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1 Science News

1.1 Energy

U.S./China scheme wins international energy award

(Xinhua Net, 2009-06-12)

A United States/China scheme that produces portable, cheap and efficient fuel-wood stoves for global distribution has won an international energy award in Britain.

The project between Aprovecho Research Center (ARC) based in Oregon and Shengzhou Stove Manufacturer (SSM) in China was presented the Energy Champion award by the Prince of Wales at the 2009 Ashden Awards for Sustainable Energy on Thursday evening.

Under the US/China scheme, 60,000 stoves have been sold since 2008, with production capacity now at 50,000 per month.

International Development Enterprises India (IDEI) won the 2009 Ashden Outstanding Achievement Award for a simple treadle pump that has lifted more than 750,000 farmers out of poverty. Since winning an Ashden Award in 2006 the organization has diversified into drip irrigation systems and its products are selling worldwide. The organization uses Bollywood films and stars to get its message across.

Organizations from Ethiopia, Nicaragua and Uganda were among six other winners of awards for

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electrification of rural areas, energy enterprises, renewable for economic development, nutrition improvement, and avoiding deforestation, while eight awards were given to British schemes.

"The major value of these awards is that they demonstrate what is possible, not only for small scale-scale projects, but what is achievable for the whole world. So much of what we need to build cleaner and more efficient communities is already with us," the Prince of Wales said.

Gareth Thomas, International Development Minister, noted that projects like these "bring real benefits to local communities and clearly demonstrate how clean, renewable energy can help grow local economies, improve people's health and reduce poverty -- as well as contributing toward the fight against climate change."

Sarah Butler-Sloss, founder and chair of the Ashden Awards said: "We are delighted that we can bring such great examples of innovation and inspiration to the attention of policy makers and the public to help push forward the agenda on practical measures to combat climate change."

Founded in 2001, the Ashden Awards for Sustainable Energy aims to encourage the greater use of local sustainable energy to address climate change and alleviate poverty. This year, 200,000 pounds (one pound equals to about 1.6 U.S. dollars) were awarded in prizes to seven international schemes that are saving thousands of tons in carbon emissions and benefiting communities around the globe.

China's First Bioenergy Research Center Inaugurated in Nanning (CAS, 2009-06-15)

China's first bioenergy research center was inaugurated Sunday in Nanning, the capital city of southern Guangxi Zhuang Autonomous Region, amid government's plans of new energy development to combat global energy crisis.

The research center is set up based on the national guidance on energy and grain security, and will look to cassava, sugar cane, sweet sorghum as the main sources for new energy development.

Bioenergy has good prospects in tackling energy crisis and protecting grain security and ecological environment since it has low emission and in contest with human beings for resources, said Huang Ribo, director of the research center.

China has abundant bioenergy resources, which is expected to total five billion tonnes. The tropical Guangxi has rich reserve of cassava, sugar cane, which takes up more than 65 percent of the nation's total, he said.

China's first cassava-for-alcohol fuel project, which has an annual capacity of 200,000 tonnes, was started in Beihai city of Guangxi in 2007.

The Guangxi Academy of Sciences will support the research center with research talents and facilities. According to a report released by the Chinese Academy of Sciences on June 10, bioenergy is expected to realize commercial production on a massive scale in China and replace 30 percent of the oil imports by 2050.

Chinese hydrogen fuel cell cars run on US freeways (People's Daily, 2009-06-18)

Sixteen hydrogen fuel cell Passat Lingyu cars, which were independently developed by China, were recently brought to the US to carry out six months of road testing and demonstration runs.

The cars have a top speed of 150 kilometers per hour, and will run for 300 kilometers once fully charged with hydrogen. They completed a 70 day pilot run during the 2008 Beijing Olympics and

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Paralympics, and have traveled a total of nearly 80,000 kilometers.

The fuel cell operation demonstration project carried out in California on this occasion was held by California Fuel Cell Partnership Program, and was jointly sponsored by automobile enterprises, energy companies, fuel cell technology companies and governmental organizations.

The fuel cell cars were modeled on the Passat Lingyu produced by Shanghai Volkswagen, and fitted with a new-generation fuel cell power system jointly researched and developed by Shanghai Fuel Cell Vehicle Powertrain Co., Ltd., Tongji University and Shanghai Automotive Industry Corporation (SAIC).

The aim of the project is to set an example in actively coping with global climate change. The members of California Fuel Cell Partnership Program include Ford, Honda, GM, Toyota and Volkswagen amongst others.

China to build world's largest solar power base (People's Daily, 2009-06-30)

China's first demonstration project integrating wind power, photovoltaic power and power storage was recently established in Zhangbei, northern China's Hebei province with a planned total investment of over 8 billion yuan.

Upon completion, it will become the world's largest solar power base and experimental center for the complementary generation of wind and photovoltaic power.

It will also be China's first test base for the centralized output of wind power over 1 gigawatt. The project will have an installed capacity to generate 300 megawatts of wind power, 100 megawatts of solar power and 75 megawatts of chemical energy storage.

1.2 Earth and Environment

Climate Change Causes Rapid Reduction of Ice in Great Himalayas (CAS, 2009-06-02)

Glacier volume of Himalayan is reducing rapidly due to climate change, leading to cascading effect of alpine ecosystem there, a study by CAS researchers found recently.

The cascading effects of rising temperatures and loss of ice and snow in the region are affecting, for example, water availability (amounts, seasonality), biodiversity (endemic species, predator-prey relations), ecosystem boundary shifts (tree-line shifting, high-elevation ecosystem changes), and global changes (monsoonal shifts, loss of soil carbon), found Xu Jianchu, researcher of Key Laboratory of Biodiversity and Biogeography, Kunming Institute of Botany, CAS.

The result was published on Vol. 23, Conservation Biology, a flagship journal of the Society for Conservation Biology, also the most frequently cited conservation journal in the world.

According to the study, climate change will also have environmental and social impacts that will likely increase uncertainty in water supplies and agricultural production across Asia. A common understanding of climate change needs to be developed through regional and local-scale research so that mitigation and adaptation strategies can be identified and implemented.

The Greater Himalayas hold the largest mass of ice outside Polar Regions and are the source of the 10

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largest rivers in Asia. Challenges brought about by climate change in the Greater Himalayas can only be addressed through increased regional collaboration in scientific research and policy making.

Frozen Soil in Tibetan Plateau Draws CAS Researchers

(CAS, 2009-06-11)

The Ministry of Science and Technology, China, launched a research project "Research on the frozen soil in Tibetan Plateau" in Lanzhou, Gansu province on May 27, 2009.

Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI), Chinese Academy of Sciences (CAS) is in charge to carry out the research together with Northwest Institute of Plateau Biology, Institute of Mountain Hazards and Environment, CAS and Lanzhou University.

The research was funded by the Major Basic Research Projects of Ministry of Science and Technology, China. Researcher Zhao Lin from CAREERI acted as the chief scientist.

The project will be mainly focused on large pieces of frozen soil in Tibetan plateau. The researchers aim to examine the boundary, active layer, soil, vegetation, climate and topographic feature of the frozen soil so as to acquire the background data. They will also evaluate the impact frozen soil has on climate, hydrology, biology and engineering constructions.

As part of the project, the existing monitoring network will be expanded to a more comprehensive one. As China's western development drives further, and the global warming worsens, the impacts of frozen soil on climate, biology, hydrology grows even stronger. "Research on the frozen soil in Tibetan plateau could greatly enhance China's ability in predicting climate change and evaluate the changing trend of the rivers originated in the region," noted Zhao.

A thorough investigation of the frozen soil in Tibetan plateau will provide basis for policy-making concerning climate prediction, sustainable usage of water resources, ecology conservation, disaster prevention and reduction, and engineering planning and development.

CAS Expedition Ship Sets Sail for South China Sea

(CAS, 2009-06-16)

"Science No.1", an expedition ship of the Chinese Academy of Sciences (CAS), has set sail for South China Sea for an offshore research task from China's eastern city Qingdao on Jun. 8th.

The voyage will carry out observation, theoretical analysis and forecast mode and system research on meso-scale phenomena such as meso-scale eddies, frontal, spring layer and internal wave in the key areas of the northern part of South China Sea and Luzon Strait.

Researches will explore the temporal and spatial distribution of the meso-scale phenomena, their formation and dissipation laws, as well as their acoustic effect, so as to solve key scientific and technological problems in meso-scale forecast of China offshore coast.

The expedition team is consisted of researchers from the Institute of Oceanology, South China Sea Institute of Oceanology and Institute of Acoustics. It is scheduled to last for about a month.



Global Warming Causes Glacial Recession of China's Qilian Mountains

(CAS, 2009-06-19)

Glacier and snow coverage on Qilian Mountains,

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known as the lifeline of Gansu Corridor, has been shrinking drastically as a result of rising temperatures linked to global warming, a CAS researcher found recently with his team.

Seated to the south of Hexi Corridor in northwest China, Qilian Mountains is one of the areas with the most concentrated glaciers in China. Snow above 5,000m altitude is the source of many rivers.

Satellite remote sensing data shows that glacial coverage in the Qilian Mountain area has retreated by 8.2 per cent from 1956 to 2000. Heihe basin has seen the most recession, 24.3 per cent. Some areas are dwindling by 10 per cent, such as Bayan Gol River and Datong River, said Liu Shiyin from the Cold and Arid Regions Environmental and Engineering Research Institute (CAREERI), CAS.

Glaciers play a critical role on the local human activities, economic development and ecological environment. Oases in the areas have shrunk due to shortage of melting water, leading to deteriorating ecological environment of the Hexi Corridor, said Xu Junli, also a CAREERI researcher.

More than 80 per cent of West China's glacial areas are retreating in the late 50 years by 2 per cent to 18 per cent. The rise of snow line at a speed of 2 to 6.5 metres per year will kill small glacial less than 2 square kilometres in 50 years, according to experts.

CAS Research Vessel Wraps up Offshore Investigation

(CAS, 2009-06-25)

"Kexue-III", an expedition ship of the Chinese Academy of Sciences (CAS), finished its offshore science voyage and returned to its base in China's eastern city Qingdao on June 23.

Set sail on June 15 from Qingdao, "Kexue-III" conducted inspections including oceanographic hydrological observation, observation of ocean currents and meteorology, observation of halobios and ecological chemistry, sampling of ocean sediments in the northern part of China's Huanghai Sea in the 1,200-kilometre travel.

