



July & August 2011

RESEARCH AND INNOVATION HIGHLIGHTS IN CHINA¹

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IN THIS ISSUE

EDITORIAL	1
EU-CHINA R&I EVENTS	1
OPPORTUNITIES OFFERED BY EUROPE FOR RESEARCH AND INNOVATION COOPERATION WITH CHINA	1
DELEGATION OF SHANGHAI MUNICIPAL S&T COMMISSION MET THE PUBLICATION OFFICE	1
FP7 PRESENTATION TOUR IN SHANGHAI AND XI'AN	1
POLICIES AND PAPERS	2
NEW NATIONAL S&T DEVELOPMENT PLANNING	2
CHINA EYES HIGHER GLOBAL RANKING FOR INNOVATION	2
FUNDS FOR S&T FINDING SPIN-OFF	2
COURTS TO DO MORE FOR IPR PROTECTION	2
CHINA ACCOMPLISHES INTERNATIONAL EVALUATION ON SCIENCE FUNDING AND MANAGEMENT PERFORMANCE	3
VOICES AND OPINIONS	3
WEN VOWS TO COMBAT IPR VIOLATIONS	3
WEN SAYS TECHNOLOGIES TO BE MORE RELIABLE, CONFIDENT IN CHINA'S FUTURE	3
TECHNOLOGY NEEDS SUPPORT	4
STATE COUNCILOR STRESSES QUALITY OF HIGHER EDUCATION	4
SENIOR CHINESE OFFICIAL CALLS FOR MORE SCIENTIFIC INNOVATIONS	4
NATION HOLDS ITS OWN IN S&T.....	4
CHINESE PREMIER PLEDGES CARBON CUT WHEN VISITING SENIOR SCIENTISTS	5
PEOPLE OF THE MONTH	5
TWO CAS ACADEMICIANS ELECTED INTERNATIONAL FELLOWS OF ROYAL ACADEMY OF ENGINEERING	5
CAS SCHOLAR DETAINED AS SUSPECT FOR CORRUPTION	6
CHINA'S UNCONVENTIONAL UNIVERSITY GETS MIXED WELCOME	6
SCIENCE FAIR.....	6
SCIENTIFIC ACTIVITIES	6

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HEALTH.....	6
<i>Pro-UK Injection Approved</i>	6
<i>Study of Humanized Mice Reveals pDC's Role in Early HIV Infection</i>	7
<i>US finds causes of obesity among young Chinese</i>	7
<i>Novel Antibiotics</i>	7
<i>Genome Wide Tumor Study</i>	7
<i>Antimicrobial Peptide Could Be an Excellent Therapeutic Agent for Acne Vulgaris</i>	8
<i>Reprogrammed Kidney Cells Could Make Transplants And Dialysis Things Of The Past</i>	8
<i>First transplant for donor-match system</i>	8
<i>Warning that new tick disease is highly infectious</i>	8
<i>New Secrets about Graves' Disease</i>	9
<i>Chinese Psychologists Trying to Put Translating Genomics Research into Practice for Caring People with Schizophrenia</i>	9
<i>State Key Labs on Medical Industry Form Innovation and Strategic Alliance</i>	9
<i>Structural Study of Norovirus-Lewis Antigen Interaction Indicates Its Type-specific HBGA Recognition</i>	9
<i>Why Self-hurt Feels Less Painful Than Getting Hurt? A Distinct Brain Activation Patterns Was Found in Self- and Externally Generated Mechanical Pain</i>	9
FOOD, AGRICULTURE AND FISHERIES, BIOTECHNOLOGY.....	10
<i>China-led research team completes potato genome sequence</i>	10
<i>Food Yield Boosting</i>	10
<i>Straw Recycling Raises Yield</i>	10
<i>China to tighten rules on pesticide use</i>	10
<i>Whole Sequence Variation Map Reveals Insight into Evolutionary Studies of Rhesus Macaque</i>	11
<i>World's Biggest Fungus Discovered on Chinese Tree</i>	11
<i>GM crops still wait for harvest</i>	11
<i>PHD1 Holds Potential for Improving Crop Yield</i>	11
<i>Novel Bph Resistant Rice Line</i>	12
<i>Scientists counting on panda census</i>	12
<i>Cdc42 Regulates the Transport of NPC1L1 towards Plasma Membrane</i>	12
<i>Research by Chinese, American scientists finds earliest placental mammal</i>	13
<i>The Caenorhabditis Elegans Intermediate-size Transcriptome Shows High Degree of Stage-specific Expression</i>	13
<i>TWAS-ROESEAP Symposium Addresses Increased Demand for Industrial Biotechnology</i>	13
<i>Multi-gene Analysis Provides a Well-supported Phylogeny of Rosales</i>	13
<i>World's First Lysine Gene Producing Cows</i>	13
<i>The First Report on Color-leaf Mutant in Wandering Jew(Tradescantia fluminensis) Induced by Carbon Ions</i>	14
<i>Food safety is still crucial issue in China</i>	14
INFORMATION AND COMMUNICATION TECHNOLOGIES.....	14
<i>Nation planning stimulus to aid growth of electronics industry</i>	14
<i>Digital Geo-Spatial China in 2015</i>	15
<i>Mobile Contact Supports Instant Messaging</i>	15
<i>Telecom giant ambitious to lead 4G technology</i>	15
<i>Internet population up to 485 million</i>	15
<i>Huawei moves into the cloud</i>	15
<i>Agricultural robot: newest farm help</i>	16
<i>China's First Internet Domain Name Center</i>	16
<i>Cloud computing laboratory opens in Kazakhstan</i>	16
<i>First TD-LTE Multimode Mobile Launched</i>	16
<i>China's largest cloud computing base settled in Nanjing</i>	16
<i>China to foster Internet development in four areas</i>	17
<i>Effective and Efficient Microprocessor Design Space Exploration Using Unlabeled Design Configurations</i>	17
<i>New China-made smartphone unveiled as Chinese Internet firms eye domestic handset market</i>	17
<i>New Sequential Partial-Update Least Mean M-Estimate Algorithms for Robust Adaptive System Identification in Impulsive Noise</i>	17
<i>A Significant Progress in Quantum Dynamics</i>	18
<i>ncFANs: First Non-coding RNA Function Annotation Server</i>	18
NANOSCIENCES, NANOTECHNOLOGIES, MATERIALS AND NEW PRODUCTION TECHNOLOGIES.....	18
<i>China to boost advanced materials industry</i>	18
<i>HIRFL-CSR Conducted 10000 Second Slow Extraction</i>	18
<i>China finds world's 2nd largest molybdenum deposit</i>	18
<i>New Progress in the Investigation of Macromolecular Interactions</i>	19
<i>Coming Sets up Research Center on Chinese Mainland</i>	19

<i>Dirac Points Multiply in the Presence of a BEC</i>	19
<i>Plasma-Assisted Strategy Enables Dense Doping of Nanostructures</i>	19
<i>Advanced High-Speed Bearing Test Rig</i>	19
<i>Novel Maintenance Coating for Asphalt Surface</i>	20
<i>Lubricants for Space Components</i>	20
<i>Brazil and China to Set up Nanotechnology Centre in Sao Paulo</i>	20
<i>High Performance Metallic Glass</i>	20
<i>IMECAS Achieves Major Breakthrough in Development of Graphene-Based Electronic Device</i>	20
<i>The Use of Multifunctional Magnetic Mesoporous Core</i>	21
<i>First Chinese Ka-band Nitride Semiconductor MMIC</i>	21
<i>Smart Materials: Strength Control with Nanoporous Gold Material</i>	21
<i>Method for Preparing Extract of <i>Usnea diffracta</i> Vain Developed by LICP Researchers</i>	21
<i>Determination of Electronic Structure of Previously Unknown Arsenic Carbide (Asc) Free Radical</i>	21
<i>Zigzag-edged Graphene Nanostructures for Future Graphene Electronics</i>	21
<i>China's First Nb₃Sn CICC Superconducting Magnet Developed at CHMFL</i>	22
<i>Multi-Function Hydraulic Drilling Rig</i>	22
<i>Advanced Seawater Cooling System</i>	22
<i>QIBEBT Develops Nanostructured Mixed Conducting Materials for Energy Storage</i>	23
ENVIRONMENT (INCLUDING CLIMATE CHANGE).....	23
<i>China soon to issue full plan to reduce carbon</i>	23
<i>'Clean energy can help reverse the deserts' advance'</i>	23
<i>China to pilot carbon emissions trading project</i>	23
<i>Regions pouring billions into water conservation</i>	24
<i>Regional plan to strengthen anti-pollution campaign</i>	24
<i>4th CSLF Ministerial Meeting to be Held in Beijing this September</i>	24
<i>NSF-NSFC Joint Program "Dimensions IRCN: Diversity and Forest Change" launched in China</i>	24
<i>China conducts scientific survey in South China Sea</i>	25
<i>Experts warn of fragile sea environment</i>	25
<i>China releases bees to curb American moth plague</i>	25
<i>USTC Researcher Advances in Research on Tropical Climate Change</i>	25
<i>China to set stricter emission standards for thermal power plants</i>	26
<i>Nitrogen Fixation in Biological Soil Crusts from the Tengger Desert</i>	26
<i>Research on Global Carbon Emission and Sequestration Published in Science (journal)</i>	26
ENERGY.....	26
<i>China's HI power consumption up 12.2%</i>	26
<i>Switch flicked at experimental fast reactor</i>	27
<i>China's experimental fast neutron reactor begins generating power</i>	27
<i>Nuclear Collision in Strong Magnetic Field</i>	27
<i>Scientists in China detect neutrino hoping to solve antimatter mystery</i>	27
<i>Nuclear industry's growth to slow</i>	28
<i>Seminar on Thorium-based Power Held in Beijing</i>	28
<i>2011 Sanya International CSP Forum Held in Hainan</i>	28
<i>IPE Clean Production Technologies Industrialized</i>	28
TRANSPORT (INCLUDING AERONAUTICS).....	29
<i>High-speed train breaks down again</i>	29
<i>58 trains suspended after E China train crash</i>	29
<i>Railway cuts bullet trains from schedule</i>	29
<i>Bullet trains told to reduce speed</i>	30
<i>Digital Platform for Large Aircraft</i>	30
<i>China to export first light rail train to Turkey</i>	30
<i>China recalls 54 high-speed trains amid safety overhaul</i>	30
<i>New maglev line to connect western Beijing</i>	31
<i>More high-speed trains slow down to improve safety</i>	31
<i>China-made civilian helicopter hits new heights</i>	31
<i>China's aircraft fleet to triple by 2030</i>	31
SOCIOECONOMIC SCIENCES AND THE HUMANITIES.....	31
<i>Family planning policy to focus on quality of life</i>	31
<i>Protection of human rights gets big boost</i>	32
<i>China amends laws for ratification of ICCPR</i>	32
<i>Growth eases fears of hard landing</i>	32
<i>Workforce to peak in 2013</i>	32
<i>Academics talk about religion and law</i>	33
<i>Middle class to dominate cities by 2023</i>	33

<i>Beijing Enjoys Highest GDP Quality</i>	33
<i>Draft may expand lawsuits against government</i>	33
<i>China becoming even more male</i>	34
SPACE.....	34
<i>China launches new data relay satellite</i>	34
<i>Conductively-cooled, High-energy, Single-frequency Diode Pumped Slab Laser for Space Applications</i>	34
<i>China launches 9th orbiter for global navigation</i>	34
<i>China launches another experimental satellite</i>	35
<i>Int'l Astronomical Union congress to be held next year in Beijing</i>	35
<i>Space Technology for World Heritage Protection</i>	35
<i>China to launch civil survey satellite late this year</i>	35
<i>China, Bolivia launch telecom satellite project</i>	35
<i>Int'l Astronomical Union congress to be held next year in Beijing</i>	36
<i>China launches communications satellite for Pakistan</i>	36
<i>China launches maritime satellite</i>	36
<i>Chinese orbiter fails to enter designated orbit due to rocket malfunction</i>	36
<i>Space lab prototype blasts off</i>	36
<i>China completes 1:50,000 national map database for geographic information</i>	37
<i>Second dawn for lunar probe</i>	37
<i>China reschedules launch of unmanned space module</i>	37
<i>32nd International Cosmic Ray Conference Held in Beijing</i>	37
<i>Atlas of the Milky Way Leads to Discovery of Two Supernova Remnants</i>	37
<i>Satellites improve disaster monitoring efficiency in China</i>	38
<i>Malfunction at devices connection blamed for orbiter launch failure</i>	38
PEOPLE.....	38
<i>Govt spends chunk of GDP on education</i>	38
<i>35 Chinese universities rank among world's top 500</i>	38
<i>China to cultivate 100,000 student entrepreneurs</i>	39
<i>Foreign Researchers Begin to Make Their Mark</i>	39
<i>Salon provides platform to understand different cultures</i>	39
<i>Rise in US tuition fees no deterrent</i>	40
<i>Training Program on Traditional Chinese Veterinary Medicine Technology for Developing Countries Launched</i>	40
<i>Training Program on Biogas Energy Application and Optimization in Drought Conditions Launched</i>	40
<i>Training Program on Development and Utilization of Solar Power in Central Asia Launched</i>	40
<i>1,000 Studios for Skill Masters</i>	41
<i>China plans to attract more overseas Chinese scholars in next 5 years</i>	41
<i>World University Presidents Forum concludes</i>	41
<i>Taiwan univ sets up recruiting office in Beijing</i>	41
<i>Only 30% of Chinese back after study abroad</i>	42
<i>3,000 Young R&D Leaders for Next Decade</i>	42
<i>New Favors for Returned Overseas Chinese</i>	42
<i>Hundred Studios for Leading Scientists</i>	42
<i>China to drastically increase post-doctorates</i>	43
RESEARCH INFRASTRUCTURES.....	43
<i>National Space Science Center Officially Launched in Beijing</i>	43
<i>China's submersible Jiaolong completes test dive mission</i>	43
<i>Carrier set for maiden voyage</i>	44
<i>National Supercomputing Center in Changsha</i>	44
<i>China opens 1st rescue center for endangered white dolphins</i>	44
<i>MOST and MIIT Cooperation on Key Labs</i>	44
<i>ITER Components into Mass Production</i>	44
<i>The Daya Bay Reactor Neutrino Experiment Begins Taking Data</i>	45
<i>NSFC and CAS's New Round Collaboration for Large Scientific Facilities</i>	45
<i>China's First Internationally Compatible Marine Map</i>	45
INTERNATIONAL S&T RELATIONS	46
<i>National Conference on International S&T Cooperation</i>	46
<i>China, DPRK to boost renewable energy co-op</i>	46
<i>WAN Met with German Guests</i>	47
<i>TWAS Executive Director Visits IMCAS</i>	47
<i>The 15th Meeting of China-Korea Joint Committee for Basic Scientific Research in Busan</i>	47
<i>NCSTE and KEIT sign MOU</i>	47
<i>UNESCO Assistant Director-General Visits CSTE</i>	48

<i>New Round China-Australia Joint Committee Meeting</i>	48
<i>MOST and UNEP Water Resources Cooperation</i>	48
<i>China-US Young Scientists Forum</i>	48
<i>Brazil and China to Set up Nanotechnology Centre in Sao Paulo</i>	49
<i>China-Brazil S&T Committee Meeting</i>	49
<i>CHEN Met with German Guests</i>	49
<i>CAS Stands out in Sino-Dutch Scientific Program</i>	50
<i>China, Netherlands renew joint science program</i>	50
<i>2nd Science and Innovation Sub-Committee Meeting Held in Beijing</i>	50
<i>WBGCAS, JKUAT Strengthen Scientific Cooperation</i>	50
<i>Seminar on Technical Training in Developing Countries Held in Urumqi</i>	51
<i>IMP & MPIK to Strengthen Co-op in Nuclear Physics Research</i>	51
DISTRIBUTION LIST	51

EDITORIAL

Dear colleagues,

Following a pleasant summer break, we would like to present you the July-August issue of the *Highlights*.

