector in China and the rest of the world.

China Highlights — May 2008

The Ashden Awards are a UK-based charity that works to increase the use of local sustainable energy worldwide. They find, reward and publicize the work of leading sustainable energy programs working across the developing world and in Britain.

The overall international winner -- energy champion -- will be announced on June 19 at a ceremony in London.

6 Information for upcoming Workshops in July

2008 Chinese Control and Decision Conference

Date: July 02 – 04 **City:** Yantai, Shandong Province

<http://www.ccdc.neu.edu.cn/en.asp>

ISPRS 2008 Beijing

Date: July 03 – 08 **City:** Beijing

<http://www.isprs2008-beijing.org/index.HTM>

The 2nd International Symposium on Innovations in Advanced Materials for Optics & Electronics (ISIAMOE-2)

Date: July 06 – 09 **City:** Shanghai

<http://202.127.27.253:8151/index.asp>

International Conference on Audio, Language and Image Processing 2008

Date: July 07 – 09 **City:** Shanghai

<http://www.icalip2008.cn/>

2008 ICGI Research Conference

Date: July 08 – 11 **City:** Anyang, Henan Province

<http://icgi.tamu.edu/meeting/2008/>

The 7th International Conference on Condensed Matters Theory and Computational Materials Science

Date: July 12 – 16 **City:** Taiyuan, Shanxi Province

<http://202.207.213.2/ins/conference/index0.htm>

The First International Conference on Building Energy and Environment

Date: July 13 – 16 **City:** Dalian, Liaoning Province

<http://bechtelrh.colorado.edu/ceae/cobee/>

The First IEEE International Conference on Ubi-media Computing

Date: July 15 – 16 **City:** Lanzhou, Gansu Province

<http://u-media.lzu.edu.cn/>

The Ninth International Conference on Web-Age Information Management**Date:** July 20 – 22 **City:** Zhangjiajie, Hunan Province<http://waim2008.nudt.edu.cn/>**The 7th International Conference on Advanced Language Processing and Web Information Technology(ALPIT2008)****Date:** July 23 – 25 **City:** Dalian, Liaoning Province<http://www.alpit.org/>**The Fourth International Conference on Advanced Data Mining And Applications****Date:** July 25 – 27 **City:** Chengdu, Sichuan Province<http://cs.scu.edu.cn/~adma08/>**IFSAM 9th World Congress****Date:** July 26 – 28 **City:** Shanghai<http://www.ifsam.org.cn/index.asp?lang=1>**The 2008 International Conference on embedded Software and Systems (ICESS'08)****Date:** July 29 – 31 **City:** Chengdu, Sichuan Province<http://icess2008.comp.polyu.edu.hk/>**2008 International Conference of Chinese Logistics and Transportation Professionals****Date:** July 28 – August 03 **City:** Chengdu, Sichuan Province<http://logistics.swjtu.edu.cn/iccltp/>**International Conference on Multi-functional Materials and Structures****Date:** July 28 – July 31 **City:** Hongkong<http://www.a-tech.hk/MFMS2008/Index.htm>

Abbreviations

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