This is the second phase of the investigation. Completion of the voyage sees the ending for China's offshore spring sharing investigation of 2009.

The expedition ship is one of three research vessels of the Institute of Oceanology, CAS (IOCAS). Currently, IOCAS owns 3 vessels: Kexue-I, Jinxing-II and Kexue-III.

EU Sets out Plan to Help China on Carbon Capture

(CAS, 2009-06-30)

The European Commission set out a plan on Thursday to help finance the design and construction of a power plant to demonstrate carbon capture and geological storage (CCS) technology in China.

The commission, the executive body of the European Union (EU), said it has programmed funding of up to 50 million euros (US\$70 million) for the construction and operation phase of the project, out of a total of 60 million euros (US\$84 million) that has been earmarked for cooperation with emerging economies on cleaner coal technologies and CCS.

But the funding is only a fraction of the project's total cost, which is estimated at 300 to 550 million euros (US\$420 to 770 million). Therefore, the commission called on EU member states and China to contribute additional funding.

The commission said CCS is an important technology in the fight against climate change and has the potential to cut emissions from power generation in fast-developing and coal-dependent emerging economies, such as China.

The technology involves separating carbon dioxide from gases produced in large power plants,

compressing it into liquid and burying it deep underground or under the ocean bed.

So far, EU leaders have committed themselves to the establishment of a network of up to 12 CCS demonstration plants in the 27-nation bloc by 2015.

"We have taken action to put in place the regulatory framework and the incentives to facilitate CCS demonstration in Europe and now we are making good on our promise to China," EU Environment Commissioner Stavros Dimas said in a statement.

"This important cooperation between the EU and China on CCS can act as a model for cooperation under the post-2012 global climate change regime the world must agree in Copenhagen in December," he added.

1.3 Health and Biological Sciences

CAS Institute's New Drug Received Drug Approval Certificate (CAS, 2009-06-02)

Antofloxacin Hydrochloride and its tablets, a class one new drug, has been granted new drug license and drug approval certificate by China's State Food and Drug Administration (SFDA) recently.

Shanghai Institute of Materia Medica (SIMM), Chinese Academy of Sciences (CAS) and Anhui Global Pharmaceutical, Inc. jointly developed the new drug. Yang Yushe and Ji Ruyun from SIMM led the research team.

Antofloxacin Hydrochloride is a new antibiotic drug with high safety and low toxic and side effects, superior to similar drugs currently available in the market. It shows significant therapeutic effect in treatments of dermatological, respiratory and urological infections. It is also the first fluoroquinolone new drug from China with intellectual property right.

In December 2003, Antofloxacin Hydrochloride and its tablets were issued the new drug clinical trial approval by SFDA. It's Phase I clinical trial was completed in June 2004. The application for new drug license and drug approval certificate was submitted to SFDA after Phase II and Phase III clinical trials being completed in November 2006.

The research was supported by New Pharmacy Innovation Program which was launched by Chinese Ministry of Science and Technology in early May.

Chinese Scientists Make Breakthrough in Creating Pig Stem Cells (CAS, 2009-06-08)

Chinese scientists announced Wednesday they have succeeded in changing cells from pigs into embryonic-like stem cells, capable of developing into any type of cell in the body.

The Shanghai Institute of Biochemistry and Cell Biology (SIBCB) of the Chinese Academy of Sciences claimed a global breakthrough in forming pluripotent stem cells using somatic cells (cells that are not sperm or egg cells) from any animal with hooves (ungulates).

Dr. Xiao Lei, heads of the SIBCB stem cell lab, said, "This is the first report in the world of the creation of domesticated ungulate pluripotent stem cells."

It could open the way to creating models for human genetic diseases, genetically engineering animals for human organ transplants, and for developing pigs that were resistant to diseases such as swine flu,

he said.

The research team succeeded in generating induced pluripotent stem cells by reprogramming cells taken from a pig's ear and bone marrow.

After the reprogramming factors were introduced via a virus, the cells developed into colonies of embryonic-like stem cells.

Tests confirmed the stem cells were capable of differentiating into the cell types that make up the three layers in an embryo -- endoderm, mesoderm and ectoderm -- a quality of all embryonic stem cells.

The information gained from inducing pluripotent stem cells (iPS cells) would make it much easier for researchers to develop embryonic stem cells (ES cells) that originate from pig or other ungulate embryos.

"Pig pluripotent stem cells would be useful in a number of ways, such as precisely engineering transgenic animals for organ transplantation therapies. The pig species is significantly similar to humans in its form and function, and the organ dimensions are largely similar," said Xiao.

"We could use embryonic stem cells or induced stem cells to modify the immune-related genes in the pig to make the pig organ compatible to the human immune system."

The pigs could be bred as organ donors to provide organs that did not trigger adverse reactions from the patient's own immune system.

Pig pluripotent stem cell lines could also be used to create models for human genetic diseases.

"Many human diseases, such as diabetes, are caused by a disorder of gene expression. We could modify the pig gene in the stem cells and generate pigs carrying the same gene disorder so that they would have a similar syndrome to that seen in human patients. Then it would be possible to use the pig model to develop therapies to treat the disease.

"To combat swine flu, for instance, we could make a precise, gene-modified pig to improve the animal's resistance to the disease. We would do this by first finding a gene that has anti-swine flu activity or inhibits the proliferation of the swine flu virus.

"We can introduce this gene to the pig via pluripotent stem cells -- a process known as gene 'knock-in'. Alternatively, because the swine flu virus needs to bind with a receptor on the cell membrane of the pig to enter the cells and proliferate, we could knock out this receptor in the pig via gene targeting in the pig induced pluripotent stem cell. If the receptor is missing, the virus will not infect the pig."

Xiao said the discovery could also be used to improve animal farming, not only by making pigs healthier, but also by modifying the growth-related genes to change and improve the way they grow.

However, he warned that it could take several years before some of the potential medical applications of the research were in clinical use.

He said the next stage of the research was to use the pig iPS cells to generate gene-modified pigs that could provide organs for people, improve the pig species or be used for disease resistance.

The modified animals would be either "knock in" pigs where the iPS or ES cells have been used to transfer an additional bit of genetic material (such as a piece of human DNA) into the pig's genome, or "knock out" pigs where the technology is used to prevent a particular gene functioning.

The work was published on-line Wednesday in the newly launched Journal of Molecular Cell Biology, an international journal publishing reviews and articles on molecular and cell biology.

China Unveils Stimulus Measures for Bioindustry (CAS, 2009-06-09)

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The State Council, China's cabinet, has publicized measures to boost biological industry, said an announcement posted on China's central government website Friday.

The measures, Policies to Accelerate Biological Industry Growth, consist of 33 items in ten parts, involving targets of the policies, key fields in biological industry, technology innovation, attracting talents and providing fund support.

The new policies have been made to implement China's medium- and long-term bio-industry development plan and the 11th five-year plan for biological industry growth, said the announcement posted on www.gov.cn.

The measures aim to foster bio-industry as a pillar industry in high technology and a booming strategic industry in China, the announcement said.

The key fields for modern biological industry include bio-medicine, bio-agriculture, bio-energy, bio-products and biological environmental protection technology.

A (H1N1) Flu Vaccine Development Prioritized (CAS, 2009-06-10)

The A (H1N1) influenza vaccine will be prioritized to ensure fast development and quality control ahead of its likely entry into the Chinese market at the end of July.

The State Food and Drug Administration (SFDA) said it would shorten the regular waiting time for domestic vaccine producers to receive a production pass.

However, that did not mean it would skip measures that ensure the safety and efficacy of the coming vaccine, spokesperson Yan Jiangying said yesterday at the monthly press conference

"Given that A (H1N1) is a new virus and yet to be well known, we'll deploy staff to oversee the entire process of the vaccine's research and development, production, testing, circulation, and final use," she said.

Yin Hongzhang, head of the SFDA biology production office, said whether there was still a question as to whether the vaccine would efficiently protect people from an epidemic.

Yin said that answer depends on whether the virus in the vaccine mutated into a new form when the vaccine was in wide use.

Up until now, 4 or 5 of the qualified vaccine manufacturers in China have received the A (H1N1) vaccine virus sample from the collaborating centers of the World Health Organization (WHO), said Yin.

"By the end of the week, all of them will get the virus sample and start the research and further testing to decide the key elements of the vaccine including the dosage and inoculation form," Yin said.

China now has 11 qualified vaccine producers, out of a total of 32 worldwide, according to Yin. If all of them begin with the production, the first batch would be 3 million doses and the annual output could breach 360 million.

Yin expected the first batch of vaccines to be ready in late July. The Ministry of Health would decide on the inoculation plan.

Nanoparticles may damage lungs (Xinhua Net, 2009-06-15)

Researchers in China have identified how nanoparticles-- ployamidoamine dendrimers or PAMAMs - used in medicine can cause lung cancer.

Nanotechnology is essentially the science of the "extremely tiny" - one nanometre being one-billionth of a metre - and is an important industry. The study, nevertheless, implies that though the fledgling science is promising in terms of noteworthy advances in the field of science and medicine, the concerns about its safety cannot be overlooked.

The researchers in an article published in the *Journal of Molecular Cell Biology*, said a class of nanoparticles used in medicine, polyamidoamine dendrimers (PAMAMs), may cause lung damage by triggering a type of programmed cell death known as autophagic cell death.

On the basis of the experiments conducted by the team of researchers, whereby they observed how different types of PAMAMs exterminated human lung cells; however, without finding evidence that the cells were dying their natural death, which is called apoptosis.

Lead researcher, Chengyu Jiang - a molecular biologist at the Chinese Academy of Medical Sciences in Beijing - said that the study "provides us with a promising lead for developing strategies to prevent lung damage caused by nanoparticles."

"Nanomedicine holds extraordinary promise, particularly for diseases such as cancer and viral infections.

"But safety concerns have recently attracted great attention and with the technology evolving rapidly, we need to start finding ways now to protect workers and consumers from any toxic effects that might come with it."

"The idea is that, to increase the safety of nanomedicine, compounds could be developed that could either be incorporated into the nano product to protect against lung damage, or patients could be given pills to counteract the effects," said Dr Jiang.

China Begins Tests of First A/H1N1 Flu Vaccines

(CAS, 2009-06-23)

Laboratory tests began on China's first developed A/H1N1 flu vaccine on Monday.

The vaccines are expected to hit the market in September after 14 days of safety tests in labs and two-month clinical tests from July, said Fan Bei, deputy general manager of Hualan Biological Engineering Inc., based in Henan Province.