On 13 July, Chinese Ministry of Science and Technology released the 12th Five-Year Plan for S&T Development (2011-2015). The plan puts forward the S&T development targets for the next five years and gives high weight on innovation and the establishment of a national innovation system. Inputs in R&D will be continuously increased to reach 2.2% of GDP in 2015, and the world ranking of the country's comprehensive innovation capacity will be the 18th from the present 21st. S&T progress is expected to provide momentum to social and economic development. An innovation-driven development mode is clearly put at the heart of China's development. On the international dimension, the plan calls for more international endeavour and involvement.

To stimulate the translation and application of S&T findings and foster strategic emerging industries, early in July, the Chinese Ministry of Finance and Ministry of Science and Technology jointly announced to establish a national steering fund for S&T findings spin-off. Created by the State treasury, the fund is designed to guide and mobilize banking sectors, private capital, and local governments' input in supporting S&T findings spin-offs, through venture capital sub-funds, credit risk compensation, and performance incentives.

On 28 August, the 9th national internal conference on international S&T cooperation was convened in Beijing. The Ministry of Science and Technology released on the conference the policy documents for the 12th five-year period (2011-2015) specifically on international S&T cooperation. With S&T partnerships with 152 countries and regions, 104 inter-governmental science and technology cooperation accords with 97 countries and regions, 141 diplomats in charge of S&T in Chinese missions abroad, and membership in inter-governmental S&T cooperation organizations, the structural settings for international cooperation is being forged for the S&T community to reach its international partners. Chinese Minister of Science and Technology Wan Gang said during the conference, "in the past, Chinese researchers used to participate in research projects either instigated by foreign cooperators or sponsored by foreign investment, but now more substantial cooperation is conducted on independent projects and on others funded on a 50-50 basis, which ensures an equal share of any advantages gained during the research."

From the Delegation side, on the occasion of the publication of the new calls for proposals under FP7 in mid July, the S&T section launched a series of promotion activities to disseminate the information and raise awareness among EU and Chinese research communities and received very positive feedbacks. Insights from Chinese researchers/participants on how to better cooperate with the EU and EU Member States in research and innovation were also received. Similar events will be planned in the future in view of the more synergised and coordinated efforts with the Science Counsellors of the Member States and in the context of the future Framework Programme for Research and Innovation – Horizon 2020 (worth €80 billion), which will be introduced in 2013. The proposed Framework Programme for Research and Innovation will build upon the successes of the current Framework Programme for Research (FP7), the Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and Technology (EIT) with the ultimate aim to maximise the contribution of EU funded research and innovation to sustainable growth and jobs and to tackling the grand

challenges facing Europe – for example climate change, energy and food security, health and ageing population.

The combined issue of July and August highlights also provides rich reporting on the research activities in different themes as well as policy developments. We hope you will enjoy the reading and appreciate your comments.

With kind regards,
Philippe Vialatte
Head of S&T and Environment Section

EU-CHINA R&I EVENTS

Opportunities offered by Europe for Research and Innovation Cooperation with China



Following an initial informal meeting organised in May 2011 at the Europe-China Clean Energy Centre (EC2) for Mrs. Máire Geoghegan-Quinn, European Commissioner for Research and Innovation, with professors at Tsinghua University, and on the occasion of the publication of calls for research project proposals under the EU's Seventh Framework Programme for Research and Technological Development (FP7), the EU Delegation

to China, jointly with the Embassies of Finland, France, Germany, Italy and UK, organised an information seminar at EC2 in Tsinghua University on 30 August 2011 on "Opportunities offered by Europe for Research & Innovation Cooperation with China". The half-day information session involving presentations and discussions followed by networking among the participants was designed to raise awareness among China-based research stakeholders about the opportunities offered by the EU's FP7 and by some EU Member States' research programmes for research and innovation cooperation with China, including mobility schemes.

Delegation of Shanghai Municipal S&T Commission met the Publication Office

On 30 June, the five-member delegation from Shanghai Municipal Government headed by Mr. Zhang Ao, Counsellor of Shanghai Municipal Government, and comprised of members from Shanghai Municipal S&T Commission, Shanghai S&T Information Centre and East China Normal University, visited the Publication Office in Luxembourg with the purpose of exchanging and learning successful practices and experiences in running websites of S&T funding programmes like CORDIS. Eva Benova, Director of the Official Journal &



Research welcomed the delegation and gave a general presentation of the Publications Office. Presentations were provided on Shanghai S&T Commission and Information Centre, CORDIS functions and website, activities of the Publications office and experiences in the field of eBooks, TED and Eur-Lex website.

FP7 presentation tour in Shanghai and Xi'an

Following European Commissioner Máire Geoghegan-Quinn's visit to Shanghai Technology Innovation Centre in May 2011, and Director Maive Rute's visit to Northwest University of Agriculture and Forestry in June 2011, and in order to present the newly published calls for proposals under FP7, Dr. Philippe Vialatte, Head of S&T and Environment Section of the EU Delegation to China, held a presentation tour in Shanghai and Xi'an. The tour aimed at raising

awareness among Chinese research and innovation stakeholders about the opportunities for research and innovation cooperation with the EU in FP7. Presentations were given on the content of the calls for research project proposals now open with a focus on those topics of particular interest to Chinese participation.

POLICIES AND PAPERS

New National S&T Development Planning

Chinese Ministry of Science and Technology, in collaboration with other government agencies, including National Development and Reform Commission, Ministry of Finance, Ministry of Education, Chinese Academy of Sciences, Chinese Academy of Engineering, National Natural Science Foundation, China Association for Science and Technology, and State Administration of Science, Technology and Industry for National Defense, has recently released a national science and technology development plan for the 12th Five-year period (2011-2015). (Further details in source: [MOST](#))

China eyes higher global ranking for innovation

China will raise its global innovation ranking over the next five years, according to a newly issued national scientific and technological (S&T) blueprint. The blueprint's objectives include significant growth in innovation capacity, greater international influence in the S&T sector and more breakthroughs in the research and development (R&D) of crucial technologies. The blueprint also specifies that China's global innovation ranking will be raised from 21st to 18th in the world, citing rankings released by the Chinese Academy of Science and Technology for Development (CASTED) in February. Other specific goals include increasing the amount of money spent on R&D, boosting patent ownership, improving the added value of the nation's high-tech industries and increasing the number of active R&D personnel. The blueprint also places emphasis on technologies that have direct bearing on people's livelihood, including those in the health, disaster reduction and sustainable development sectors. The blueprint was issued after two years of studies, opinion surveys and amendments. (Further details in source: [China Daily](#))

Funds for S&T Finding Spin-off

To implement the national outlines for medium and long term scientific and technological development planning (2006-2020), spur up S&T finding transfer and application, and foster strategic emerging industries, the Chinese Ministry of Finance and Ministry of Science and Technology jointly announced on July 4, 2011 to establish a national steering fund for S&T finding spin-off, along with an interim by-law for the management of the fund. Created by the state treasury, the Fund is designed to work under the principles of steering, indirect, non-profit, and market-oriented. It will guide and mobilize banking sectors, private capital, and local governments to enhance their input in supporting S&T finding spin-offs, through venture capital sub-funds, credit risk compensation, and performance incentives, allowing more S&T findings to be transferred and put into commercial applications through innovative support mechanisms and modalities. Meanwhile, the two government agencies will establish a national S&T findings database, and an authoritative S&T findings information management and service platform for venture capital firms, banks, and investors that are part of spin-off efforts. (Source: [MOST](#))

Courts to do more for IPR protection

The Chinese government has pledged to strengthen the courts' role in cracking down on infringements of intellectual property rights (IPR). "The current protection of IPR relies heavily on administrative measures, which are fast and efficient but need to be improved," Jiang Zengwei, vice-minister of commerce, said at a news conference organized by the State Council Information Office. "In the future, China will draw lessons from Western countries and place more emphasis on dealing with these cases in court. We will simplify the process and make it more efficient while cutting the cost." Jiang said Chinese police have arrested 9,031 suspects in a nine-month campaign aimed at cracking down on piracy and other infringements of intellectual property rights. (Further details in source: [China Daily](#))

China Accomplishes International Evaluation on Science Funding and Management Performance

On the occasion of the 25th anniversary of National Science Foundation of China (hereafter NSFC), the International Evaluation on Science Funding and Management Performance, which is by far the largest comprehensive performance assessment on science funding and management of science and technology, is completed successfully. "As an independent assessment on science funding and management performance by the third party with a global perspective, it is an overall review and appraisal on the 25-year service of the scientific fund on the development of China's scientific research and innovation system." NSFC President Chen Yiyu, academician of CAS made the remarks on July 4th. The International Evaluation Committee (IEC) was formed by 13 senior scientists from 6 countries. Former Chairman of the National Science Board, Prof. Richard N. Zare served as the chairman, and with Prof. Han Qide, Vice President of the National People's Congress, Academician of CAS, together with Prof. Winnacker, former President of DFG as Vice Presidents. It is considered as the first cost effective, comprehensive and systematic assessment of high quality on the performance on China's Fund management. According to reports, adopting an organizational model of "international assessment with domestic readiness", the assessment adheres to the principle of independence. The National Center for Science & Technology Evaluation is responsible for the design and conduct of assessment activities as an independent evaluation agency, preparing the evidence and materials required with the collaboration from NSFC. (Further details in source: [NSFC](#))

VOICES AND OPINIONS

Wen vows to combat IPR violations

Premier Wen Jiabao said that the government will crack down on violations of intellectual property rights (IPR) and the production of counterfeit goods in a message delivered during an IPR-related exhibition held in Beijing. Wen said that scientific and technological progress will function as economic pillars during China's continued development and restructuring, and that these areas will require better IPR protection if they are to grow and prosper. Wen said that the State Council approved the exhibition in the hopes of demonstrating the Chinese government's firm stance regarding IPR protection and raising public awareness of IPR laws and regulations. The Chinese- and English-language exhibition will be open for three months. (Source: [China Daily](#))

Wen says technologies to be more reliable, confident in China's future

Chinese Premier Wen Jiabao urged nation to work harder to develop technologies that are "more secure and reliable." The nation should brace up to develop technological brands with China's

own intellectual property rights and products with international competitiveness, Wen said at the site of a deadly weekend train collision. He said that was "a lesson to be learned" from the accident that left 39 people dead and 192 others injured. Wen said he was "confident in the China's future, no matter in its development, construction, technology or education." (Source: [People Daily](#))

Technology needs support

High-tech is not everything, and it is never as desirable as it should be without sound management. This may be the biggest lesson the Ministry of Railways and the country can learn from the high-speed railway accident that has so far claimed 39 lives and injured some 200. Although the official investigation has yet to confirm if there was a human factor that led to the tragedy, there are at least two questions that need to be answered: How could the automatic signaling system and telecommunications system fail at the same time? How could the controller fail to communicate with the drivers of both trains? These failures point to the possibility of slack management. (Further details in source: [China Daily](#))

State councilor stresses quality of higher education

State Councilor Liu Yandong has called for overall efforts to boost the quality of higher education being offered in the country. High quality higher education is a must for a strong nation, Liu said while addressing a national meeting on higher education. Liu said lifting quality is the most important and urgent task facing the tertiary education sector. To cultivate talents should be the core mission of higher education while scientific research should also be an important focus, Liu said. She urged colleges and universities to explore new teaching methods and improve the innovation system through enhanced coordination with research institutes and enterprises. In addition, Liu stressed efforts to expand the decision-making right of colleges and universities in an active and steady manner and improve the quality standard and evaluation system concerning services offered in higher education institutions. (Source: [China Daily](#))

Senior Chinese official calls for more scientific innovations



A senior Chinese official encouraged the country's scientists to enhance cooperation with their foreign counterparts to make more scientific innovations. State Councilor Liu Yandong made the remarks at a meeting attended by personnel working for the government's international scientific cooperation. Through international scientific cooperation, China should absorb scientific achievements and talents to help make breakthroughs in key scientific areas and core technologies, she said. Liu also stressed that the 12th Five-Year Plan period (2011-2015) is

critical for China to become an innovation-oriented country and to transform its pattern of economic development. (Source: [Xinhua net](#))