The company had produced a first batch of 90,000 doses, but it would be able to make 600,000 doses a day once it was approved, Fan said.

"As the vaccines still need to go through several tests, we did not produce at full capacity."

A clinical test plan submitted by the firm was approved by the State Food and Drug Administration (SFDA), but she would not release the details of the plan.

The company received the seed virus from a World Health Organization (WHO) lab on June 3.

China has 11 drug firms that are qualified to produce flu vaccines. Another drug company, Sinovac Biotech Co. Ltd., announced that it had started development of A/H1N1 flu vaccines on June 15.

China has reported 414 cases of A/H1N1 flu. Epidemiologists have warned of a "very high" risk of outbreak in densely populated communities.

The Ministry of Health issued a document last Wednesday saying that, in case of a rampant spread of the virus in local communities, it would switch to monitor the "group activities" of each community instead of closely tracking and quarantining individual patients.

It also suggested that group activities of communities could be suspended or canceled, which means schools could be closed.

1.4 Key Technologies

USTC's Robot Makes Debut Show at Robo Cup 2009

(CAS, 2009-06-05)



A robot developed by the University of Science and Technology of China (USTC), Chinese Academy of Sciences (CAS) had its debut show at the Robo Cup 2009 Exercise Competitions, China which took place from May 16 to 17 in Hefei, Anhui province.

This is the first time USTC revealed its robot technology to the public. This average-looking robot can listen to people, talk and identify its acquaintances in the crowd. More complex tasks such as finding and fetching things can also be easily performed. "It is actually capable of many more complicated tasks," according to the commentator, "for example, cleaning rooms and shopping at the supermarket."

The 1.5-meters-high and 30-kg-weight robot is composed of a pedestal, arms and various sensors. Technologies such as language recognition, natural language comprehension, automated reasoning, task planning, motion planning, and sensing and control were used at it. It was the first time that natural language comprehension and planning technologies were applied to a robot and it therefore acquired more ability in interacting with people, comprehending languages and solving problem.

Home service robot is a hot topic in robot research and development both in China and abroad, noted Chen Xiaoping from the Department of Computer Science and Technology, USTC. Intelligent robots are also one of the four manufacturing technologies listed in the National Outlines for Medium and Long-term Planning for Scientific and Technological Development (2006-2020).

"Magic Cube" Supercomputer Starts Operations in Shanghai

(CAS, 2009-06-16)

China's home-made supercomputer, Magic Cube, previously known as Dawning 5000A, went into operation Monday in Shanghai.

It's China's first supercomputer with a speed higher than 100 trillion floating-point operations per second (teraFLOPS), said local officials. It's also the only supercomputer not in the United States to be ranked among the world's 10 fastest for computing speed.

The supercomputer, with a peak capability of 230 teraFLOPS, will be used for information processing and fundamental scientific research at the Shanghai Supercomputer Center, the center's vice director, Yuan Jun, said.

Magic Cube was made in the Tianjin-based Dawning Information Industry Co. last September. Sent to Shanghai on May 15, its name was chosen from among public submissions and it underwent a month of testing.

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According to Yuan, supercomputers are increasingly important in China's high-tech industries, such as aircraft and automobile design and nuclear energy.

The power of supercomputers can also come in handy for researchers in the fields of new energy and biology.

"Magic Cube will help boost China's innovation," said Yang Xianwu, vice head of the Department of High and New Technology Development and Industrialization of the Ministry of Science and Technology.

Magic Cube 75 square meters and consumes 700 kilowatts of electricity per hour. It cost about 200 million yuan (29 million U.S. dollars) and was paid for by the Ministry of Science and Technology and Shanghai Municipal Government.

Supercomputer Lenovo Shenteng 7000 Put into Use (CAS, 2009-06-17)

China's supercomputer the Lenovo Shenteng 7000 has been put into use in the Computer Network Information Center, Chinese Academy of Science on May 25, 2009.

Shenteng 7000 with a 100 trillion operations per second was developed by Lenovo Group, Beihang University and the Computer Network Information Center, CAS last November. It was put into trial use in April. The test data in the last two months show that the computer functions well and it has been put into in-service use now. It is widely used in computation in weather forecast, industrial manufacture, transportation management and earthquake forecast.

This supercomputer is also a key innovative product of the "high-performance computer and grid service environment project" under the National High-tech Research and Development Program (863 Program).

The Shenteng supercomputer's peak performance can reach 157 trillion floating point operations per second, with its actual speed exceeding 106.5 trillion floating point operations per second.

Chinese Computer Giant to Launch Gaming Computers (CAS, 2009-06-24)

Chinese computer maker Lenovo Group plans to launch gaming computers by targeting serious gamers in an effort to push up sales, the company said on Tuesday.

The company will release a series of new gaming computers, including desktops, laptops and all-in-one computers, in the next few months to win more Chinese gamers who are expected to reach 100 million by the end of 2009, reported Wednesday's China Daily, citing Liu Jie, Lenovo's vice president.

According to Liu, the company's gaming computers, which are mainly sold between 4,000 yuan (571.4 U.S. dollars) to 7,000 yuan, accounts for 17 to 20 percent of the company's total sales.

Figures from research firm IDC showed the global economic downturn had dragged down global PC shipments by 7 percent during the first three months of 2009. That has made the world's major PC makers strive to release new products to stimulate consumer demand for technology products.

Dell, for example, launched earlier this month a high-end game laptop Alienware M17, priced at 1,399 U.S. dollars, in an effort to tap serious gamers.

1.5 Transport and Space

China's First Space Telescope to Blast Off in 2011

(CAS, 2009-06-04)

China's first space telescope has solved all key technical difficulties and is planned to blast off in 2011. Construction of the telescope's ground model has been completed so far.

With a direct demodulation method developed by Chinese scientists, the Hard X-ray Modulation Telescope (HXMT) adopts a collimator for scanning imaging, which gives it the highest sensitivity and space resolution among all the Hard X-Ray space telescopes in the world up to now.

Adoption of the new technology reduces the cost of the telescope to 1/5 to 1/10 of world's other space telescopes that adopts generally used X-Ray Coded Aperture Imaging method.

HXMT will perform an all-sky hard X-ray survey, and observe important cosmic X-ray sources including black holes and neutron stars.

The launch of HXMT will help China achieve a breakthrough in astronomical observation. The Ministry of Science and Technology of China, The Institute of High Energy Physics of Chinese Academy of Sciences and Tsinghua University began to support the first phase of study on the HXMT mission in 2000.

Sharpest Fiber Spectroscopic Telescope Ready for Formal Run

(CAS, 2009-06-05)

The Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST), a national big science project of China, just received its official blessing and ready for full formal run on June. 4th.

Located in Xinglong Observing Station, the National Astronomic Observatories of CAS, the facility cost 235 million yuan (34.4 million U.S. dollars) to construct. It has an effective aperture of over four meters, the biggest of its kind in the world, and 4,000 optical fibers that can simultaneously track space and decode starlight into enormous amounts of spectrographic data.

"A key innovation is an active optics system that deforms the correcting mirror's 24 plates individually, compensating for the spherical aberration of the primary mirror and bringing both mirrors into focus simultaneously," said Cui Xiangqun, leading engineer for the project, who heads CAS' Nanjing Institute of Astronomical Optics and Technology.

Consisting of an MB (6.67m x 6.05m), and an MA (5.72m x 4.4m), the Schmidt telescope is able to observe the spectra of some 4000 celestial bodies over a 5-degree vision field, a system enjoying the largest vision field and highest spectrum acquisition rate in the world.

"Scientists can obtain spectral data of about 2,500,000 stars, 2,500,000 galaxies, 1,500,000 luminous red galaxies and 1 million quasars in an area of 24,000 square degree in three to five years," Cui forecasts.

"The most active and ambitious optics experiment facility", as Ray Wilson, renowned active optics researcher put it, has carried out four trial observations, collecting 3600 spectrums each time up to now. New adjustments are underway, said scientists. At least 10 million spectrums may be obtained six years after LAMOST's formal run. All the data will be open for international scientific research.

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China to Launch First Mars Probe in October of 2009

(CAS, 2009-06-10)

China's first Mars probe, "Yinghuo-1", is expected to be launched in October this year, said an official of the Shanghai Academy of Space flight Technology (SAST) recently on the third Shanghai International Aerospace Technology and Equipment Exhibition.

The probe had passed test of the research phase, and will be launched by a Russian carrier rocket, accompanied by the Russian aerocraft "Phobos-Grunt".

"The Mars travels near the earth every two years, and this year would be a good chance for the launching," said Chen Changya, deputy designer of the probe mission and researcher of SAST.

Initiated by Shanghai Space Administration, the China-made probe is developed by a number of organizations, including the Center of Space Science and Applied Research with the Chinese Academy of Sciences and Shanghai Meteorological Observatory.

"Yinghuo-1" would go into Mars orbit in 2010 after an 11-month, 356-million-kilometer journey, according to Chen. "Yinghuo-1" will explore Mars while the Russian craft will land on Phobos to explore the environment and take soil samples.

"We hope to explore the spatial environment there, the secrets behind the disappearance of water, and the features of evolution," said Chen. This will be the first of China's three Mars-probe steps--"orbit, land and return".

The China-made probe -- 75 centimeters long, 75 centimeters wide, 60 centimeters high and weighing 110 kilograms -- was designed for a two-year mission, said Chen. Two cameras on "Yinghuo-1" will take photos of Mars and Phobos, and the data collected will be sent back to earth for analysis.

After completing its mission, "Yinghuo-1" will be left in the space forever.

And now, "Yinghuo-1" has made all preparations and is waiting for the transportation to Moscow. The probe will be launched in Baikonur Cosmodrome in Kazakhstan after joint-pro-test by Chinese and Russian researchers.

China still needs to achieve breakthroughs in three key technologies of remote observation and control, automatic control and heat control, added Chen.

China and Russia agreed to jointly send a probe to Mars and its moon, Phobos, in June 2007.

Though China is relying on Russia for the launching, tracking and controlling of the micro-satellite, the Mars probe project is still regarded as a milestone that will take the country one big step further in deep-space exploration.

The country could explore Mars independently if it developed launch technology, and use the tracking experience from the lunar mission, he said.

Jiao Weixin, a space scientist at Peking University, cautioned that the failure rate of Mars missions is high - of the more than 30 orbiters launched, about two-thirds have failed. Currently, only three orbiters and two rovers are operating.

China may need 20 years before it can launch its own Martian expedition independently, said Jiao. "China-made carrier rocket and deep space communication network are all needed for improving the probe's tracking communication ability. And these are all key challenges we have to conquer before we can succeed." International cooperation may be a shortcut, Jiao believes.

Moon Base Camp Possible by 2030

(CAS, 2009-06-12)

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China may send manned flights to the moon and set up a base there by 2030 and it could land on Mars by 2050, a technology think tank said.

In a roadmap for the development of China's space technology, the Chinese Academy of Sciences (CAS) said that China's manned spacecraft could also launch from a moon base to explore further planets in 2050.

The roadmap was part of a report titled "Creation 2050: Science, technology and China's Future", a long-term strategy for the country's development of science and technology.

Guo Huadong, leader of a CAS space technology strategy research team, said the roadmap is "not an official plan, but more of a strategic suggestion to the decision makers."

The central government has not announced any plan or timetable for sending astronauts to the moon or building a moon base.

Guo said the report had been given to the central government for its consideration.

"The roadmap has provided perspectives, based on China's current abilities, the international community's outlook in the field and the country's strategic needs," Guo told China Daily yesterday.

On the topic of deep-space exploration, the roadmap estimates that China's probes may reach Mars by about 2020 and be used to explore other planets like Jupiter by 2030.

It suggests that the probes may fly out of the solar system and enter cosmic space by 2050.

As for a manned flight mission, the roadmap said China could have the capacity to develop technology that would guarantee astronauts' long-term survival in low-Earth-orbit space stations by about 2020.

It also said that China could further develop technology that would improve the autonomous navigation capability of space vehicles, near-space vehicles and flight hardware.

The Creation 2050 report covers 18 fields, including space, health, mineral resources, energy and agriculture, which could help the country become more competitive and assist in its sustainable development and security.

Lu Yongxiang, president of the CAS and vice chairman of the Standing Committee of the National People's Congress (NPC), said at a conference Wednesday: "China cannot simply copy other countries' models of development of science and technology."

China must try to develop a creative road in science and technology with its own characteristics, he said.

According to the report, China could be involved in the development of emerging strategic industries like energy by 2050.

It could also be involved in the development of new energy and environmentally-friendly products, according to the report.



Chinese arms on show in Paris
(Xinhua Net, 2009-06-16)

A series of China-made planes and missiles have gone on display at this

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year's Paris Air Show.

The air show comes amid tough times for the recession-hit airline industry and in light of unanswered questions over the crashed Air France jetliner.

China's latest L-15 jet trainer and air-to-air missiles are among the exhibits displayed by the Aviation Industry Corporation of China, the country's major airline manufacturer.



The 48th Paris Air Show opened Monday at Le Bourget Airport, north of Paris. It will last until Sunday. The century-old exhibition is one of the most influential air shows in the world.

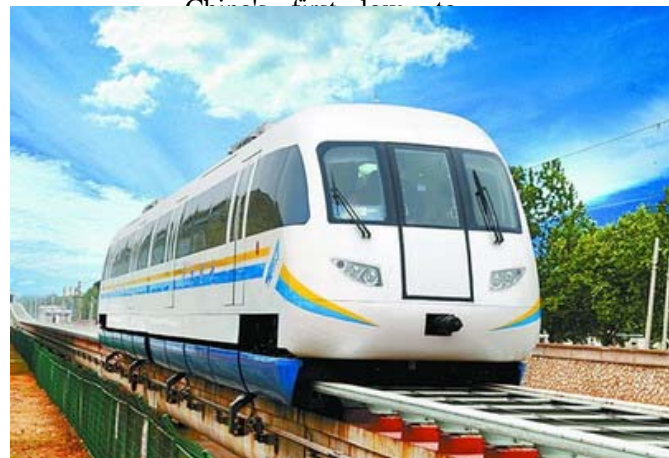
China Begins Maglev Train Run Test (CAS, 2009-06-17)

medium-speed magnetic levitation (maglev) train with full proprietary intellectual property rights began to run tests on June 15.

The train came off the production line and underwent debugging at CNR Tangshan Railway Vehicle Company. It marks that China has acquired the industrial manufacturing capacity to produce low- to medium-speed maglev trains.

Maglev train overcomes gravity by electromagnetic force which enables the train to suspend over the track, and is driven by Linear motors.

Compared with wheel-rail trains, the maglev train produces less noise and vibration. It has more flexible conditions and a lower construction cost to lay the railway line, and is easier to implement and maintain.



First Solar Plane Set for Round-the-World Trip in 2011 (CAS, 2009-06-22)

The world's first solar plane is expected to complete the round-the-world trip in 2011, a representative of one of the sponsors of the project said here Thursday.

Jean Cai, vice president of Deutsche Bank (China) Co., Ltd., a main partner of the solar plane project, told Xinhua that the plane, powered solely by solar energy without polluting emissions, will fly around the world in 30 days in 2011 and land once on each continent.

A model of the Solar Impulse plane is exhibited in Shenyang, capital of northeast China's Liaoning

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Province, where the Deutschland-Chinesische Promenade program, part of a Sino-German friendly exchange event, is being staged, Cai said.

The prototype is to be unveiled to media on June 26 at Dubendorf airfield next to Zurich, Switzerland, added Cai.

The plane, covered in almost 12,000 photovoltaic cells, has a wingspan of 63.4 meters, or roughly that of Airbus A340, and only weighs 1,600 kg, equivalent to that of a motor car. It is reported to be able to reach a flying speed of 70 km per hour.

"The solar plane project is aimed at promoting sustainable energy in the world and the potential and future of clean energy and solar energy," said Cai.

The ongoing Deutschland-Chinesische Promenade program is part of the Germany and China Moving Ahead Together, an event jointly launched by Germany and China in 2007 under the theme of "sustainable urbanization".

The whole event is scheduled to conclude during the Shanghai World Expo next year.

China to Produce World's Largest Amphibious Plane (CAS, 2009-06-30)

AVIC General Aircraft Company disclosed on June 24 that the project to produce the world's largest amphibious airplane "Jiaolong-600" has already been approved, and its research and development has officially started.

"Jiaolong-600," a single-hull comprehensive rescue airplane with a four-turbine propeller, is similar in size to the Airbus A320. It will become the world's largest amphibious airplane.

The airplane's maximum take-off weight is 60 tons. It can take off and land on both ground and water.

In the civil aviation sector, "Jiaolong-600" has a strong capacity to carry out various special tasks including emergency rescue, forest firefighting and sea surveillance, and therefore it has great market potential.

2 MOST S&T Newsletters

2.1 Newsletters No. 549 (2009-06-10)

Focal Points

- * Trilateral Ministerial Meeting on S&T Cooperation
- * China-Korea Joint Committee Meeting on S&T Cooperation
- * Pluripotent Stem Cells Derived from Pig Somatic Cells
- * Super Telescope Passed Approval
- * Chinese Made Space Telescope
- * China's First Petaflop Computing Center

Trilateral Ministerial Meeting on S&T Cooperation



The 2nd session of China-Japan-Korea Ministerial Meeting for S&T Cooperation was held on May 24, 2009 in Tokyo. A Chinese S&T Delegation, headed by WAN Gang, Chinese Minister of Science and Technology, was present at the event. Science and technology ministers from three countries discussed a range of regional and global issues of common interest, including adaptation to climate change impacts, new energy, and energy efficiency and emission reduction. Three countries decided to launch a trilateral research program to support substantive collaborations among scientists. The meeting also decided to create a young scientist forum sponsored by the involving countries on a rotational basis, enhancing exchanges among young scientists. At the meeting, representatives from three countries signed a range of documents, including a joint statement, an MOU on collaborative research, and an MOU on promoting scientific exchanges and popular science activities. During the session, WAN held a bilateral talk with Ryu Shionoya, Japanese Minister of Education, Culture, Sports, Science and Technology, and jointly inked an MOU on strengthening the collaborations between the two countries in the area of seismology, allowing more exchanges and joint studies.

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China-Korea Joint Committee Meeting on S&T Cooperation



At the invitation of the Korean Ministry of Education, Science and Technology Development, a Chinese Delegation, led by WAN Gang, Chinese Minister of Science and Technology, visited the Republic of Korea May 22-23, 2009. WAN and Ahn Byong Man, Korean Minister of Education, Science and Technology Development, co-chaired the joint committee meeting. Both sides reviewed the latest S&T developments in both countries since the last session. Both sides agreed to kick off a China-Korea joint research program, along with a range of new projects on energy efficiency and emission reduction, climate change, and biotechnology. Both sides agreed that efforts shall be made to reform and strengthen the China-Korea joint research center. Both sides reached consensus on enhancing joint studies in the area of basic sciences and associated commercial applications, and worked out a detailed cooperation plan for the purpose, in a move to push the cooperation heading for a direction of practical applications. Both sides expressed that efforts would be made to facilitate S&T cooperation and exchanges between local government, research institutes, and universities, in addition to enhancing such exchanges among young scientists. Both sides briefed the other side of the latest S&T development and S&T policies in their respective countries. During his stay in Korea, WAN attended a ceremony to publicizing a souvenir booklet on China-Korea S&T cooperation, and visited Seoul National University Automobile Research Center and a Samsung R&D center for mobile telecommunication.

Super Telescope Passed Approval



LAMOST, a super large telescope independently designed and made by Chinese scientists, passed a national approval check on June 4, 2009 at an observing site in Xinglong, Hebei, part of CAS National Astronomic Observatories. Having a height up to a 15-storied building, the telescope is an optic system made up of a 3.6m reflecting Schmidt corrector and a 4.9m spherical master lens. LAMOST has 4,000 fibers at a shot, connecting to 16 real-time data recorder. Designed to make 1.5-hour observation a night, the telescope has an available large focal plane that may accommodate up to 4,000 celestial spectrums. In the coming 3-5 years, scientists will collect the spectrum data of 2.5 million stars, 2.5 million galaxies, 1.5 million luminous red galaxies (LRGs), and 1 million quasars within an area of 24,000 square degrees. A range of new technologies, including thin mirror and mosaic mirror active optics, two large mirrors in the same system, and 4000-fiber based high precision positioning, are applied for the first time in the world.