Nation holds its own in S&T

China is playing its part in international cooperation on major scientific research projects, a senior official has said. Wan Gang, minister of science and technology, made the comment at the Ninth National Conference on International Science and Technology Cooperation in Beijing on 28 August. The conference is held every five years to review progress and to draw up plans for

international cooperation on science and technology (S&T). "As China's S&T strength grew in recent years, the trend is that the country is contributing as much as other countries to international cooperation," Wan said. "In the past, Chinese researchers used to participate in research projects either instigated by foreign cooperators or sponsored by foreign investment. "But now more substantial cooperation is conducted on independent projects and on others funded on a 50-50 basis, which ensures an equal share of any advantages gained during the research." In the past five years, Chinese scientists took part in a number of international research projects, such as the Integrated Ocean Drilling Program, the Gene Expression Omnibus and the International Thermonuclear Experimental Reactor. According to statistics released by the ministry, more than 900 scientists from the Chinese Academy of Sciences are currently involved with international research organizations, and more than 200 of them are in leading positions. (Further details in source: [China Daily](#))

Chinese Premier pledges carbon cut when visiting senior scientists



Chinese Premier Wen Jiabao pledged to cut carbon emission and transform the mode of economic development when visiting senior scientists. Wen also said China should play a more active role in international climate change consultations and research, while visiting 95-year-old meteorologist Ye Duzheng. Ye, a top national science and technology award winner, is the creator of the Tibetan Plateau meteorology. Wen also visited 91-year-old materials scientist Shi Changxu, and 86-year-old neurosurgical expert Wang Zhongcheng. Shi Changxu, also a top national science and technology award winner, is known for his research on superalloy. Wen recognized Shi's suggestion of listing aircraft engine in China's top scientific and technological research programs. "You not only care about the development of materials science, but also raised many suggestions on the country's scientific and technological development," Wen told Shi. Wang Zhongcheng, who is a top national science and technology award winner and also honorary president of Beijing Tiantan Hospital, stressed professional ethics of doctors, saying that doctors must serve patients whole-heartedly, during his talk with Wen. Wang also suggested that China should train more neurological surgeons. (Source: [Xinhua net](#))

PEOPLE OF THE MONTH

Two CAS Academicians Elected International Fellows of Royal Academy of Engineering

LI Jinghai and ZHANG Jie, both members of the Chinese Academy of Sciences (CAS) were elected as the International Fellow of the Royal Academy of Engineering (RAE) at its annual general meeting in London on July 12, 2011. LI, also Vice-President of the CAS and academician of TWAS (The Academy of Sciences for the Developing World) and SATW (Schweizerische Akademie der Technischen Wissenschaften), is a chemical engineer engaged in quantitative design and scale-up studies of particle-fluid systems. He formulated the variational criterion for the heterogeneous flow structure of particle-fluid systems which led to the establishment of the Energy-Minimization Multi-Scale (EMMS) model. ZHANG is currently President of Shanghai Jiao Tong University and academician of TWAS and German Academy of Natural Scientists Leopoldina. He received his PhD in Optical and Atomic & Molecular

Physics from the Institute of Plasma Physics, CAS. ZHANG is best known for his research achievements in such areas as x-ray lasers, high field physics, and laser-plasma physics. (Further details in source: [CAS](#))

CAS scholar detained as suspect for corruption

Duan Zhenhao, a candidate academician of the Chinese Academy of Sciences (CAS), was placed under criminal detention for being suspected of corruption. After some reports of Duan's corruption practices appeared online, the supervision and auditing department of the CAS's Institute of Geology and Geophysics, where Duan worked as a researcher, conducted an investigation into his use of scientific funds, said a statement issued by the institute on its website. The investigation also included checks of Duan's moral performance that might have involved corruption and other problems, the statement said. After the investigation, the institute decided to send the case to the judiciary authorities, the statement said. The institute attaches equal importance to researchers' academic capabilities and their moral integrity, and adopts a zero-tolerance attitude in convictions of corruption and criminal offenses when a researcher with a high academic level and reputation is involved, the statement said. (Source: [China Daily](#))

China's unconventional university gets mixed welcome

The South University of Science and Technology of China (SUSTC), based in Shen Zhen, near Hong Kong, aims to break free from the traditions and formalities of the country's educational system — such as national entrance exams for students or administrative ranks for professors — and focus instead on creativity and thinking outside the box. But the project has had a mixed reception and has been criticised by academics from other universities, as well as a few who have already departed from SUSTC. (Further details in source: [www.scidev.net](#))

Science fair

Rao, 49, is the dean of the School of Life Sciences at Peking University. He made his challenging announcement via his blog on sciencenet.cn, a website run by Beijing-based Science and Technology Daily. He referred to his statements as "a friendly competition" aimed to promote the quality of domestic scientific research within the field of life sciences. His comments triggered public discussion on how academicians are selected in China. The title of "academician" is a top-level honor given to Chinese scientists in recognition of their achievements within their chosen field of research. After Rao's failure to advance in the first round two weeks ago, he announced that he no longer wished to be a CAS academician candidate ever again; however, he did say that he hoped CAS will select more promising candidates who are indeed qualified for the academic title. (Further details in source: [Global Times](#))



SCIENTIFIC ACTIVITIES

Health

Pro-UK Injection Approved

The State Food and Drug Administration has recently approved the market entry application of Recombinant Human Prourokinase for Injection (pro-UK), a new drug jointly developed by Shanghai Tasly Pharmaceutical, part of Tianjin Tasly Group, and the Chinese Military Academy of Medical Sciences Institute of Biotechnology to treat acute ST-segment elevation myocardial infarction. It took several decades for Chinese scientists to have rolled out the proprietary new drug with proven safety, efficacy and quality. The new drug is also the only class-I therapeutic biological product approved by China in recent years. (Further details in source: [MOST](#))

Study of Humanized Mice Reveals pDC's Role in Early HIV Infection

Plasmacytoid dendritic cells (pDCs) are critical for antiviral immune responses by rapidly producing large amount of type 1 interferon, also pDCs mature to antigen presentation cells (APCs) upon viral stimulation and link the innate and adaptive immune responses. Accumulated data suggest that pDCs are important in human immunodeficiency virus (HIV) infection and pathogenesis, but the exact functions of pDCs in HIV infection and AIDS progression is poorly understood. Lack of robust in vivo model hinders study of human pDC functions and its role in HIV infection. Dr. ZHANG Liguang at the Institute of Biophysics, Chinese Academy of Sciences and Dr. SU Lishan at the University of North Carolina recently reported that functional pDC developed in human hematopoietic stem cells transplanted Rag2^{-/-} γ C^{-/-} mice (humanized mice). (Further details in source: [CAS](#))

US finds causes of obesity among young Chinese

Many habits that are generally thought of as being healthy don't seem to prevent the rise of obesity among young Chinese in China, according to a study conducted by the Keck School of Medicine of the University of Southern California (USC). The study, published in the July 2011 issue of the American Journal of Health Behavior, says that teenaged boys from well-off Chinese families who say they are physically active and eat plenty of vegetables but few sweets are more likely to be overweight. This is one of the first studies by American scholars to examine how weight among Chinese adolescents relates to factors like sleep duration, physical activity, diet and general demographics. What attracts the attention of researchers is that most of what the research team found runs counter to Western trends. (Further details in source: [China Daily](#))

Novel Antibiotics

CAS Kunming Institute of Zoology won a national patent grant for the animal antimicrobial venom peptides and derivatives it has screened out. Project leader LI Wenhui told reporters that animal antimicrobial peptides that directly destroy the cell walls and membranes of bacteria are able to keep bacteria from becoming drug resistant, which makes them a promising anti-infection drug candidate. Researchers screened out venom peptides from the antimicrobial peptides collected from some 500 animals, based on the previous laboratory studies. Venom peptides have shown strong antibacterial activity to more than 500 clinical drug-resistant strains, while enjoying extremely low mammalian toxicity and hemolytic activity, better than the similar drug candidates that are clinically tested (III) in the United States, enjoying a promising clinical application prospect. (Source: [MOST](#))

Genome Wide Tumor Study

Nature-Genetics has recently published a study made by Chinese scientists on esophageal and lung cancers. The study, led by Prof. LIN Dongxin of Chinese Academy of Medical Sciences Cancer Institute, made a comparison of some 10,000 esophageal cancer patients in the northern,

central, southern and eastern parts of China, and found that genetic mutations of five chromosomal segments have contributed to the occurrence of esophagus cancer. Meanwhile, a team, led by Prof. SHEN Hongbing of Nanjing Medical University, found that six genetic variants of 4 chromosomal segments, including three disease-causing loci reported for the first time, are associated with the occurrence of lung cancers. (Source: [MOST](#))

Antimicrobial Peptide Could Be an Excellent Therapeutic Agent for Acne Vulgaris

Natural antimicrobial peptides (AMPs) have attracted considerable interests as a new type of antimicrobial agents for several reasons including their relative selectivity towards targets (microbial membranes), their rapid mechanism of action and, above all, the low frequency in selecting resistant strains. The research team led by Prof. Lai Ren of Kunming institute of zoology, CAS has done a lot of work with the characterization and application of antimicrobial peptides, and set up the Chinese antimicrobial peptide resource library. Acne Vulgaris is a common skin disease caused by some microorganism such as Propionibacterium acnes, however with the abuse of traditional antibiotics, some drug resistant Propionibacterium acnes strains have appeared, which calls for a new type of antimicrobial agent against the drug resistant P. acnes strains. Recently, the research team found that cathelicidin-BF, a snake cathelicidin-Derived antimicrobial peptide has a significant effect against Propionibacterium acnes. (Further details in source: [CAS](#))

Reprogrammed Kidney Cells Could Make Transplants And Dialysis Things Of The Past

Approximately 60 million people across the globe have chronic kidney disease, and many will need dialysis or a transplant. Breakthrough research published in the Journal of the American Society Nephrology (JASN) indicates that patients' own kidney cells can be gathered and reprogrammed. Reprogramming patients' kidney cells could mean that in the future, fewer patients with kidney disease would require complicated, expensive procedures that affect their quality of life. (Further details in source: [CAS](#))

First transplant for donor-match system

A national computer system, designed to match donors with patients who need specific organs, resulted in first organ transplant across provincial lines at a hospital in Tianjin. Before the system was put into use, medical experts had to rely on their contacts in other hospitals and in the provincial Red Cross society to find organ recipients. In establishing the national transplant system, the designers wanted to make sure it would ensure donated organs are being distributed in a fair manner. They also wanted to avoid wasting donated organs, to know more about where those in need of organs are and to promote organ donations. The system includes more than 85 percent of the licensed transplant hospitals in China that meet the technical and managerial criteria set by the system, statistics from the system showed. (Further details in source: [China Daily](#))

Warning that new tick disease is highly infectious

A newly discovered tick-borne disease may endanger people in close contact with carriers of the lethal virus, the Ministry of Health warned. The warning came amid a promise to upgrade blood-testing facilities nationwide. The emerging tick-borne disease, known as "fever-thrombocytopenia syndrome", is caused by an offshoot of the Bunya virus. This virus may cause victims to suffer from liver and kidney failure and can result in internal bleeding. The body fluids of people who fall victim to the disease are highly infectious. Patients should be treated in

isolation wards, according to a guideline on the ministry's website. (Further details in source: [China Daily](#))

New Secrets about Graves' Disease

Chinese scientists have landed a breakthrough progress in studying Graves' disease, based on the disease samples gathered over years and the genome-wide association analysis. The findings derived from the study were published in the August 15 issue of Nature-Genetics. (Further details in source: [MOST](#))

Chinese Psychologists Trying to Put Translating Genomics Research into Practice for Caring People with Schizophrenia

A team led by Dr. Raymond Chan from the Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, and Dr. Jehannie Austin and Prof. Bill Honer from the University of British Columbia, Canada have commenced an exploratory study in incorporating the genomic research component into clinical practice. The study has been published online in Schizophrenia Research. (Further details in source: [CAS](#))

State Key Labs on Medical Industry Form Innovation and Strategic Alliance

11 state key labs on medical enterprises supported by MOST announced the founding of an innovation and strategic alliance and held the 1st meeting in Jilin on August 13th, 2011. The alliance is an active attempt by state key labs in enterprises, which could encourage the integration of various research resources from basic research to applied research. (Source: [MOST](#))

Structural Study of Norovirus-Lewis Antigen Interaction Indicates Its Type-specific HBGA Recognition

Professor RAO Zihe's research team at the Institute of Biophysics, Chinese Academy of Sciences recently determined the crystal structures of the P domain protein of the first Lewis-binding norovirus (VA207, GI.9) and revealed the mechanism of its binding specificity in collaboration with Professor JIANG Xi's lab at Division of Infectious Diseases, Cincinnati Children's Hospital Medical Center. This work was published in the latest issue of PLoS Pathogens on July 21, 2011 (2011, 7(7): e1002152) and titled "Crystallography of a Lewis-Binding Norovirus, Elucidation of Strain-Specificity to the Polymorphic Human Histo-Blood Group Antigens". (Further details in source: [CAS](#))

Why Self-hurt Feels Less Painful Than Getting Hurt? A Distinct Brain Activation Patterns Was Found in Self- and Externally Generated Mechanical Pain

Voluntary movement generally inhibits sensory systems, such as vision, audition and touch. However, it is still unclear how such movement influences pain. Professor LUO Fei and his colleagues in Institute of Psychology, Chinese Academy of Sciences explored whether pain generated by active movement will be diminished, compared with pain brought about by passive movement, and they revealed the distinct brain activations behind using functional MRI technique. (Further details in source: [CAS](#))

Food, agriculture and fisheries, biotechnology

China-led research team completes potato genome sequence

The Chinese Academy of Agricultural Sciences (CAAS) announced that a group of international scientists has finished sequencing the genetic code of the potato. The Potato Genome Sequencing Consortium (PGSC), which is led by Chinese scientists and made up of 97 researchers from 14 countries, has sequenced the complete potato genome and published a report of its findings in the latest issue of the scientific journal Nature, said the CAAS. The research took six years and revealed that the potato contains about 39,000 genes, said the CAAS. Qu Dongyu, a potato farming specialist with the Crop Science Society of China and a promoter of the PGSC, said the study helped discover genes that define the growth and insect resistance of potatoes. The sequenced genome will enable scientists to create new varieties of potato that are high in yield and quality and more resistant to insects and diseases, he said. Huang Sanwen, a researcher with the CAAS and one of the three corresponding authors of the report, said the sequencing will also allow potato breeders to accelerate the breeding process of new seeds from 10 to 12 years to about 5 years. China is the world's top potato grower, with its farmers planting potatoes on nearly 90 million mu (6 million hectares) of land each year. The average yield per mu stands at 1,000 kg, only one-third of that harvested by countries with advanced technologies, Qu said. (Source: [Xinhuanet](#))

Food Yield Boosting

Chinese Ministry of Science and Technology, Ministry of Agriculture, Ministry of Finance, and National Food Authority jointly inked an accord with 13 major grain-producing provinces (regions). The development marks the official start of a new round of nationwide efforts to boost food yield in the new Five-year period. Chinese Ministry of Science and Technology Science initiated a food yield boosting project in the 11th Five-year period, during which enhanced technology innovation activities have led to the significant boost of food yield under government guidance. Efforts have been made to raise the yield of three major crops, including rice, wheat and corn over three major plain regions (northeast, north, and the lower and middle reaches of the Yangtze River). (Further details in source: [MOST](#))

Straw Recycling Raises Yield

A straw recycling project, jointly undertaken by Northeast Agricultural University, Heilongjiang Academy of Agricultural Sciences, and Chinese Academy of Sciences Northeast Institute of Geography, has developed a range of straw recycling techniques desirable for growing rice, corn, and soybean over the Three-River Plains in the northeast part of the country in a more efficient manner. In addition to the straw reclaiming and recycling techniques, researchers also developed no-till planters and subsoilers, and established the technical modes desirable for growing the crops over the Three-River Plains, which not only raised unit yields, but also brought down the costs, with noticeable environmental benefits. (Further details in source: [MOST](#))

China to tighten rules on pesticide use

China plans to set up strict regulations on pesticide use in response to nationwide concern about the safety of agricultural products. The crackdown comes as misuse of such chemicals has increased in recent years. A draft of the revised regulation was posted on the website of the Legislative Affairs Office of the State Council for public comment by the end of August. According to a statement on the website, the revised draft improves the current regulation, which was issued in 1997, in areas of a production register, quality control, marketing, and the use and

administrative management of pesticides. For example, the draft requires pesticide manufacturers to set up systems to record the raw materials and quality of products to ensure that every process in the production conforms to quality standards. (Further details in source: [China Daily](#))

Whole Sequence Variation Map Reveals Insight into Evolutionary Studies of Rhesus Macaque

BGI (previously known as the Beijing Genomics Institute), the largest genomics organization in the world, and Kunming Institute of Zoology, Chinese Academy of Sciences, together published the whole sequence variation map of rhesus macaque (*Macaca mulatta*) in *Genome Biology* on July 6th, 2011 (<http://genomebiology.com/2011/12/7/R63>). The study provides available resources for evolutionary and biomedical research. (Further details in source: [CAS](#))

World's Biggest Fungus Discovered on Chinese Tree

The most massive fruiting body of any fungus yet discovered has been found on the underside of a tree in China. The fruiting body is similar to a mushroom in other types of fungi. The record breaking specimen is a bracket fungus that is 10m long, 80cm wide and weighs half a ton. The previous record belonged to a fungus growing on a tree in Kew Gardens in the UK. The Chinese fungus is thought to have been growing for at least 20 years. The specimen was discovered by a team of researchers from the Herbarium of Biology at the Chinese Academy of Sciences. Led by professor Yu-Cheng Dai, the researchers were in the field studying wood-decaying fungi when they happened upon the record breaking fungi. (Further details in source: [CAS](#))

GM crops still wait for harvest



Genetically modified (GM) food in China is unlikely to be commercially available for large-scale planting for at least three to five years, said a top agriculture expert. "Given the constraints on natural resources in China, particularly land and water, the government will definitely need transgenic technology to raise food production in the long term" Huang Jikun, director of the Center for Chinese Agriculture Policy at the Chinese Academy of Sciences, told *China Daily* in an exclusive interview. (Further details

in source: [China Daily](#))

PHD1 Holds Potential for Improving Crop Yield

To gain insight into genes controlling photosynthetic capacity, scientists from Dr. CHU Chengcai's group at the Institute of Genetics and Developmental Biology, the Chinese Academy of Sciences carried out an extensive screening of their large rice T-DNA mutant population, and isolated a rice stunted growth mutant with decreased carbon assimilate and yield production named photoassimilate defective1 (PHD1). Molecular and biochemical analyses revealed that PHD1 encodes a novel chloroplast-localized UDP-glucose epimerase (UGE), which catalyzes the reversible conversion of UDP-galactose to UDP-glucose. Most strikingly, PHD1 overexpression increased photosynthetic efficiency, biomass, and grain production, suggesting that PHD1 has significant economic implications in both traditional crop improvement and bioenergy crop production. (Further details in source: [CAS](#))

Novel Bph Resistant Rice Line

A team, led by ZHU Yingguo, an academician working for Wuhan University, had its Luohong 4A, a novel hybrid rice sterile line, passed an approval check on August 15, 2011. Based on the findings derived from the multi-year study, researchers screened out a number of insect-resistant materials of major application potentials from the sterile offspring of wild rice, and sorted out the new planthoppers resistant genes from multiple wild rice species, including Bph12, Bph14, and Bph15, which laid a ground work for cloning other brown planthopper resistant genes, and studying the molecular mechanism of resistance to such pests. (Further details in source: [MOST](#))

Scientists counting on panda census



Before venturing into the forest, Yuan Zhiwei clicked on his GPS device. He, and two team members, recorded the surrounding habitat and marked out three 1-square-meter quadrants at random, then measured the diameter and height of the bamboo branches. The team were looking for any traces of giant pandas, such as footprints or teeth marks. They collected fresh dung for DNA tests. Over 10 days in late June and early July, 70 forestry professionals like Yuan - a nature protection specialist - worked in 22 teams, studying the behavior of giant pandas at Wanglang Nature Reserve in Mianyang, Sichuan province. Researchers at the Chinese Academy of Sciences are currently analyzing the collected data. The project is a trial run for a national census, due to start in

September or October, on giant pandas. (Further details in source: [China.org](#))

Cdc42 Regulates the Transport of NPC1L1 towards Plasma Membrane

Niemann-Pick C1-like 1 (NPC1L1) plays an essential role in dietary and biliary cholesterol absorption in mammals. The subcellular localization of NPC1L1 is regulated by cholesterol. Cholesterol depletion induces the transport of NPC1L1 to plasma membrane (PM) from endocytic recycling compartment that requires MyoVb-Rab11a-Rab11-FIP2 triple complex, and cholesterol-replenishment renders the internalization of NPC1L1 together with cholesterol. However, it's unclear how cholesterol regulates the translocation of NPC1L1. In his study, XIE Chang, under the supervision of Dr. SONG Baoliang from the Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences(SIBCB), found that GTP-bound Cdc42 interacts with NPC1L1. Cholesterol depletion regulates the activation of Cdc42 and enhances NPC1L1-Cdc42 interaction. GTP-bound Cdc42 activates its downstream effectors N-WASP and Arp2/3 complex to initiate branched actin filaments assembly, which promotes dissociation of Rab11a from NPC1L1 complex and facilitates the transport of NPC1L1 towards plasma membrane by MyoVb. In vivo study with liver specific Cdc42 knockout mice confirmed that localization and function of hepatic NPC1L1 depends on Cdc42. This work entitled "The small GTPase Cdc42 interacts with Niemann-Pick C1 Like 1 (NPC1L1) and controls its movement from endocytic recycling compartment to plasma

membrane in a cholesterol dependent manner" was published online in Journal of Biological Chemistry on Aug 15th, 2011. (Further details in source: [CAS](#))

Research by Chinese, American scientists finds earliest placental mammal

A joint research project conducted by scientists from China and the United States has found a well-preserved fossil of the earliest known placental mammal. The fossil *Juramaia sinensis*, or "Jurassic mother from China," was found in northeast China's Liaoning Province in 2009 and is approximately 160 million years old, according to a statement issued by the Institute of Geology under the Chinese Academy of Geological Sciences. The finding of the fossil marked a new milestone in evolutionary research, as it proved that mammals began evolving 35 million years earlier than previously thought, the statement said. (Further details in source: [Xinhua net](#))

The *Caenorhabditis Elegans* Intermediate-size Transcriptome Shows High Degree of Stage-specific Expression

Professor CHEN Runsheng's group at the Institute of Biophysics, Chinese Academy of Sciences carried out a tiling array analysis which identified approximately 1200 novel intermediate-size transcripts in a mixed stage culture of *C. elegans*. Recently, they further identified 5866 novel intermediate-size transcripts through the *C. elegans* life cycle. This work exhibits more complex expression patterns of is-ncRNA across stages of *C. elegans*, which have features different from that of known is-ncRNAs types and coding genes, suggesting the existence of novel functional types of intermediate-size RNAs. It is published in the latest issue of the Journal of NUCLEIC ACIDS RESEARCH (2011,39(12):5203-5214). (Further details in source: [CAS](#))

TWAS-ROESEAP Symposium Addresses Increased Demand for Industrial Biotechnology

In developing countries, massive populations are struggling surviving with relatively limited water, land, mineral and oil resources. What are measures to decrease their dependency on petroleum resource, and gradually decrease their dependency on chemical processing? 2011 TWAS-ROESEAP (The Academy of Sciences for the Developing World and its Regional Office for East and South-East Asia and the Pacific) Symposium on Industrial Biotechnology from August 26 to 30 in Beijing addressed these issues. With the theme of "Towards a Bio-based Economy of Developing Countries", the symposium reviewed recent progress in the area of industrial biotechnology in developing countries. It endeavored to build a strong linkage among the experts and to promote the cooperation among the developing world in the area of industrial biotechnology. (Further details in source: [CAS](#))

Multi-gene Analysis Provides a Well-supported Phylogeny of Rosales

Rosales are one major subclade of symbiotic nitrogen fixing plant clade and comprise nine families: Barbeyaceae, Cannabaceae, Dirachmaceae, Elaeagnaceae, Moraceae, Rhamnaceae, Rosaceae, Ulmaceae, and Urticaceae, which includes about 261 genera and 7725 species. These families are morphologically heterogeneous, and had been considered to be distantly related and placed in different orders in traditional classifications. Although the circumscription of Rosales has become clear, interfamily relationships within the order remained ambiguous. In order to resolve this problem, Dr. ZHANG Shudong, Professor LI Dezhu and YI Tingshuang of Kunming Institute of Botany, Chinese Academy of Sciences, and Douglas E. Soltis of University of Florida have reconstructed the phylogeny of this order. (Further details in source: [CAS](#))

World's First Lysine Gene Producing Cows



Jilin University Dept. of Agriculture has recently bred out a calf carrying lysine producing genes. The healthy and lively calf is black and white in color, with a birth weight at 31.5 kg. A preliminary test confirms that it has carried the lysine producing genes as expected. According to Prof. LI Ziyi, head of the project, researchers inserted the lysine encoding genes into the fetal fibroblast cells of a female Holstein using molecular biology techniques, made it a somatic cell nuclei donor. The cloned embryos were prepared through somatic cell transfer. The cloned embryos were developed in hybrid Simmental surrogate cows (yellow and white in color). The recipient cow gave birth to a female calf (Holstein) in the evening of August 6, 2011. (Source: [MOST](#))

The First Report on Color-leaf Mutant in Wandering Jew(*Tradescantia fluminensis*) Induced by Carbon Ions

A color-leaf mutant with purple leaves, stems and petals was isolated from clones of Wandering Jew irradiated by 95.8 MeV/u carbon ion beam at Institute of Modern Physics, Chinese Academy of Sciences (IMP). This is the first report on color-leaf mutant of Wandering Jew induced by carbon ions radiation. In conclusion, the color-leaf mutant of Wandering Jew induced by irradiation of carbon ions was improved in ornamental value, which could contribute to variation in level, component and distribution of foliar pigment. (Further details in source: [CAS](#))



Food safety is still crucial issue in China

The issue of food safety is very important to China, particularly in rural areas that lack control and supervision. Although the Chinese government has stepped up supervision of food and dairy products and liquor sold in rural areas at all points in the supply chain, it has to take more effective measures to ensure food safety. A large number of people fall sick because of intentional contamination of food by producers or because of careless and unsupervised practices. Some prohibited substances are added to food products to mask their poor quality, extend their shelf life or make them look more nutritious. (Further details in source: [China Daily](#))

Information and communication technologies

Nation planning stimulus to aid growth of electronics industry

China will invest 500 billion yuan (\$77 billion) to stimulate the electronic components sector during the period of the 12th Five-Year Plan (2011-2015), according to a report published by the China Electronic Component Association, an organization under the Ministry of Industry and Information Technology. Cutting-edge electronic components and research and development will be the main areas of investment, including the "Internet of things" (wireless sensor

technology for connecting devices), broadband optical fibers and mobile-device components. (Further details in source: [China Daily](#))

Digital Geo-Spatial China in 2015

The Chinese National Administration of Surveying, Mapping and Geoinformation publicized a master outline for surveying, mapping, and geoinformation activities during the 12th Five-year period (2011-2015). According to the Outline, China will complete the construction of a digital geospatial China and associated information and mapping system in 2015. (Further details in source: [MOST](#))