New System for Evaluating Traditional Prescriptions

A system, jointly developed by No. 2 Hospital under the Military General Hospital and Guoyao Pharmaceuticals to evaluate traditional Chinese medicinal prescriptions and associated drug utilization, will soon find its application in 15 hospitals in Beijing. The new system, designed to evaluate TCM prescriptions at a full and large scale using information technology, makes an effectively solution to the partiality of random sampling, providing needed data and evidences for formulating government drug policies.

The system is built on an array of modules, including pharmacy, drug management, call center, short message based compliance management, networking, mobile drug name dictionary, prescription review and approval, prescription evaluation, and drug utilization. Tuberculosis patients, and patients who had transplanted surgery or have chronic diseases can enjoy real-time or non real-time drug consultation service through short message based compliance management function provided by the system. One may also automatically screen new drugs, search for the needed drug information on a real-time basis, and have a full-range drug review and assessment.

Enhanced Thermal Expansion of Metal Nanowires

Thanks to the support of the National 973 Program initiated by the Chinese Ministry of Science and Technology, “Hundred Talents Program” launched by the Chinese Academy of Sciences, and the National Natural Science Foundation, a study team, chaired by FEI Guangtao, a research fellow at CAS Institute of Solid State Physics, has achieved a major progress in studying thermal expansion of metal nanowires. Researchers studied the effects of scale, phase structure, and direction on metal nanowires imbedded in the pores of porous alumina templates, using the primary X-ray method. Study results show that the macro thermal expansion behavior of metal nanowires is associated with three factors: inherent thermal expansion of nanowires, restricting effects of surface tension and templates, and excessive vacancy left by depositing metal nanowires. In the context of the nanowires having the same diameter, the thermal expansion coefficient is not associated with phase structure. Researchers also found that the changed shape of vacant lots left by the heating process may result in different thermal expansion of copper nanowires before and after heating.

Examining 8-Inch Wafer under Microscope

Not long ago, a microscope based 8-inch wafer examination system made its debut at a commercial application center affiliated to Beijing Institute of Automation Technology. Before this, the Institute has rolled out large mechanical arms for silicon wafer and wafer loader. As a new mechanical arm developed by the same Institute, the new system is equipped with a transmission unit, a macro examination unit, and a microscope. The entire system is operated under the 3rd generation computer program.

One makes a preliminary check of wafer by instructing the mechanical arm to take out the wafer from the cassette and place it on a vacuum absorbing tray, turning the wafer using a mouse and pressing a key. The microscope in the system is able to detect tiny changes on the wafer, including grains, injury, and contamination. Applied with a straight vacuum absorbing structure, the flexible microscope platform is able to produce an enlarged observing effect by 40-1000 times. It also allows diverse wafer examination modes, including wafer ID, wafer notch direction, wafer spinning angle/speed, and wafer crystal lattice.

Magnetic Suspension Artificial Heart Pump

Shandong University Magnetic Suspension Research Center, in collaboration with Fuwai Cardiovascular Hospital under the Chinese Academy of Medical Sciences, has recently rolled out the prototype of magnetic suspension artificial heart pump, the first of its kind in the country. It is a suspension artificial heart pump applied with an optimized system enjoying the strength of both permanent magnetic suspension and electromagnetic suspension for reduced power consumption and heat. Long and consecutive experiments show that the pump has a work temperature up to 33°C under normal indoor temperature. The rotor can be in a full suspension state at 5 free degrees, allowing a suspension precision under 10 μ m. When disturbed, the rotor can be restored to a balanced state within 0.1 second. Researchers also developed a system to detect the shift of rotor’s position, preventing sensors from contacting blood. The project was financed by the National S&T Support Program and the National 863 Program.

Chinese Made Space Telescope

With the support of the National 973 Program, CAS Institute of High Energy Physics and Tsinghua University have jointly developed the prototype of China's first space telescope. Applied with a range of proprietary innovative technologies invented by Chinese scientists, including direct demodulation and probe based direct imaging, the space telescope produces an improved quality and precision, compared with its counterparts currently available in the world, with a cost that is only one fifth or even one tenth of the latter. The space telescope, as scheduled, will be launched around 2010, allowing China to discover more black holes and large-mass celestial bodies before the United States and Europe launching a new generation black hole probe.

Advanced Techniques for Nuclear Fusion Diagnosis

Advanced technique for stable Tokamak plasma diagnosis, an international S&T cooperation project at the national level, has recently passed an approval check. The technique was jointly developed by researchers at CAS Institute of Plasma and Princeton University Plasma Lab. Four sets of diagnosis equipment were developed for the purpose, along with a range of advanced key techniques for plasma diagnosis, numerical modeling, and data analysis for EAST physical process. The efforts are important for raising the level of EAST experiment.

China's First Petaflop Computing Center

It was reported at a news conference sponsored by Shenzhen Municipal Government that the Chinese Ministry of Science and Technology has officially approved to build a national super computing center in Shenzhen. With an investment worth RMB 200 million from the state treasury, the petaflop computing center, located near Shenzhen University, will be put into operation at the end of 2010. The new super computing center will serve as a platform for S&T service, industrial innovations, R&D, and training, playing a role facilitating the implementation of national S&T projects, industrial innovation, digitized urban management, and basic research.

Rescue Robot for Mine Applications

A rescue robot designed for mine applications, the first of its kind in the country, recently made its debut in Tangshan Municipality, Hebei. The development made China the second country in the world possessing the technology after the United States. According to a briefing, the robot is able to walk past explosives and obstacles wade through water, position on its own, and collect/transmit image data, providing needed evidences for rescue activities. According to a briefing, the Chinese government will spend RMB 400 million purchasing rescue robots designed with mine applications. Commercial applications of the new robot will provide a powerful technical support for coal mine safety.

2.2 Newsletters No. 550 (2009-06-20)

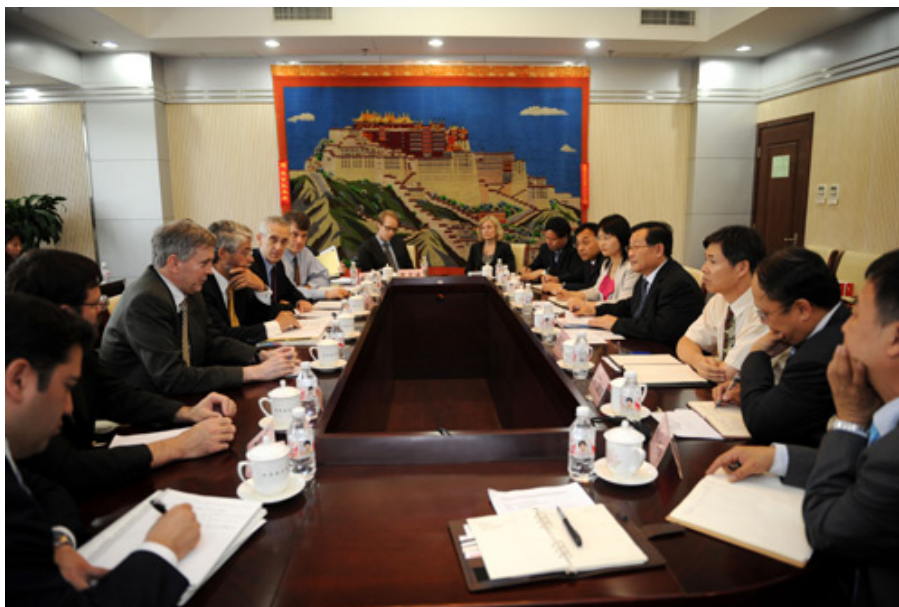
Focal Points

- * Chinese S&T Minister Met with US S&T Delegation
- * Chinese Vice-Minister Held Talk with French President's Science Advisor

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- * Dinosaur's Digits Show How Birds Got Wings
- * Nuclear Fusion under High Constraint Mode
- * 200 Teraflops Supercomputer into Official Operation
- * Low Speed Levitated Train in Test Run

Chinese S&T Minister Met with US S&T Delegation



On June 8, 2009, WAN Gang, Chinese Minister of Science and Technology, met with a US climate change delegation headed by John P. Holdren, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy, and Todd Stern, U.S. special envoy for climate change. WAN briefed the US Delegation of the efforts made by the Chinese government in the area of clean energy automobiles, semiconductor illumination, solar energy, clean coal technology including carbon capture storage technology, and adaptation to climate change impacts. WAN said that the Chinese government is willing to work together with the United States on a range of issues, including climate change, energy, environment, biotechnology, and basic research, supporting universities, research institutes, and industries in the two countries to establish joint research centers. WAN also exchanged views with John P. Holdren on having the 13th China-US joint S&T committee meeting in the second half of the year.

Chinese Vice-Minister Held Talk with French President's Science Advisor

CAO Jianlin, Chinese Vice-Minister of Science and Technology, held talks on June 11, 2009 with Mr. Bernard Belloc, Science Advisor to French President, and his party. Both sides thought highly of S&T cooperation between China and France, and exchanged views on further deepening the collaborations. Both sides agreed to enhance collaborations in the area of energy efficiency and emission reduction, including renewable and new energy and electric automobiles, the area of sustainable development, such as water resources management, and the area of public health concerning newly emerged infectious diseases prevention and control, fusion of Chinese and western medicines, and intestinal genome. A range of major cooperation projects will be initiated for the purpose. Both sides will strengthen the capacity building of the existing joint labs, while encouraging research institutes,

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universities, and industries in the two countries to establish new joint labs and platforms for long term collaborations. In addition, both sides agreed to raise the level of collaborative R&D activities of industry, universities and research institutes, encouraging scientists to have more collaboration under the European Union's Framework program.

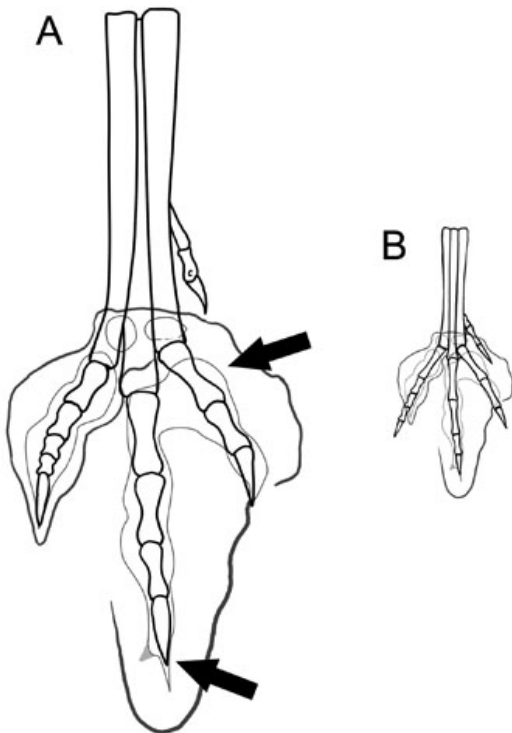
Dinosaur's Digits Show How Birds Got Wings



Not long ago, an international study team, led by XU Xing, a research fellow at Institute of Vertebrate Paleontology and Paleoanthropology under the Chinese Academy of Sciences, reported a new dinosaur species found in Jurassic rocks in the Junggar Basin in western China. Like many other theropod dinosaurs so far unearthed, the species, named *Limusaurus inextricabilis*, had four digits. What surprised scientists is it has a vestigial first digit but a well developed second digit.