Mobile Contact Supports Instant Messaging

Beijing University of Posts and Telecommunications State Key Laboratory for Networking and Switching Technology has recently rolled out a novel contact program for mobile phone, making the integration of phoning, instant message, social networking, and personal information management possible. The innovative contact program is designed to accommodate the all-in-one functions of sending text messages, making phone calls, instant chatting, and social networking. (Further details in source: [MOST](#))

Telecom giant ambitious to lead 4G technology

China Mobile, the country's largest mobile telecom operator, is taking ambitious steps to promote the "fourth-generation," or 4G mobile technologies, according to the general manager of its research institute. "You have to be a leader, not a follower...timing is everything," said Huang Xiaoqing, general manager of China Mobile's Research Institute, in an interview with Xinhua. With more than 600 million subscribers, the mobile giant, which is both listed in Hong Kong and New York, is pushing for China's home-grown 4G standard, known as TD-LTE, or "Time Division-Long Term Evolution," to be a globally accepted standard. The technology is expected to provide faster broadband wireless services to meet the explosive future demand in data communication that the current 3G network is unable to deliver, Huang said. (Further details in source: [China Daily](#))

Internet population up to 485 million

The number of China's Internet users reached 485 million by the end of June, 2011, increasing by 27.7 million from the end of 2010, according to the 28th Statistical Report on Internet Development in China, published by China Internet Network Information Center (CNNIC) on July 19, 2011. About 65.5 percent of China's Internet users, or 318 million people, use mobile phones to surf the Web, an increase of 14.94 million from the end of last year. In the first six months of 2011, 217 million Internet users were attacked by a virus or trojan horse programs. (Further details in source: [China Daily](#))

Huawei moves into the cloud

Huawei Device Co Ltd launched its first mobile phone offering cloud-based services on 3 August, joining other Chinese companies including Alibaba Group Holding Ltd and Baidu Inc in the move to apply cloud computing technology in smartphones. Huawei Device, the terminal branch of the world's No 2 telecommunication equipment maker Huawei Technologies Co Ltd, launched a 3.7-inch touch screen mobile phone called "Vision" in its cloud phone global launch ceremony in Beijing. The handset runs on the Android 2.3 operating system and is connected to Huawei's cloud platform. The cloud reserves 160 gigabytes (GB) of storage for every Huawei

cloud phone user, and it can wirelessly push applications, music, photos and documents to users' devices automatically. (Further details in source: [China Daily](#))

Agricultural robot: newest farm help

A flying robot monitors the growing condition of the crops over farmlands in Ili, a Kazak autonomous prefecture in Northwest China's Xinjiang Uygur autonomous region, July 25, 2011. With camera equipment and an automatic fertilizing system in the front, the robot can fly autonomously and apply fertilizer independently. It is made by the national key laboratory of robotics of Shenyang Institute of Automation of Chinese Academy of Sciences. (Source: [China Daily](#))



China's First Internet Domain Name Center

China's first internet domain name engineering center was inaugurated on July 26, 2011 in Beijing. The new center is created to develop the core technologies for managing internet domain names, addressing domain name infrastructures and associated security issues through market means. (Further details in source: [MOST](#))

Cloud computing laboratory opens in Kazakhstan

Kazakhstan's first laboratory on open-source cloud computing research opened in the International University of Information Technologies in the Kazakh South capital Almaty. The laboratory is the result of a joint initiative of Kazakh IT giant Zerde, Chinese telecommunications company Huawei and the International University of Information Technology (IUIT). According to the project founders, the laboratory will focus on cloud computing and open source systems, as well as on research and testing of IT-solutions and training of IT specialists. (Further details in source: [Global Times](#))

First TD-LTE Multimode Mobile Launched

China Mobile and ZTE jointly launched the world's first multimode TD-LTE mobile phone for test. According to a briefing, the test mobile is designed with a full solution developed by ZTE, working with Android 2.3 operating system. Equipped with a 3.5-inch capacitive touch screen, and 3D acceleration/mobile AP functions, the mobile supports three major network settings, including TD-LTE, TD-SCDMA, and GSM. (Further details in source: [MOST](#))

China's largest cloud computing base settled in Nanjing

China's largest cloud computing base, the Shuguang Cloud Computing Industrial Base, with a total investment of 400 million yuan, has been settled formally in Jiangning District of Nanjing City, capital of east China's Jiangsu province on Aug. 21. The Shuguang Cloud Computing Industrial Base is estimated to reach tera-scale computing as well as have a storage capacity of 1 petabyte in three years. (Further details in source: [People](#))

China to foster Internet development in four areas

China, which has the world's largest Internet user population, plans to boost the development of its Internet sector in four areas and make it an impetus in transforming economic growth mode and in optimizing industrial structure, a senior official said. The four areas are promoting Internet infrastructure construction, encouraging technology progress and application, accelerating Internet application in other industries, as well as intensifying information and Internet security management, said Miao Wei, Minister of Industry and Information Technology (MIIT), at the 2011 China Internet Conference. (Further details in source: [Xinhua net](#))

Effective and Efficient Microprocessor Design Space Exploration Using Unlabeled Design Configurations

In order to design an efficient architecture for Loongson (Godson) series, Phd student GUO Qi, together with assistant professor CHEN Tianshi, associate professor CHEN Yunji, professor ZHOU Zhihua, professor Hu Weiwu and professor XU Zhiwei proposed the COMT approach which can exploit unlabeled design configurations to improve the predictive models, which is inspired by recent advances in semi-supervised learning. In addition to an improved predictive accuracy, COMT is able to guide the design of microprocessors, owing to the use of comprehensible model trees. Empirical study demonstrates that COMT significantly outperforms state-of-the-art DSE technique through reducing mean squared error by 30% to 84%, and thus, promising architectures can be attained more efficiently. (Further details in source: [CAS](#))

New China-made smartphone unveiled as Chinese Internet firms eye domestic handset market

A new smartphone made by a Chinese high-profile Internet startup has the potential to shake the world's largest mobile phone market driving prices down for high-performance handsets. The low-cost but high-specification phone was unveiled by Lei Jun, founder of Xiaomi Technology Co. that produced it, at a presentation in Beijing on Aug. 16. Xiaomi Phone, which runs a MIUI ROM on top of Android, is 125mm x 63mm x 11.9mm in size and weighs 149 grams -- so it's both a little heavier and bigger than the iPhone 4. Lei said that his phone stands out with its fast dual core processor, big screen, high-quality signal, and large battery capacity. (Further details in source: [Global Times](#))

New Sequential Partial-Update Least Mean M-Estimate Algorithms for Robust Adaptive System Identification in Impulsive Noise

Adaptive filtering algorithms are usually employed to iteratively identify the impulse response of unknown linear systems to cater for time-varying signal statistics and to reduce arithmetic complexity. The well-known least mean square (LMS) algorithm and its input normalization variant, the normalized LMS (NLMS) algorithm, are widely used in many system identification problems because of their numerical stability and computational simplicity. However, in some applications such as acoustic signal processing and network echo cancellation, higher order adaptive filters are usually required to model the acoustic paths with long impulse responses. Partial update (PU) is an efficient technique improvement to reduce the power consumption and arithmetic and implementation complexities of the LMS and NLMS algorithms. ZHOU Yi of Institute of Acoustics, Chinese Academy of Sciences carried out a series of studies and presented a new extension of conventional S-LMS algorithms and their convergence behaviors with Gaussian inputs and additive Gaussian or CG noises. (Further details in source: [CAS](#))

A Significant Progress in Quantum Dynamics

The Science (journal) published on July 22, 2011 the article “Experimental and Theoretical Differential Cross Sections for a Four-atom Reaction: $\text{HD}+\text{OH}\rightarrow\text{H}_2\text{O}+\text{D}$ ” by Prof. Zhang Donghui, Prof. Yang Xueming and other researchers of Dalian Institute of Chemical Physics, CAS. It is a significant progress made by Chinese scientists in chemical reaction dynamics. (Further details in source: [NSFC](#))

ncFANs: First Non-coding RNA Function Annotation Server

Shortly after their first large-scale computational annotation of long non-coding RNA (lncRNA) functions, which was published in the journal Nucleic Acids Research in May 2011, the Bioinformatics Research Group at the Institute of Computing Technology, Chinese Academy of Sciences, further released the first web service, ncFANs (non-coding RNA Function ANnotation server), to provide functional prediction of lncRNAs in human and mouse. (Further details in source: [CAS](#))

Nanosciences, Nanotechnologies, Materials and new Production Technologies

China to boost advanced materials industry

China plans to beef up investment and offer tax incentives to increase the annual output of its advanced materials industry to 2 trillion yuan (313 billion U.S. dollars) by 2015, said an official with the Ministry of Industry and Information Technology (MIIT). The target figure is about 5 percent of China's 2010 gross domestic output, as the world's second largest economy looks to emerging industries like advanced materials to pursue more technology-driven, low-carbon and sustainable growth. The government aims for "breakthroughs by 2015 in a series of key generic technologies that are urgently needed and will lead future growth" and "a leading role for the advanced materials industry in the national economy by 2020." (Further details in source: [China.org](#))

HIRFL-CSR Conducted 10000 Second Slow Extraction

With effort of researchers in Institute of Modern Physics, Chinese Academy of Sciences (IMP), the Cooling Storage Ring at Heavy Ion Research Facility in Lanzhou (HIRFL-CSR) has successfully conducted the carbon ion's super-long-period slow extraction in cancer therapy terminal with the energy of 80MeV/u and 200MeV/u. The success of the super long period slow extraction in HIRFL-CSRm verified the ability of synchrotron to provide the high energy quasi-continuous beam. This super long period extraction, with the character of high energy, long duty cycle and adjustable energy, could be of great benefit to the experiment of heavy ion physics in middle and high energy region, Single Event Effect (SEE) of electronic device used in space, material irradiation and other relevant application in bioscience. This is also a key point for the future Heavy Ion Accelerator Facility (HIAF) project of IMP in Lanzhou, China. (Further details in source: [CAS](#))

China finds world's 2nd largest molybdenum deposit

China has discovered its largest molybdenum deposit containing 2.2 million tonnes of the silvery metal, which ranks the second largest in the world, in East China's Anhui province. Anhui Geology and Mineral Resources Bureau estimate the deposit in Jinzhai County has 1.275 billion

tonnes of ore which contains 2.2 million tonnes of molybdenum, said Wu Yulong, head of the bureau. The grade of the ore is 0.157 percent. The deposit's total value is more than 600 billion yuan (\$93 billion), Wu said. The deposit can be exploited for more than 100 years at a capacity of 10 million tonnes of ore disposed annually, which can go a long way towards transforming the backward county into an industrial hub, Wu said. Molybdenum, a non-renewable strategic resource, is widely used in the metallurgical sector as well as chemical, machinery, aeronautical and lubricant fields. (Further details in source: [China Daily](#))

New Progress in the Investigation of Macromolecular Interactions

The application of Atomic Force Microscopy (AFM)-based Single-molecule Force Spectroscopy (SMFS) in the investigation of polymer structure and macromolecular interactions is one of the most important subjects in polymer science. Great progress has been made on the study of nanomechanical properties of single macromolecules in solutions (Wenke Zhang, Xi Zhang Prog. Polym. Sci., 2003, 1271-1295). More recently, supported by the National Natural Science Foundation of China (NSFC), Prof. Wenke Zhang from Jilin University and his collaborators have further extended AFM-based SMFS to the investigation of inter-macromolecular interactions in more complicated systems, namely, polymer single crystal and native plant virus, respectively. (Further details in source: [NSFC](#))

Corning Sets up Research Center on Chinese Mainland

Corning Inc started its first joint venture laboratory on the Chinese mainland in partnership with a well-known ceramics institute in Shanghai. The joint lab, a result of long-term cooperation with the Chinese Academy of Sciences' Shanghai Institute of Ceramics, will provide Corning with a means of gaining access to the institute's expertise in materials science and technology. (Further details in source: [CAS](#))

Dirac Points Multiply in the Presence of a BEC

The ability to prepare ultracold atoms in graphenelike hexagonal optical lattices is expanding the types of systems in which Dirac dynamics can be observed. In such cold-atom systems, one could, in principle, study the interplay between superfluidity and Dirac physics. In a paper appearing in Physical Review Letters, Zhu Chen at the Chinese Academy of Sciences and Biao Wu of Peking University use mean-field theory to calculate the Bloch bands of a Bose-Einstein condensate confined to a hexagonal optical lattice. (Further details in source: [CAS](#))

Plasma-Assisted Strategy Enables Dense Doping of Nanostructures

Researchers based at the Institute of Intelligent Machines, Chinese Academy of Sciences, are developing a plasma-assisted strategy for densely doping indium to give coral-like SnO₂ nanostructures. Gas sensors based on the materials platform exhibit a high response and good selectivity to chlorobenzene. (Further details in source: [CAS](#))

Advanced High-Speed Bearing Test Rig

A high-speed thrust bearing test rig, developed by Dongfang Electrical Machinery Corporation, was recently put into operation in Deyang City, Sichuan Province. It took more than one year for the developers to work out China's first high-speed thrust bearing test rig featured with a maximum speed of 750 rpm, a maximum load capacity up to 2,000 tons, a maximum test outer diameter of 2,800mm, and a drag motor power at 4,500 kW. (Further details in source: [MOST](#))

Novel Maintenance Coating for Asphalt Surface

A novel asphalt surface maintenance coating material, developed by Qingdao Runbang Chemicals, was recently put into mass production. The new material is a mix of high quality petroleum asphalt, modified and emulsified SBS and EPS, heavy oil liquid, high sulfur carbon, polymer latex, and inorganic calcium wear-resistant materials. The new product can be employed to repair tiny cracks and make them waterproof, while enhancing the wear resistance of the road surface, raising the temperature of the bridge surface, accelerating snow melting, reducing the noise, and making road and bridge surfaces more comfortable for driving. (Further details in source: [MOST](#))

Lubricants for Space Components

Lanzhou Institute of Chemical Physics, part of the Chinese Academy of Sciences, has recently rolled out a silicon hydrocarbon compound, desirable for lubricating the moving parts of space components, thanks to its excellent thermal decomposition and high/low temperature performance. (Source: [MOST](#))