Having carefully examined the digit structures of theropod dinosaurs found in the past, XU and coworkers proposed a new scenario to explain the phenomenon. They believed that early theropods lost their first and fifth digits once, and late theropod dinosaurs "had digits 2, 3 and 4, but that these have long been misidentified as digits 1, 2 and 3", which vastly simplifies the current convoluted evolutionary story. Researchers also for the first time performed dynamic homologous tests in the study. The finding was published in the recent issue of *Nature*.

Footprints of Feathered Dinosaurs





XING Lida, a young scientist with Institute of Geology, part of the Chinese Academy of Geological Sciences, and coworkers publicized their findings on four fossilized footprints of feathered dinosaurs unearthed in Sihetun, Yi County, Liaoning Province, the first of its kind in the world. Researchers said the footprints having an averaged length of 14cm were left by three dinosaurs that may have had a body length of 1.5m, a regular length for theropod dinosaurs at the time. Researchers reconstructed Caudipteridae and Sinosauroptryx that have been preserved in their best possible manner. Reconstruction has unveiled an encouraging result, showing that the fossilized footprints are very close

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to the footprints of Caudipteridae. Researchers believe that one may find similar footprints in small and middle sized theropod dinosaurs unearthed across the Yi County, which will eventually provide more evidences for reconstructing dinosaurs' feet.

Volcanism and Mass Extinction

A study team, led by LAI Xulong of China University of Geosciences, and a research team, headed by Paul.Wignall with University of Leeds, have reported their findings on the ties between volcanism, mass extinction, and carbon isotope fluctuations in the May 29 issue of *Science*. As a most direct evidence to confirm the fact that volcanism may result in mass extinction, the finding has enhanced people's understanding of the impacts of massive volcanic activities on environment, expanding the scope for studying the integrated evolution of lithosphere-biosphere-atmosphere.

Having studied Emeishan volcanic sites and adjacent areas in southwest China in paleontological, lithological, sediment, and isotope contexts, scientists from the two research teams found that the onset of volcanism was marked by both large phreatomagmatic eruptions and extinctions amongst fusulinacean foraminifers and calcareous algae. The temporal coincidence of these two phenomena supports the idea of a cause-and-effect relationship. They also proved that massive volcanic activities may result in environmental degradation, and hence disturb the marine ecosystem.

Nuclear Fusion under High Constraint Mode



China HL-2A, a controlled nuclear fusion experimental device

Chinese Southwest Research Institute of Physics has recently operated a controlled nuclear fusion experimental device--the HL-2A under a high-constraint mode. In the past few years, Chinese scientists have improved the experimental conditions of HL-2A, with an enhanced performance. They rolled out the neutral beams with the largest output in the country, and an electron cyclotron resonance heating system, after the realization of diverter discharging in 2003. The development has resulted in a brand new platform for nuclear fusion studies at a higher level.

200 Teraflops Supercomputer into Official Operation

A Dawning supercomputer, code named 5000A, or Magic Cubic for its nickname, able to work on 200 teraflops, was put into official operation in Shanghai on June 15, 2009. Jointly developed by National Intelligent Computer R&D Center, part of CAS Institute of Computing Technology, Dawning

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Information Industry (Beijing), and Shanghai Supercomputing Center, the new system is made up of 42 node racks, 10 internet racks, and 15 storage racks. Applied with AMD quad-core chips, InfiniBand interconnecting network, and a memory of 500TB, the system has reached 200 trillion floating-point operations per second.

100 Teraflops Supercomputer into Official Operation

Lenovo Shenteng 7000, a 100 teraflops supercomputer derived from the National 863 Program, was recently put into operation, providing computing services at CAS Computer Network Information Center. Jointly developed by Lenovo Group Ltd., Beijing University of Aeronautics and Astronautics, and CAS Computer Network Information Center, the supercomputer was completed of its construction in November 2008.

The system has been running smoothly since its trial operation starting from last April, making it the first 100 teraflops supercomputer for practical application in the country. Comparing with its predecessor, Lenovo Shenteng 7000 enjoys a raised operation speed by some 30 times, ranking 19th place among the top 500 supercomputers in the world. The system has offered its services for a numerous areas, including scientific research, meteorology, industrial manufacturing, traffic control, auto engineering experiments, and earthquake prediction.

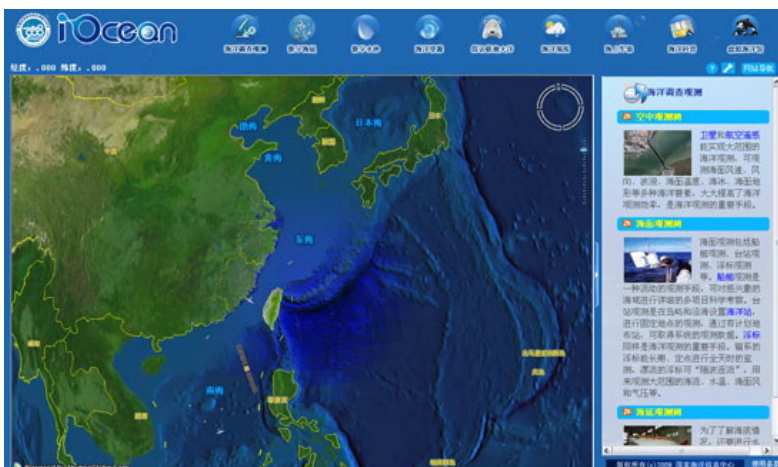
Low Speed Levitated Train in Test Run

A proprietary levitated train, jointly developed by Tangshan Railway Vehicle, Beijing Meglev Technology, and National University of Defense Technology to run at a low or medium speed, was rolled off the assembly line and put into test run on June 15, 2009. The train, an improved model of its prototype to run 100-120 km an hour, is made up

of 2 end compartments (100 passengers for each) and 1 middle compartment (120 passengers). Designed to work for 25 years or more, the train with a wide aluminum alloy body is fed with a raised DC power supply from 750v to 1500v. Enjoying numerous merits, including low noise, radiation free, reliable performance, and a slope climbing

capability up to 70%, it is able to run across complicated urban landscapes, reducing the dismantlement costs for building the rail lines.

Digital Marine System



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China launched a website called iOcean (www.iocean.net.cn) on June 12, 2009, the first digital marine service system open to the public in the country. Applied with internationally advanced 3-D global sphere expression technologies, the system is made of an array of modules for ocean survey and observation, digitized sea floor, digitized water body, marine resources, marine forecast, marine military activities, popular marine sciences, polar oceans, and virtual marine aquarium, allowing objective expression of vivid and dynamic natural marine elements and phenomena, including sea floor, water body, sea surface, and islands. For example, the digital sea floor sub-system is able to simulate a 3-D cruise, showing the distribution and geomorphology of major marine trenches, ridges, and basins in the oceans, while the digital water body sub-system simulates marine meteorology, waves, and tides in a dynamic manner. The virtual marine aquarium presents a vivid marine biological world teemed with fishes and corals.

High Value Added Optic Chips

A study team, jointly established by Shanghai SCOP Photonics Technology and Shanghai Xinjueqi Optic Chips, has recently rolled out novel IC chips for optic transmission and self-adaptive optic receivers, based on 10-year efforts. The event marks China's possession of the state-of-the-art optic chip making technology in the world. As a revolutionary progress in optic transmission applications, the development will facilitate the combined development of radio/TV, internet, and telecommunication network.

Novel Wind-PV Hybrid Streetlight System

A wind-PV hybrid streetlight system, developed by Shandong University Wind Energy Center using levitation technology, is a noise free wind turbine driven by low speed winds. The proprietary wind turbine enjoys three technical improvements: levitation bearing, variable pitch, and low-speed power generation. Applied with levitation technologies and a unique design, the system is able to rotate and generate power in light breeze.

The proprietary system can be installed in mountainous areas, lakeside, and areas distant from power plants for power generation. It can also be applied in fishermen's ocean going operations. When applied in a streetlight system, it saves labors and costs for laying power lines and associated maintenance.

Nano Air Purifier

National Super Fine Powder Engineering Center and Shanghai Jiaotong University have recently rolled out a proprietary nano air purifier able to kill germs through optic catalysis, ultraviolet ray, and dust removal. Designed with a carrier enjoying large surface area and strong absorption, the system decomposes organic pollutants such as formaldehyde and benzene, and kills germs through the combined physical absorption and optic catalysis of a nano-titanium dioxide optic mesh. Apparently, it has found its way to address the saturation of physical absorption and secondary pollution. Test results show that the new system is able to kill 99.9% of the germs in the air, with an organic compound removal rate at 90%, and dust removal rate at 95% or more, both higher than the national standards.

Designed to automatically regulate air flows based on indoor air quality through an intelligent control system for energy efficiency, the purifier is able to produce forest like fresh air through releasing more than a million of negative oxygen ions a second.

2.3 Newsletters No. 551 (2009-06-30)

Focal Points

- * International Technology Transfer Center
- * New Pathway for Light-Regulated Growth of Rice
- * Novel Ligase Curbs Viral Infections
- * Moon Image Depicted by Microwave Data
- * Sea Floor Observation Networking Technology
- * Deep Water Oil Driller in Cylinder Shape

International Technology Transfer Center

Zhejiang University, Zhejiang-California School of Nanotechnology, and the University of California at Los Angeles (UCLA) jointly inked on June 17, 2009 an accord to establish an international technology transfer center in Hangzhou. According to the agreement, the Center will serve as a partner and an agent of UCLA for diffusing UCLA's patented technologies in China. It is also supposed to raise investment capital and private funds, establishing industrial promotion funds, and encouraging industrial development and application of innovative technologies and new products. The Center will diffuse some 1500 UCLA patented technologies in the area of nanomanufacture, advanced materials, new energy, nano-biomedicine, building construction, materials, energy, photovoltaic cells, biopharmaceuticals, microelectronics, and manufacturing. At the signing ceremony, the US side submitted to the Chinese side the technical documents of the first batch of patented technologies. Both sides have reached preliminary intention of cooperation on earlier prostate cancer diagnosis technique, nanofunctional coating technology, quantum dots biological test technology, human antibody technology, and stem cell treatment technology. The Chinese side submitted to its US partners the technology needs filed by some 100 enterprises in Zhejiang for industrial upgrade.

Gender Controlled Piglets



6 male piglets



4 female piglets

Gender controlled piglets, the first of their kind in the country, were recently born at a pig breed farm belonging to Guangxi Institute of Animal Husbandry. Researchers, led by Prof. LU Kehuan at Guangxi University Institute of Animal Husbandry, in collaboration with Guangxi Institute of Animal Husbandry and Guangxi Animal and Poultry Species Improvement Station, collected the sperms from Duroc strains and transplanted them in the local sows. It takes some 115 days for a fetus to become mature enough for birth. Four female adult pigs were artificially inseminated, with two of them having given birth to their babies, and two others near the confinement.

Prof. LU told reporters that one controls piglets' gender by taking advantage of the DNA difference between X and Y sperms. X and Y sperms can be separated using flow cytometry, and transplanted into female recipients in line with desired gender control plan.

New Pathway for Light-Regulated Growth of Rice

A study, led by LIN Hongxuan at Shanghai Institute of Plant Physiology and Ecology, achieved a major progress in understanding major genetic properties and functional genes of paddy rice. Researchers unveiled a new pathway for the light-regulated growth of rice, based on the analysis of the functions of OsHAL3, a gene involving salinity resistance. A paper introducing the findings was published in the June 21 online issue of journal *Nature Cell Biology*, and will also be published in the July issue of the same journal.

Extensive experiments show that OsHAL3, a gene from the same genetic source of HAL3, is designed with a light-regulated growth mechanism that is different from conventional models. Researchers found that light, especially blue light, suppresses the growth of rice seedlings by reducing the activity of OsHAL3, and that it is structurally inactivated by light through photo-oxidation and by direct interaction with photons. The doubly enhanced light regulation mechanism slows down the division of cells, and hence the growth of rice.

Researchers also found that active oxygen activated by light is of a direct bearing on a flavin mononucleotide (FMN), which explains the disintegration of HAL3. Further study shows that OsHAL3 works with HIP1 and activate the latter, facilitating cell division by recruiting a ubiquitin system, rather than by its 4'-phosphopantothencycysteine decarboxylase activity.

Novel Ligase Curbs Viral Infections

The Second Military Medical University Lab led by CAO Xuetao has found Nrdp1, an E3 ubiquitin ligase that is able to inhibit the production of proinflammatory cytokines but increase interferon-beta production in Toll-like receptor-triggered macrophages. The findings, published in a recent issue of journal *Nature Immunology*, provide insights into a new molecular mechanism through which human immune cells fight against viruses and place response to inflammation under control.

CAO and his lab independently cloned a new molecule from the human dendritic cell bank in 1998, believing that it is associated with the death of cells. The molecule was then named as a death resistance protein. Three years later, overseas researchers reported a molecule named Nrdp1 sharing the same source with the death resistance protein, and confirmed its association with the apoptosis of tumor cells and the formation of cancers. Researchers led by CAO found that Nrdp1, a novel ubiquitin ligase, directly bound MyD88 and TBK1, two signal molecules that play an important role in immune recognition and regulation, which led to the degradation of MyD88 and activation of TBK1. Knockdown of Nrdp1 inhibited the degradation of MyD88 and the activation of TBK1. Nrdp1-transgenic mice showed resistance to lipopolysaccharide-induced endotoxin shock and to infection with vesicular stomatitis virus, suggesting that Nrdp1 functions as both an adaptor protein and an E3 ubiquitin ligase to regulate TLR responses in different ways.

Solar Power Purifies Silicon

Not long ago, CHEN Yingtian and coworkers at the University of Science and Technology of China and Chinese Academy of Sciences Institute of Physics rolled out the world's first monocrystalline silicon melt with solar power. CHEN and others invented a solar oven under a new theory of active sunlight optics, able to steadily concentrate 10,000 times or more of sunlight on a tennis court sized area, which can melt a tungsten plate within a few seconds, indirectly confirmed the fact the solar oven can raise the temperature to 3500°C, making high purity silicon melting in a cost effective manner possible.

Glow discharge based tests show that the polycrystalline silicon melt using the novel technique has reached a solar purity as high as 99.9999%. The pollution free approach reduces the electricity consumed in purifying the silicon from 200-400 kilowatt hours per kilo to 30-40 kilowatt hours per kilos, with a reduced cost by half from USD 40-80 a kilo to USD 20 a kilo.

Moon Image Depicted by Microwave Data

Chinese scientists have worked out the world's first moon image derived from the microwave data sent back to earth by Chang'e I satellite, said JIANG Jingshan, Deputy Chief Designer of China's moon circling mission and an academician of the Chinese Academy of Engineering at a moon probe and geosciences forum opened recently. Microwave data show that the lunar soil layer has an averaged thickness ranging from 5m to 6m, with a helium-3 resource approaching 1 million tons, rather than 5 million tons as previously expected.

JIANG proposed to measure the thickness of lunar soil layer using the microwave sounder aboard the moon probe satellite, and obtained for the first time in the world the microwave brightness temperature data across the moon, which resulted in the so-called 'microwave moon'. Researchers examined the impacts of antenna direction pointing to different backgrounds on findings, and found that antenna input temperature would be greatly differed when pointing to different backgrounds, including

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constellations, sun, earth, and moon. As a result, large errors would occur, if making cold-space temperature a fixed reference. Based on the analysis of the impacts of antenna directing, researchers have obtained relatively accurate brightness temperature data of the moon, and built a natural and real 'microwave moon'.

Sea Floor Observation Networking Technology

Experiment and preliminary applications of sea floor observation networking technology, a major S&T project led by WANG Pinxian, a Chinese Academy of Sciences academician at Tongji University, passed an approval check on June 23, 2009. The project has rolled out a range of technologies needed for building a comprehensive 3-D ocean observing system including a sea floor observation network. The project has established an East China Sea seafloor observation station in Xiaoqushan, the first pilot system for comprehensive seafloor observation in China. The new system is made up of an ocean landing platform, control and transmission modules, 1.1 kilometer long seafloor optic cables, and base station components, including ADCP, CTD, and BOS. It is a visual information system able to collect real-time data, distribute energy supply, control instruments, and conduct online transmission in an automatic manner. The system has been running smoothly for some 70 days since its trial operation starting from April 19, 2009, with a data integrity reaching 95% or more.

Deep Water Oil Driller in Cylinder Shape



Nantong Zhongyuan Shipping Engineering Co. Ltd. completed on June 28, 2009 the construction of a state-of-the-art deep-water oil driller in cylinder shape, the first of its kind in the world. Named SEVAN DRILLER, the internationally advanced oil drilling platform will soon be delivered to its users and put into operation. Designed to work at a

water depth of 12,500 feet with a drilling depth reaching 40,000 feet, the platform is positioned by eight propellers. Equipped with the state-of-the-art DP-3 dynamic positioning system and anchoring system, it is able to deal with the rough waves over the North Sea at a temperature of -20°C . It has a deck with a variable capacity up to 15000 tons, and a storing capacity up to 150,000 barrels of crude oil. It only took 24 months for Chinese engineers to have completed the design and construction of the platform, half of the time needed for building the similar platforms by its overseas peers.

Advanced Rail Heavy Duty Transport

The 9th International Heavy Haul Conference lifted its curtain on June 22, 2009 in Shanghai. Some 500 participants from rail operators, equipment manufacturers, R&D institutions, designers, and rail industry attended the meeting. Technocrats and experts from 9 member states, including China, the United States, Canada, Australia, South Africa, Russia, Brazil, Sweden, and India presented their

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papers at the meeting, and visited an innovative findings show organized by Daqin Rail Heavy Haul. A rail technology and equipment show was also staged during the session.

Daqin Rail Heavy Haul exhibited before the participants its internationally advanced accomplishments made on heavy haul. China has put high speed (200-250km per hour) trains into operation at the trunk lines of Beijing-Guangzhou, Beijing-Shanghai, Beijing-Haerbin, and Longhai. Meanwhile, cargo trains have extensively been upgraded to a heavy haul capacity of 5000-6500 tons. Chinese rail system has enjoyed a unique transport mode combining speed, density, and heavy haul, attracting fine comments from its peers in the world. In 2008, Daqin Rail Heavy Haul registered a coal transport worth 340 million tons. In 2009, it expects a coal transport reaching 380 million tons, or 3.8 times the original design capacity.

Largest Tumor Prevention Center in Asia

A project was kicked off on June 27, 2009 in Tianjin to build the largest tumor prevention and control center in Asia. Occupying an area of 8100m², with a floor area of 90,450 m², the Center is scheduled to be completed and put into operation in June 2011. The Center, upon the completion of construction, will become an advanced center for tumor related basic research, clinical diagnosis/treatment, and training. Made up of a range of functional components, including tumor epidemics, tumor popular science, community tumor prevention education, high-risk population, and tumor screening, the new center will benefit more people through its advanced tumor prevention and control system.

High Voltage Optical Current Transformer

Three optical current transformers, developed by a team headed by Prof. GUO Zhizhong at Harbin Engineering University, have recently been put into operation at a 500kV transformer station in Xuhang, Shanghai. Researchers have worked on the transformers starting from 1991, during which they have found solutions to two world class technical puzzles: temperature drift that affects measurement accuracy and stability for a long term operation. The optical current transformers, developed by the team, have passed tests organized by China Grid Institute of Electricity (Wuhan) in line with international IEC criteria. Up to date, 22 such transformers have been put into operation, working smoothly at East China Grid, North China Grid, Mid-China Grid, and Northeast China Grid, at four voltage levels, including 500kV, 220kV, 110kV, and 35kV.

3 News from Universities

More students stretch their wings for overseas study

(People's Daily, 2009-06-04)

While her classmates are toiling away in preparation for the cutthroat college entrance exam, Chen Ruqian is sitting idly at home. Bored.

The 18-year-old from the famous Shanghai Foreign Language School was offered a full scholarship from Amherst College in the US last December, thanks to her outstanding academic performance and participation in community work.