Brazil and China to Set up Nanotechnology Centre in Sao Paulo

The Brazilian government is due this month in china to sign an agreement with the Chinese Academy of Sciences for construction of a nanotechnology centre in Campinas, in the Brazilian state of Sao Paulo, which will be set up in the Brazilian Synchrotron Light Technology Association (ABTLuS). (Further details in source: [CAS](#))

High Performance Metallic Glass

Thanks to many-year efforts, a research team, led by Prof. ZHANG Tao of Beijing University of Aeronautics and Astronautics, has landed major progresses in preparing metallic glass and associated mechanism studies, and rolled out the amorphous alloy materials desirable for making stretching mechanisms for satellite solar cell arrays. Researchers established an amorphous alloy lab for the purpose, through which they discovered a range of novel amorphous alloy systems, and improved their understanding of the mechanisms that forge metallic glass. In addition, they have worked out metallic glass containing light alloy, including aluminum, magnesium, and titanium, enjoying the merits of high strength, low melting point, and fine fluidity, desirable for preparing the parts and components in sophisticated shapes, like plastics. Researchers developed the amorphous alloy materials desirable for making satellite solar array's stretching mechanism. (Further details in source: [MOST](#))

IMECAS Achieves Major Breakthrough in Development of Graphene-Based Electronic Device

Graphene is well acknowledged as potential material that promotes microelectronic technology in academia and industry, for its excellent physical characteristics and compatibility with silicon technology. Breakthrough progress has been made in the field of graphene-based electronic device by the graphene research group in the Microwave Devices and Integrated Circuits Department (Department 4th) of the Institute of Microelectronics of Chinese Academy of Sciences (IMECAS) in August 2011. Graphene-based electronic device with high performance was developed on a new type of graphene material grown separately by the methods of mechanical exfoliation for graphene-based device, epitaxial growth of SiC and chemical vapor deposition (CVD). (Further details in source: [CAS](#))

The Use of Multifunctional Magnetic Mesoporous Core

A research group from Changchun Institute of Applied Chemistry have designed and constructed a multifunctional magnetic core/mesoporous nickel silicate shell heteronanostructure with uniform pore size, controllable shell thickness and excellent magnetism. Compared with previous ligand-modified and organic solvent-consumed reactions, the heteronanoparticles have been fabricated via a simple, economical and green synthetic route, which minimizes the cost and avoids the excessive use of organic solvents. It is expected that this strategy may have important implications in the synthetic route of the core/shell nanomaterials as well as contribute to the future application of nanoparticle-based technologies to biomolecule separation and enrichment. The work was supported by the National Basic Research Program of China and the National Natural Science Foundation of China. (Further details in source: [CAS](#))

First Chinese Ka-band Nitride Semiconductor MMIC

Chinese Academy of Sciences (CAS) researchers have extended their work on gallium nitride (GaN) high-electron-mobility capability in the Ka-band (26.5–40GHz) to monolithic microwave integrated circuits [Wang Dongfang et al, J. Semicond., vol32, p085011, 2011]. The researchers from CAS' Institute of Microelectronics say: "This is, to the best of our knowledge, the first demonstration of domestic [i.e. to China] Ka-band GaN amplifier MMICs." (Further details in source: [CAS](#))

Smart Materials: Strength Control with Nanoporous Gold Material

Hai-Jun Jin at the Chinese Academy of Sciences in Shenyang and Jörg Weissmüller at Technische Universität Hamburg-Harburg in Germany have now exploited surface effects to produce a material in which the strength and ductility can be reversibly controlled by applying an electric field ("A Material with Electrically Tunable Strength and Flow Stress"). "Our study was inspired by the 'size effect', which means that the strength of a solid crystal increases with decreasing sample size, or more specifically, with increasing ratio of surface area to volume," explains Jin. "Also, the surface is exposed to the environment and its properties can be changed using electricity or chemicals." (Further details in source: [CAS](#))

Method for Preparing Extract of *Usnea diffracta* Vain Developed by LICP Researchers

A method for preparing extract of *Usnea diffracta* Vain has been developed by researchers from the Key Laboratory of Chemistry of Northwestern Plant Resources, Chinese Academy of Sciences. They have received a Chinese invention patent for the technique on August 3, 2011. The patent is No. 200710307291.9 received on August 3. (Further details in source: [CAS](#))

Determination of Electronic Structure of Previously Unknown Arsenic Carbide (AsC) Free Radical

The researchers from Institute of Modern Physics, Chinese Academy of Sciences (IMP) investigated the electronic states of arsenic carbide (AsC) free radical together with Professor Dennis J Clouthier from University of Kentucky, USA. The previously unknown AsC free radical has been identified in the gas phase through a combination of laser-induced fluorescence (LIF), single vibronic level emission, and stimulated emission pumping (SEP) spectroscopy in a supersonic expansion. (Further details in source: [CAS](#))

Zigzag-edged Graphene Nanostructures for Future Graphene Electronics

ZHANG Guangyu, a professor of physics at Institute of Physics of the Chinese Academy of Sciences, and his research group observed an anisotropic etching effect in graphene basal plane in 2010 [Advanced Materials 22, 4014, (2010)]. Recently, they creatively combine this effect with standard microfabrication and developed a well-controlled top-down approach to fabricate zigzag-edged graphene nanostructures. This approach consists of two key steps: artificial defects patterning and H-plasma etching. With this approach, they achieved various graphene nanostructures with zigzag edges, such as sub-10-nm wide zigzag-edge graphene nanoribbons (Z-GNRs), graphene superlattice, triangular graphene islands, etc. This approach opens a gateway to experimentally studying the rich properties of zigzag edged graphene nanostructures. Besides, the clean graphene patterning technique, which is compatible with the established semiconductor technology, shows great promise for making future graphene devices or circuits. This work was supported by “100-talent project” in CAS, NSFC and National 973 projects. (Further details in source: [CAS](#))

China’s First Nb₃Sn CICC Superconducting Magnet Developed at CHMFL

A Nb₃Sn CICC superconducting test magnet was developed at High Magnetic Field Laboratory, Chinese Academy of Sciences (CHMFL). This is the first Nb₃Sn superconducting magnet self-developed in China. The testing experiments were carried out inside a background magnet producing 7.5 T central magnetic field in the early morning of July 13, 2011. When test magnet was charged up to 16 KA current, its central field reached 12.1 T. Performances under several operation conditions were also tested, and the results accord with the predictions made earlier. The good DC performance declared the design, material selection and manufacturing processes of the test magnet are successful. (Further details in source: [CAS](#))

Multi-Function Hydraulic Drilling Rig

China’s first large power hydraulic drilling rig designed with versatile functions recently called a success at Chengdu CSR Tunnel Equipment Corporation. The company started to develop the needed technologies and associated equipment in 2009. Researchers worked out a range of solutions to developing high-power and high-frequency impact head, automated fixtures, integrated hydraulic control, and adjustable Cartesian coordinate system. Based on the technologies, researchers rolled out China’s first homemade multi-function full-hydraulic drilling rig. The high-power and rotational impact drilling rig enjoys numerous merits, including track walking and enhanced climbing ability and flexibility. It works with both electricity and diesel as power source, desirable for reducing harmful gas emissions in the tunnel, and for improving the environment of the construction site. The central control unit is a programmable logic controller (PLC) – an automated and scalable module proportional to hydraulic operations. The proprietary core component - power head, is designed with high-impact energy and frequency for an enhanced efficiency. (Source: [MOST](#))

Advanced Seawater Cooling System

"100,000-ton seawater cooling technology and associated equipment development", a project under the National S&T Support Program for the 11th five-year period, has recently passed the experts panel’s approval. To build a seawater cooling system for a 1000MW ultra-high-parameter thermal power generator, researchers have mastered a range of key technologies for preparing seawater cooling chemicals and building a large seawater cooling tower, and completed the construction of two seawater cooling demonstration projects with a capacity of 100,000 ton/hour, and a seawater cooling chemicals producing center with an annual capacity of 3,000 tons. Meanwhile, researchers have prepared “seawater cooling treatment design specifications (GB/T 23248-2009)”, a national standard for the purpose, while working on 12

other national standards and 22 marine industry standards. The effort has led to the establishment of the technical system for China's 100,000-ton seawater cooling system. (Further details in source: [MOST](#))

QIBEBT Develops Nanostructured Mixed Conducting Materials for Energy Storage

The exploration of high-performance electrode materials for electrochemical energy storage system has aroused increasing scientific interests. Professor CUI Guanglei, group leader of Biomimetics Energy and System Group at Qingdao Institute of Bioenergy and Bioprocess Technology and his research group have made a series of progresses in this area. (Further details in source: [CAS](#))

Environment (including climate change)

China soon to issue full plan to reduce carbon

China will soon release detailed plans on ensuring that its goal for reducing carbon intensity from 2011 to 2015 is attainable, and it has started looking at technical options for cutting carbon dioxide emissions after 2020. China has set a target to cut its energy intensity by 16 percent and reduce its carbon intensity by 17 percent from 2011 to 2015. The target is a step in the government's pledge to cut carbon intensity by 40 to 45 percent from 2005 levels by 2020. The National Development and Reform Commission (NDRC) has also begun working out ways to attain further, large-scale reductions of carbon dioxide emissions after 2020. NDRC vice chairman Xie said that China considers carbon capture and storage (CCS) an important technical means of reducing carbon dioxide emissions in the next few decades, and that the country should already be working toward the development of the emerging technology. Despite the challenges, China won't rule out CCS as a key technical option in the future, but its use will depend on its competitiveness and the global demands for emissions reduction, he added. Xie called for international collaboration in research and technology transfers from developed countries. (Further details in source: [China Daily](#))

'Clean energy can help reverse the deserts' advance'

The Chinese government will speed up the development of clean energy and eco-tourism in its spacious desert areas as part of its battle to find innovative and sustainable ways to fight desertification, a senior official said. According to statistics from the State Forestry Administration, about 2.6 million square kilometers are covered in sand, which is more than a quarter of China's total landmass. Despite their appearance, deserts can be full of resources and China should adopt an integrated approach in which it combines ecological improvement with the cultivation of emerging industries, said State Councilor Liu Yandong, who delivered a keynote speech at the Kubuqi International Desert Forum. China's economic growth demands increased energy production but relying too heavily on fossil fuels such as oil and coal is not only unsustainable but will cause a large increase in the emission of carbon dioxide, said Jiang Mianheng, vice-president of the Chinese Academy of Sciences. Western China's vast deserts could be part of the solution to the problem with their potential to produce green energy from solar, wind and bio power, Jiang said. (Further details in source: [China Daily](#))

China to pilot carbon emissions trading project

China will start a pilot carbon emissions trading project, and gradually set up a carbon emissions trading market, said a top official at a major international conference the Eco-Forum Global

(EFG) 2011 in Guiyang, capital of Southwest China's Guizhou province. Xie Zhenhua, vice-minister of the National Development and Reform Commission (NDRC), said China would also speed up the establishment of a standardized system for energy saving and environmental protection, and tighten regulations on identifying and labelling low-carbon products. (Further details in source: [China Daily](#))

Regions pouring billions into water conservation

Local authorities throughout China are intensifying their efforts to conserve water, which experts have seen in the past as a weak point that has damaged the nation's sustainability. The central government pledged in its No 1 document issued at the beginning of this year that it will invest 4 trillion yuan (\$612 billion) in water conservancy during the next 10 years. The No 1 document is a summary of the government's priorities. In the document, the government urged local authorities to set aside 10 percent of their revenue accrued from land sales for farmland water conservation projects. Senior officials estimated that up to 90 billion yuan from the proceeds of land sales could be invested in farmland water conservation projects this year. While experts have applauded the policy, they have also expressed concern about how it might be carried out at the grassroots level. (Further details in source: [China Daily](#))

Regional plan to strengthen anti-pollution campaign

A senior environmental official has revealed that the capital, Tianjin and Hebei province will establish a long-term joint project to clean up air pollution. Official statistics show 30 percent of Beijing's atmospheric pollutants are transferred by airflow into the city from other provinces and regions. "As they are spread by wind, pollutants don't distinguish administrative divisions from one another," said Wang Dawei, director of the atmospheric environment management office of Beijing environmental protection bureau. "Currently, our most urgent need is to unify the emission standards in the three regions." He explained that although Beijing follows a high emissions standard, its neighbors have simply applied the national standard rather than set stricter measures. Over the next five years, the government aims to lower emissions of oxynitrides by 12.3 percent and ammonia nitrogen by 10.1 percent, in addition to reducing sulfur dioxide by 13.4 percent and chemical oxygen demand by 8.7 percent. (Further details in source: [China Daily](#))

4th CSLF Ministerial Meeting to be Held in Beijing this September

Approved by the State Council, the 4th Ministerial Meeting of Carbon Sequestration Leaders Forum (CSLF) co-organized by MOST and National Development and Reform Commission (NDRC) will be held in Beijing from September 19th to 23th. Founded in 2003, CSLF acts as a ministerial-level multilateral mechanism for promoting cooperation between member countries and the international community in the field of carbon capture and storage (CCS). This meeting will help to enhance the foreign exchange and cooperation in carbon capture, utilization and storage (CCUS) technology and promote the R&D and demonstration in China. The activities include a ministerial meeting, policy group meeting, technical group meeting, etc. (Source: [MOST](#))

NSF-NSFC Joint Program “Dimensions IRCN: Diversity and Forest Change” launched in China

The NSF-NSFC joint program “Dimensions IRCN: Diversity and Forest Change: Characterizing functional, phylogenetic and genetic contributions to diversity gradients and dynamics in tree communities” was officially launched at the Institute of Botany, Chinese Academy of Sciences

on July 27th, 2011. The program is jointly supported by the US National Science Foundation (NSF) and the National Natural Science Foundation of China (NSFC). It has great significance from the perspective of the importance of forest ecosystem and the environmental problems. The program will also boost our understanding of forest biodiversity, thus increase knowledge and protection of the ecosystem function, and the responses of ecosystem functions to climate change. (Further details in source: [CAS](#))