"The entrance exam is so horrible and I feel so lucky I escaped that," Chen said.

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"All the best students in our school go for American universities."

Last year, among the nearly 300 graduates at the school, 80 were accepted by American universities and 40 others are headed to the United Kingdom, she said.

About 180,000 Chinese students went to overseas universities last year, nearly half of them high school students.

"Now my school has to combine two classes into one due to fewer students for the exam," she added.

In big cities across the country, famous local high schools have seen an increasing number of students head abroad, either for a better education or simply to avoid the make-or-break entrance exam.

Scheduled for June 7 and 8, the exam is a once-in-a-lifetime opportunity for most Chinese students.

The one-year preparation for the exam usually involves all-day study, endless tests and huge mental pressure for both students and parents.

About 10.2 million students were registered for the exam this year and the average college admission rate is expected to reach 62 percent, according to the Ministry of Education.

But in recent years, the rigid college entrance exam and poor quality of the higher education system have met with complaints from education-conscious Chinese parents, said Yin Kai, an education expert from Chivast Education International Company.

"As Chinese people are becoming more open and rich, many choose to send their children to study abroad for better education and all-round development," he said.

Since 2005, many overseas universities have lowered admission standards to attract more Chinese students.

4 Innovation Management

CAS Launched China's Science and Technology Road Map up till 2050

(CAS, 2009-06-15)

Chinese Academy of Sciences (CAS) launched its series report "Technological Revolution and China's Future-Innovation 2050" on June 10, 2009 in Beijing. The report produced a road map for China's science and technology development till 2050.

It took more than 300 CAS researchers and experts over a year to compile and draft the report. According to the report, a new technological and industrial revolution featured by green energy, artificial intelligence and sustainable development is most likely to take place in the next 10 to 20 years. China must prepare itself for the new revolution in order to build a well-off society and realize China's modernization.

8 social economic systems backed up by science and technology innovation are to be constructed: sustainable energy and resources system, new material and green manufacture system, information networking system, ecological higher value agriculture and bio-industry system, health insurance system, ecology and environment preservation and development system, space and ocean system, national and public security system.

The report also points out 22 strategic technology issues that are keys to China's modernization. That include: green manufacture of high quality elementary raw materials, 4000 meters below the earth's surface exploration project, new nuclear energy system, sea power extension plan, exploration of dark matter and dark energy, artificial life and Synthetic biology, nano technology, space science and

satellite projects and others.

The report is composed of one general strategic report and 17 sub reports what deal with 17 specific fields such as population and health, minerals and resources, space and ocean, information, material, ecology and environment. All the repots will be published bilingually, that is, in Chinese and English. CAS also will amend the road map every 4 years.

China's Synthetic Rubber Industry Highlighted at Xiangshan Conferences (CAS, 2009-06-18)

Scholars and experts gathered to discuss the opportunity and challenges faced by China's synthetic rubber industry at the 353th session of the Xiangshan Science Conferences (XSSC) from 16-18, June in Beijing.

China's synthetic rubber industry has grown into an economic pillar in this country with the annual production of over one million tons. At present, the increase in the production amount of its seven staple varieties accounts for 49% of the world total. For the time being, its manufacturing capacity, output volume, consumption and imports rank fourth, third, first and first respectively in the world.

Because of the increase of world's political instability, intensified market competition, and intensified competition for natural resources and energy supply, researchers want to reexamine the industry as it is critical both for the country's national economy and for its national security. While encountering an unprecedented opportune chance, the industry is also challenged the marketing pressure both at home and abroad as well as the deteriorating situation in resources and the environment across the country. By learning the successful experience in developing the Ni-based cis-polybutadiene rubber, researchers expect to solve some key problems in the industry by pooling research resources together and promoting collaboration. It is believed that this may help to put China's R&D in the industry on the fast track and provide strong and steady support for its sustainable development.

The research topic on the conference include: synthesis of natural rubber and isoprene rubber; catalysts and catalytic science in rubber synthesis; structures and properties of synthetic rubber, and the structure, properties of synthetic rubber and top-performance processing centers in this regard.

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.

Modeled after the Gordon Conference, 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 Held Job Fair in Germany (CAS, 2009-06-26)

Chinese Academy of Sciences held a talent fair at Munich University, Germany on June 11, 2009.

More than 10 institutes under CAS attended the fair and presented their plans and policies on recruiting high level talents.

50 or so Ph. Ds from Munich University, Technical University of Munich, Munich University of Bundeswehr and Ulm University attended the job fair.

Many projects and research funds had been set up by CAS to attract the overseas talents to return and

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work in China, such as the Hundred Talents Program, said Miao Hongjie from CAS. (The Hundred Talents Program is a talent initiative to publicly recruit outstanding young S&T talents within China and abroad.) CAS also set up special awards and research fund for young researchers, according to Miao.

CAS has held such job fairs also in Great Britain and French earlier this year.

China's Science and Technology Budget Sees a 25.6% Rise in 2009

(CAS, 2009-06-29)

China's science and technology budget in 2009 will reach 176.1 billion RMB (about 25.7 billion USD), stated Du Zhanyuan, Vice Minister of Chinese Ministry of Science and Technology.

The budget is 25.6% higher than 2008 and is a strong indication of China's determination to invest in science and technology in the context of global economic depression.

Du made the statement at the China International Software and Information Services Forum 2009 which was held in Dalian, Liaoning Province on June 18, 2009.

5 China's International Science Cooperation

Sino-German Joint Lab for Human Evolution and Scientific and Technological Archaeology Set up

(CAS, 2009-06-01)

In an effort to tap into the resources of both sides, Germany and China opened a new joint archaeology lab on May 22nd in Beijing.

"Human Evolution and Scientific and Technological Archaeology Joint Lab" is co-sponsored by the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) of Chinese Academy of Sciences (CAS), Graduate University of Chinese Academy of Sciences (GUCAS) and the Max Planck Society in Germany. Both partners will make equal funding, equipments and materials input, according to the cooperation agreement. The Max Planck Society will provide the lab with devices and equipments for ancient DNA and isotope analysis. Director of the lab will rotate among representatives from IVPP, GUCAS and the Max Planck Society.

The joint lab includes 6 research branches: technology and function analysis of lithic, ancient DNA analysis, environmental archaeology, isotope and analysis of ancient recipe, analysis of ancient remains and zooarchaeology, said Wang Changsui, professor of GUCAS. New branches may come into being along with the development of the research.

Foreign Scientists Received Scientific and Technological Cooperation Award

(CAS, 2009-06-03)

Three experts from Australia, Germany and United States of America were awarded the 2008 International Scientific and Technological Cooperation Award of China on May 27, 2009 for their contributions to China's scientific development.

Prof. Lothar Hans from Germany, American agriculture-economist Dr. Scott Douglas Rozelle and Australian dry land expert Victor Squires shared the annual award offered by the Chinese government to foreign experts.

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Prof. Lothar Hans has dedicated himself to improving cooperation between Switzerland and China in process engineering since 1970's. As an honorable professor of Eidgenössische Technische Hochschule Zürich (ETH), he helped facilitate the Institute of Process Engineering (IPE), Chinese Academy of Sciences (CAS), reached a strategic partnership agreement with the ETH in 2000, and had successfully fostered the industrial application of fluidized bed technologies in China.

Dr. Scott Douglas Rozelle, a professor in agricultural economics with the International Institute of Stanford University, has been active working with Chinese scholars in studying China's agriculture economics and rural development policy. He also acted as the chairman of the international scientific committee of the Center for Chinese Agricultural Policy, CAS, since 1995.

Prof. Victor Squires is an expert in dry land ecology from University of Adelaide, Australia. He led the "Sandstorm Prevention in northeast Asia" program and set up a framework of sandstorm surveillance and early warning system.

China established the award in 1994. A total of 54 foreign scientists, technology and management experts have won the award.

China, Kenya Jointly Develop Solar Products for Africa (CAS, 2009-06-11)

A joint research project between China and Kenya will help utilize solar energy in Africa, scientists said Wednesday.

An Xingcai, deputy head of the Natural Energy Resource Research Institute based in Gansu Province, northwest China, said researchers would study how to adapt Chinese solar panels and heaters to the Kenyan climate.

The demonstration project will run until 2012. The Kenyan partner is an electronic technology company.

China's Ministry of Science and Technology approved the project in April and allocated 2.64 million yuan (386,000 U.S. dollars) for the work.

The institute would dispatch researchers to Kenya and set up an office there, according to An, also deputy director of the International Center for Promotion and Transfer of Solar Energy Technology under the United Nations Industry Development Organization.

Kenya has rich solar resources, but its electricity comes mainly from hydropower and imported oil. Its rural population relies heavily on wood and charcoal for heating and cooking.

The Natural Energy Research Institute was founded in 1978. Between 1991 and 2008, the institute trained more than 500 people in practical solar technology for Africa, including 12 for Kenya.

China is the world's largest producer of solar heaters and the third largest maker of photovoltaic cells, National Development and Reform Commission statistics show.

Navigation tech used to monitor endangered sharks in S China's Hainan (Xinhua Net, 2009-06-30)

For the first time on the Chinese mainland, fishery officials are using SPLASH, a state-of-the-art navigation technology, to tag and track two whale sharks--an endangered species and the world's largest mammal.

The two sharks were released Monday at Sanya of southernmost China's Hainan Province.

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The SPLASH navigation technology is one of the most accurate and innovative techniques in the world to conserve marine animals, David Rowat, chairman of Marine Conservation Society in Seychelles and an expert in marine conservation, was quoted as saying by Tuesday's China Daily.

SPLASH, a technique from the United States, includes sensors to measure depth, temperature and light levels and can provide locations within a radius of 350 m.

Speaking at the whale-releasing ceremony, Rowat said that he has guided the project initiated by the Fishery and Fishing Harbor Administration of the South China Sea and mounted the sophisticated GPS tags on the two whale sharks, which will help provide accurate data to monitor the species and the environment affecting them.

Whale sharks are usually more than 10m long and formerly targeted by commercial fisheries for their soft white meat, thick skin, and delicate bone, he said.

One of the tagged sharks will be monitored for six months, and the other for 12 months. Data will be collected and analyzed through software operations to find ways to protect the species.

The fishing, selling and trading of whale sharks for commercial purposes is prohibited on the mainland as the whale shark is officially categorized as endangered and is therefore protected.

Abbreviations

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