China conducts scientific survey in South China Sea

China conducted a scientific survey of the southwest basin of the South China Sea around the end of July, the China Geological Survey (CGS) said. The expedition acquired a "high-quality integrative geographic profile" of the basin's 1,000-km-long survey line, which stretches from the region's Xisha Islands to the Nansha Islands, according to a press release from the CGS. The expedition allows scientists to study the evolution of tectonic activity in the South China Sea and predict disasters such as earthquakes and tsunamis, the CGS said. (Further details in source: [Xinhua net](#))

Experts warn of fragile sea environment

Following the continuing oil leak in Bohai Bay, experts warned that fast offshore development is polluting China's fragile sea. With marine economy becoming another engine for the country's economy in the 12th Five-Year Plan (2011-2015), coastal provinces and municipalities are going full speed in their offshore development plans. "Offshore development is going too fast, and it ignores the marine capacity for human activities, especially land reclamation from the sea and offshore oil and gas exploration," Sun Baocun, marine professor from Tianjin University, told China Daily. According to the general plan for land reclamation from the sea of the State Oceanic Administration in 2011, the permitted area in Liaoning is about 3,000 hectares while the planned area of the province's six coastal cities reached 100,000 hectares. (Further details in source: [China Daily](#))

China releases bees to curb American moth plague

Forestry authorities in north China's city of Baoding released 600 million bees this month to kill off American white moths, which have plagued large areas of crops and forests. White moth infestations have been detected on 20,000 hectares of farmland and forests in the city so far this year, said Duo Jianguo, head of the Baoding forest epidemic prevention station. He said that this year marks the fifth year in a row that authorities have used bees to kill the moths, as they are an effective and environmentally friendly form of pest control. The bees use their stingers to bore into white moths' pupa and kill their larvae. The bees have been previously used to eliminate moth infestations in the provinces of Hebei and Shandong. (Further details in source: [Xinhua net](#))

USTC Researcher Advances in Research on Tropical Climate Change

A group of scientists led by Prof. SUN Liguang, from the Institute of Polar Environment, School of Earth and Space Sciences, University of Science and Technology of China (USTC) reconstructed variations of the Southern Oscillation Index (SOI) over the past two millennia and found that changes of SOI are significantly correlated to the solar irradiance and Northern Hemisphere climate. The paper entitled "A record of the Southern Oscillation Index for the past 2,000 years from precipitation proxies" by YAN Hong (Ph.D student of Prof. Sun) et al. was published in Nature Geoscience on August 14, 2011. (Further details in source: [CAS](#))

China to set stricter emission standards for thermal power plants

China's environmental authorities are mulling over stiff new emissions standards for thermal power plants amid concerns that they may increase costs and lead to more losses. The new standards, consistent with an earlier version issued in January, will be released for public consultation in late August, according to the Ministry of Environment Protection. In the latest version, the nitrogen oxide emission cap limit will be cut by half to 100 milligrams per cubic meter for thermal plants with denitration facilities or designed to have such facilities. Sulfur dioxide emissions is limited to 100 milligrams per cubic meter for newly-built thermal plants. The new version will add emission standards of air pollutants and mercury emissions in key areas, according to the ministry. (Further details in source: [Xinhua net](#))

Nitrogen Fixation in Biological Soil Crusts from the Tengger Desert

Nitrogen fixation is widespread in desert ecosystems. To date, desert nitrogen fixation has been studied mainly in arid areas which are located at the margins of deserts, while the knowledge on desert soil micro-organisms remains fragmentary, especially in the biological soil crusts in arid and semiarid areas. The nitrogen fixation functions of biological soil crusts (BSCs) have recently been recognized as an important N source in arid and semiarid regions. The researchers from Key Laboratory of Biogeography and Bioresource in Arid Land, Xinjiang Institute of Ecology and Geography, and Shapotou Desert Research and Experiment Station, Cold and Arid Regions Environmental & Engineering Research Institute, Chinese Academy of Sciences, used the ecological, chemical and statistical methods to study the nitrogen fixation in BSC. This study was supported by the National Natural Science Foundation of China (41001067, 40930636 and 40825001). The related paper was published in European Journal of Soil Biology, 2011, 47(3): 182-187. (Further details in source: [CAS](#))

Research on Global Carbon Emission and Sequestration Published in Science (journal)

The terrestrial ecosystem removes CO₂ from the atmosphere via photosynthesis and plays an important role in balancing the CO₂ density in the atmosphere and slowing down the rise of global temperature. It is an effective approach for us to tackle the global climate change and all countries in the world have attached great importance to researches on ecosystem carbon sequestration. On July 14, 2011 the world-renowned Science (journal) published an online research article in "Science Express", introducing the findings of an international research group about the global carbon emission and sequestration which will produce significant influence on researches on climate change as well as the international climate change policies. (Further details in source: [NSFC](#))

Energy

China's H1 power consumption up 12.2%

China's National Energy Administration (NEA) announced that the country's total electric power consumption in the first half of the year rose 12.2 percent from a year earlier to 2.25 trillion kilowatt-hours (kwh). During the first half, power consumption in the primary industry rose 5.9 percent to reach 47.5 billion kwh; power use in the secondary industry totaled 1.6961 trillion kwh, up 11.9 percent; consumption in the tertiary industry surged 15.3 percent to reach 238.4 billion kwh. Power use by the secondary industry during th period accounted for 75.3 percent of the total power consumption, with heavy industries using 1.3932 trillion kwh of power, taking up nearly 62 percent of the nation's total power use. Meanwhile, consumption by residents in

both urban and rural areas rose 12.5 percent to 269.6 billion kwh. Newly built power-generation capacities during the period reached 34.78 million kilowatts, of which 6.24 million kilowatts was hydro-generated and 23.31 million was coal-fire generated. (Further details in source: [China Daily](#))

Switch flicked at experimental fast reactor

China's first experimental fast reactor located in the southwest suburbs of Beijing started to supply electricity. A press officer with the Beijing Electric Power Company, who declined to be identified, confirmed to China Daily that her company was transmitting power generated by the fast reactor. In March, Xu Mi, the leading expert on fast reactor technology at the China National Nuclear Corporation, disclosed to China Daily in an exclusive interview that the fast reactor would start operation in late June, producing a maximum of 8 megawatts. The schedule was pushed back more than 20 days because the steam turbine in the power generator was reset. "Although the power produced by our fast reactor does not contribute very much to the overall electricity supply, it has its significance in terms of technological achievements," Xu said. China is the eighth country in the world to successfully test a fast reactor and use it to produce power, following the United States, Russia, France, Britain, Germany, Japan and India. Unlike a traditional nuclear power plant, a fast reactor is more efficient in using uranium and minimizing nuclear waste. (Further details in source: [China Daily](#))

China's experimental fast neutron reactor begins generating power

China's first experimental fast neutron reactor began, for the first time, generating electricity that goes into the grid, general manager Sun Qin of the China National Nuclear Corporation (CNNC) announced. The success of the program, dubbed as China Experimental Fast Reactor, is regarded as the first stage for the country to develop its fast neutron breeder reactor, according to a press release by the CNNC. The experimental fast neutron reactor, with a nuclear heat power of 65 megawatts and a power-generating capacity of 20 megawatts, is among a few experimental, power-generating fast reactors in the world, according to the company. The reactor is similar, in terms of layout and reference, to a large fast reactor power plant, while its safety requirements have reached those of a fourth-generation nuclear power plant. (Further details in source: [Xinhuanet](#))

Nuclear Collision in Strong Magnetic Field

Recently, the researchers in Institute of Modern Physics, Chinese Academy of Sciences (IMP) have investigated the nuclear collision in strong magnetic field. It is found that neutrons and protons can be separated from a nucleus in strong magnetic field and neutron-rich high density nuclear matter and low density proton collectivity matter can be formed during nucleus–nucleus collisions. The condition of strong magnetic field may exist in the universe, such as white dwarfs, neutron stars, and accretion disks around black holes, and the maximum value of magnetic fields in the universe may reach 1020–1042 G. And with the rapid development of laser technology, obtaining strong magnetic field artificially in terrestrial laboratory also may be possible. (Further details in source: [CAS](#))

Scientists in China detect neutrino hoping to solve antimatter mystery

Scientists in a lab with Daya Bay Nuclear Power Station in southern Guangdong Province have found neutrino through two detecting instruments, which is likely to provide clues to solving the mystery of why there is more matter than antimatter in the universe. The Institute of High Energy Physics with the Chinese Academy of Sciences announced the breakthrough that was

achieved by more than 250 researchers from six countries and regions. Scientists from the Chinese Academy of Sciences and the U.S.-based Brookhaven National Laboratory and the Lawrence Berkeley National Laboratory started the underground neutrino experiment in 2006. Kam-Biu Luk, spokesman for the laboratory, said that the results of the experiment would further shed light on the evolution of basic matter after the Big Bang. The neutrino experiment in the Daya Bay is one of the largest cooperation projects with regards to basic research between China and the United States. Among the participants of the experiment are Russia, Czech Republic, and China's Hong Kong and Taiwan regions. (Further details in source: [Xinhua net](#))

Nuclear industry's growth to slow

The expansion of China's nuclear power industry will slow from the rapid rate of the 11th Five-Year Plan (2006-2010), but the country should avoid drastic changes in nuclear development policies, said a former head of the National Energy Administration. "China's nuclear industry base is still weak and we must ensure development stability and consistency," Zhang Guobao, who also serves on the Chinese People's Political Consultative Conference, said in a speech posted on the website of the China Nuclear Energy Association. China will have 42 gigawatts (gW) of nuclear capacity by 2015, equal to 3 percent of total installed power capacity, according Zhang said. After the accident at Japan's Fukushima nuclear complex caused by the massive March earthquake and tsunami, China's State Council said on March 16 that it would suspend approvals of new nuclear power stations and order comprehensive safety inspections at all nuclear plants, including those under construction. The inspection concluded in early August. No information on the inspections has been released so far. China hasn't approved any new projects so far this year and the industry's development will slow compared with the past five years, said Zhang. Work on four previously approved plants, which hasn't yet started, was also halted by the safety inspections. (Further details in source: [China Daily](#))

Seminar on Thorium-based Power Held in Beijing

The Department of High and New Technology Development and Industrialization of MOST held a seminar on thorium-based nuclear power in Beijing. The academicians and experts from both research institutes and enterprises attended the meeting and had in-dept discussion on China's development of thorium-based nuclear power and the utilization of thorium resources. (Source: [MOST](#))

2011 Sanya International CSP Forum Held in Hainan

As one of the sponsors, the Department of High and New Technology Development and Industrialization of MOST, held the 2011 Sanya International Solar Thermal Power Technology Forum (Sanya International CSP Forum) from August 16th to 18th in Sanya of Hainan Province. This event attracted over 400 experts, scholars and entrepreneurs from China, America, Spain and other countries. Since being launched in 2007, the Sanya International CSP Forum has become an important annual event for Asia in the area of solar thermal power. At this year's forum, participants exchanged ideas on a wide range of areas, including technological progress, economic and industrial policies, investment and financing of CSP. Providing an important platform for the international exchange on CSP, the forum is of great significance to promote CSP in China. (Source: [MOST](#))

IPE Clean Production Technologies Industrialized

The industrialization fruits of clean production technologies including sub-molten salt method and a novel technology of low-temperature electrolytic aluminum developed by the Institute of

Process Engineering, Chinese Academy of Sciences (IPE-CAS) were demonstrated at the “2011 Henan Industry and Technology Transfer Cooperation Conference” held in Zhengzhou city, Henan province from Aug. 26 to 28. The sub-molten salt method for chromic salt clean production opened up the door of industrialization with high efficiency, low energy waste and zero emission. The technology was developed by Associate Prof. XU Hongbin and his research team from IPE. The research group focused on the mechanism of action and regulation disciplinary of sub-molten salt unconventional medium. They had established the sub-molten salt clean metallurgy theory and the technological platform for multiple metalloid mineral resources. (Further details in source: [CAS](#))

Transport (including aeronautics)

High-speed train breaks down again

A northbound train on the newly opened Beijing-Shanghai high-speed line broke down, the third such incident when services were disrupted by power outages. The Beijing railway bureau said on its official micro blog that the train encountered "a sudden malfunction and could not operate normally". Passengers had to take a back-up train, which arrived at Beijing South Railway Station at about 5 pm, two and a half hours behind schedule, the bureau said. The glitch did not delay other trains running on the 1,318-km line. (Further details in source: [China Daily](#))

58 trains suspended after E China train crash

The operation of 58 trains was suspended after a train collision and derailment in east China's Zhejiang province killed at least 35 people and injured more than 200, railway authorities said. The Ministry of Railways said the damaged train tracks are under repair, with service expected to be resumed. The derailment occurred near the city of Wenzhou. High-speed train D301 rear-ended bullet train D3115, which allegedly lost power after being hit by lightning. Four of the D301's coaches fell off an elevated bridge, while two of the D3115's coaches were derailed. (Further details in source: [China Daily](#))

Railway cuts bullet trains from schedule

China's railway authority is about to suspend two pairs of bullet trains on part of the Beijing-Shanghai high-speed railway because of their low occupancy rate. Two shuttle trains to Jinan, in Shandong province, one from Beijing, the other from Tianjin, will be "temporarily halted", according to a notice on the Tianjin Railway Station's website. This is the first time railway authorities have announced a reduction in service since the flagship 1,318-kilometer Beijing-Shanghai railway, the world's longest fast track, opened late last month. "The adjustment is aimed at reducing the unnecessary waste of resources", an official at the publicity department at Beijing railway bureau, who declined to give her name, told China Daily. She said that the seat occupancy rate of the two trains is less than 80 percent, lower than the railway authority's required rate. (Further details in source: [China Daily](#))

Bullet trains told to reduce speed



China has decided to lower the operating speed for its bullet trains due to safety concerns amid an overhaul of the high-speed rail system. The decision, made by an executive meeting of the State Council presided over by Premier Wen Jiabao, came after a bullet train crash last month in which 40 people died and nearly 200 were injured. The decision is a signal that China is slowing its ambitious high-speed rail program, which has put the country in the same league as Japan and Europe in terms of high-speed rail

development, experts said. The country also decided to reevaluate the safety systems of rail projects that have been approved but yet to start construction, and to suspend the examination or approval of newly proposed projects. According to the Ministry of Railways, during the initial stages, trains with a top design speed of 350 kilometers per hour will be lowered to 300 km/h, and the trains designed to run up to 250 km/h will operate at 200 km/h. (Further details in source: [China Daily](#))

Digital Platform for Large Aircraft

At a forum held on July 28, 2011 to discuss space and aviation related information technology, people showed great interest in the development of Chinese made large aircraft C919. According to a briefing, a digital environment platform (IDEAL platform) has been established for C919 model, allowing C919 parts and materials suppliers, airworthiness authorities, designers, and users to work together under the same system for synergistic development, concurrent engineering, and off-site inspection. C919 has, from the detail design stage, invited the involvement of international airworthy certification bodies. The IDEAL platform is established to facilitate the monitoring of project progress, in a bid to fence off the possible accidents caused by design defects. (Source: [MOST](#))

China to export first light rail train to Turkey

China will soon send its first shipment of domestically produced light rail trains to Turkey in its first foray into the European train market, the People's Daily newspaper reported. The light rail trains were manufactured by China's CSR Zhuzhou Electric Locomotive Co., Ltd., rolling off of assembly lines this week. They will go into service in Izmir, Turkey's third-largest city, the newspaper said. The company sees the Turkish light rail project as its first step into the European market, and it is confident that it will be able to provide high-tech railway technologies and services to other countries and regions. (Further details in source: [China Daily](#))

China recalls 54 high-speed trains amid safety overhaul

China CNR Corp Ltd (CNR) will recall 54 high-speed trains used on the Beijing-Shanghai high-speed railway over safety concerns, the company said in a statement released. The Shanghai-listed train manufacturer said in the statement posted on the Shanghai Stock Exchange's website that it has asked the Ministry of Railways for approval to recall 54 of its high-speed CRH 380BL trains. The Beijing-based company previously decided to suspend the delivery of its CRH 380BL trains, as the company has stated that the trains have flaws in their automatic braking systems. (Further details in source: [China Daily](#))

New maglev line to connect western Beijing

The country's first medium-low speed maglev line using Chinese technology is scheduled to launch in Beijing before March 2013, a chief project scientist has revealed. "We're facing a tight timetable as we plan to try the first maglev train on the line by October 2012," Chang Wensen, China's chief project scientist for maglev technology and professor of the National University of Defense Technology, told China Daily. The medium-low speed S1 Line will make China only the second country, after Japan, to have such a line, said Chang, who led the research team that developed the magnetic levitation, or maglev, technology. As one of eight rail transit lines under construction in Beijing designed to form an urban transit network and help ease traffic gridlock, the S1 Line will extend from the western Mentougou district to Pingguoyuan subway station, the western terminal station of Line 1. Construction is expected to cost about 6 billion yuan (\$1 billion). (Further details in source: [China Daily](#))

More high-speed trains slow down to improve safety

More high-speed trains will slow down starting to increase safety, rail authorities said. The announcement comes as media disclosed new problems with one model of the high-speed train. Rail authorities said that the last 350 km/h rail service between Shanghai and Hangzhou will slow to 300 km/h starting Aug 28. Seven other lines that had operated at 250 km/h will now go 200 km/h. Three railways slowed down and the number of trains on the Beijing-Shanghai high-speed railway was reduced from 88 pairs a day to 66 pairs a day, because China North Locomotive and Rolling Stock Corp Ltd (CNR), one of China's two major train manufacturers, recalled 54 CRH380BL trains. (Further details in source: [China.org](#))

China-made civilian helicopter hits new heights

China's domestically developed civilian freight helicopter, the AC313, successfully climbed to a height of 8,000 meters, an altitude that will enable the chopper to fulfill plateau missions. The AC313, developed and manufactured by the Aviation Industry Corporation of China (AVIC), hit its highest altitude to date during a trial flight on Sept. 2 at Gonghe Airport in northwest China's Qinghai Province, AVIC said in a statement. (Further details in source: [Xinhua net](#))

China's aircraft fleet to triple by 2030

China's aircraft fleet will more than triple in size by 2030, as a result of the country's fast economic growth, growing trade activity and increasing personal wealth, China Daily reported. China will need 5,000 new commercial airplanes worth at \$600 billion over the next 20 years, the English newspaper said, citing a report released by the US aircraft manufacturer Boeing. (Further details in source: [Global Times](#))

Socioeconomic sciences and the Humanities

Family planning policy to focus on quality of life

A major shift in China's family planning policy will result in a greater focus on population management than on quantity control, to improve people's quality of life, a leading official Li Bin, minister of the National Population and Family Planning Commission at an international event to mark World Population Day. "The ongoing shift is significant and revolutionary," Zhao Baige, vice-minister of the commission, told China Daily. "We have to innovate in both our

population strategy and its implementation" to tackle such emerging problems as urbanization, an aging population and declining fertility rates, she said. (Further details in source: [China Daily](#))

Protection of human rights gets big boost

Chinese officials have hailed the country's improvements in curbing forced confessions and other illegal means of obtaining testimony as examples of the country's achievements in protecting human rights. Xiong Xuanguo, vice-president of the Supreme People's Court, said the courts at all levels nationwide heard 81 cases involving forced confessions and five cases of obtaining testimony through violence in 2009 and 2010, after the supreme court outlawed forced testimonies via a new regulation. Xiong said the upholding of the principle of evidentiary adjudication and the prohibition of forced confessions were among steps taken to protect the rights of detained people. The Criminal Procedure Law, however, still approves the use of self-incriminating testimony in court, a primary contributor, say critics, to forced confessions and an item being widely urged for amendment. Bi Xiqian, a professor of criminal investigation at the Chinese People's Public Security University, said at a forum that 20 out of the 25 misjudged cases involved forced confessions. Bi added that prosecutors' supervision of criminal investigations were also insufficient. Tian Wenchang, director of the criminal committee of the All China Lawyers Association, told China Daily the Criminal Procedure Law, which will "very likely" be amended this year, may give suspects immunity from testifying against themselves, a major move in human rights protection. (Further details in source: [China Daily](#))

China amends laws for ratification of ICCPR

China has amended laws to prepare the ground for the ratification of the International Covenant on Civil and Political Rights (ICCPR), according to a report issued by the Information Office of the State Council, or China's cabinet. China is carrying out legislative and judicial reforms. It amended the Law on Lawyers and the Law on State Compensation to prepare the ground for the ratification of the International Covenant on Civil and Political Rights, says the report titled Assessment Report on the National Human Rights Action Plan of China (2009-2010). (Source: [China Daily](#))

Growth eases fears of hard landing

The economy grew 9.5 percent in the second quarter, beating expectations and easing concerns over a hard landing amid tight monetary policies targeting high inflation. The growth rate was higher than the 9.3 percent predicted by many economists. Other indicators also point to a soft landing for the economy. Gross domestic product (GDP) rose 9.7 percent year-on-year in the first quarter and 9.8 percent in the fourth quarter of last year. The figure for the first half of this year stood at 9.6 percent. The consumer price index (CPI), a key inflation gauge, rose 6.4 percent in June, recording a three-year high. Premier Wen Jiabao said that maintaining price stability remains the top priority, and the government will stick to macro-control policies. According to Duncan Freeman, senior researcher with the Brussels Institute of Contemporary China Studies, the European downturn will hurt China's exports as consumer spending will be curtailed. (Further details in source: [China Daily](#))

Workforce to peak in 2013

The number of Chinese who are in their working years will peak in 2013 and then decline afterward, according to a recent report by Allianz, a leading German financial group. That finding provides further evidence that the Chinese population is getting older on average and that good reasons exist to loosen the country's family-planning policy. The national policy,

which has been in place since the late 1970s, restricts most urban couples to having a single child. "If China sticks to its current retirement age, the consequences of the one-child policy will be felt on the labor market from 2013 onward," said Michael Heise, chief economist and head of corporate development at Allianz. By 2013, the number of people between the ages of 15 and 59 in China will peak at around 920 million, the Allianz report showed. (Further details in source: [China Daily](#))

Academics talk about religion and law

A summer training program on religion and the rule of law is held in Beijing. The two-week program started on July 18. Topics discussed during the program include religious legislation, politico-religious relationship, and the non-governmental organizations in modern society. A total of 12 experts in the fields of law and religion from six countries are invited to speak in the sessions. "These are all hot topics frequently discussed in the academic field," said Liu Peng, a researcher of religions in the United States in the institute of American studies under the Chinese Academy of Social Sciences, and also director of the Pu Shi Institute for Social Science. He said the program aims at improving the theoretical attainment in religious legislation among law and religious professionals, as well as the government administration sections, so as to promote religious legislation in the country. "The rule of law is the best help for the freedom of faith," he said. Liu's institute, coupled with the Center for Constitutional and Administrative Law in Peking University, sponsored the program. The program enters its second year this summer. (Source: [China Daily](#))

Middle class to dominate cities by 2023

Half of city dwellers in China will be part of the middle class by 2023, according to estimates from the country's think tanks. Based on data from 2000 to 2009, researchers calculated that 37 percent of city dwellers were part of the middle class in 2010. That percentage is expected to surpass 45 percent in 2019 and exceed 52 percent in 2025, said Zhang Lifeng, a researcher with the Chinese Academy of Social Sciences. The annual report on the urban development of China, or Blue Book of Cities in China, was released by the Chinese Academy of Social Sciences. It defines the middle class by the amount of money a person spends on food as a percentage of total spending. (Further details in source: [China Daily](#))

Beijing Enjoys Highest GDP Quality

The Chinese Academy of Sciences published the country's first quality assessment system for GDP. The assessment system rated the 2010 GDP for 31 provinces by their contribution to local economic growth, social development, environmental quality, people's living standards and government management. After rating the five criteria, the researchers calculated a final score for each province's GDP, with Beijing scoring the highest and the Ningxia Hui autonomous region the lowest. (Further details in source: [CAS](#))

Draft may expand lawsuits against government

Chinese people may soon be able to challenge unreasonable administrative legislation - which is currently excluded from the scope of court hearings - in an attempt to ease intensified relations between officials and the public, a legal expert said. Wang Xixin, a law professor at Peking University and contributing researcher of China's top legislature, told China Daily that related departments have started to draft the amendment to the Administrative Litigation Law, which will very likely add government regulations such as urban planning to the scope of judicial hearings. "In addition, the Chinese government has to honor promises it made in the World

Trade Organization Accession Protocol in 2001, when China agreed to establish an impartial and independent judicial body to review all the WTO-related administrative actions," he said. (Further details in source: [China Daily](#))

China becoming even more male

Census figures show an increasingly imbalanced sex ratio at birth on the Chinese mainland, Deputy Health Minister Liu Qian said at a news conference. However, Liu did not respond to a reporter's question about whether or when China will relax its family planning policy to curb the imbalance. China's sex ratio at birth was 118 males for every 100 females in 2010. The number of males for every 100 females has risen consistently every decade from 108 in 1982, 111 in 1990 and 116 in 2000. A traditional preference for sons and the abuse of medical technology such as illegal sex-selective abortion and other factors has led to the situation, he said. The government has taken a series of measures to address the problem, including improving the country's social security system and harshly cracking down on sex-selective abortions, Liu said. (Further details in source: [China Daily](#))

118
The number of males at birth
for every 100 females in China
in 2010

Space

China launches new data relay satellite

China blasted off a new data relay satellite "Tianlian I-02" at the Xichang Satellite Launch Center in southwest Sichuan Province. The satellite was launched on a Long March-3C carrier rocket at 11:41 p.m. (Beijing Time), said sources with the center. Developed by the China Academy of Space Technology under the China Aerospace Science and Technology Corporation, the satellite is the country's second data relay satellite. China launched its first data relay satellite "Tianlian I-01" on April 25, 2008. The two satellites will form a network to offer data relay and measurement and control service for China's spacecrafts and planned space stations, according to the center. They will also be used to help perform the nation's first space docking, scheduled for the second half of 2011. (Further details in source: [Xinhuanet](#))

Conductively-cooled, High-energy, Single-frequency Diode Pumped Slab Laser for Space Applications

It is well known that for the air-based and space-based lasers, a higher efficiency means decreasing the required power and waste heat removal that the satellite must accommodate and the energy resources on the satellite is limited. Higher repetition rate and high pulse energy, narrow pulse width can provide faster data acquisition and an adequate higher signal-to-noise ratio. Conductively-cooled high repetition rate, high efficiency and high pulse energy with high beam quality laser output were the trends of the lasers used for air-based and spacebased environments. Researchers at Shanghai Institute of Optics and Fines Mechanics (SIOM/China) have been developed and demonstrated a laser-diode-pumped high efficiency, high pulse energy and single-frequency oscillator and amplifier for potential space environment applications using conductively-cooled heat removal. [APPLIED PHYSICS B-LASERS AND OPTICS.103(4),809-812,2011] (Further details in source: [CAS](#))

China launches 9th orbiter for global navigation

China successfully launched an orbiter into space at 5:44 am Beijing Time on 27 July, as a part of its indigenous satellite navigation and positioning network known as Beidou, or Compass system, sources with the launch center said. China started to build up its own satellite navigation system to break its dependence on the US Global Positioning System (GPS) in 2000. The network will provide satellite navigation, time and short message services for Asia-Pacific regions by 2012 and global services by 2020. (Further details in source: [China Daily](#))

China launches another experimental satellite

China launched an experimental orbiter into space from the Jiuquan Satellite Launch Center in northwest China's Gansu Province on 29 July. The SJ-11-02 orbiter was sent into space at 3:42 p.m. by a Long March II-C carrier rocket, according to the launch center. The orbiter belongs to the country's Shijian satellite family. The orbiter, developed by China Space Co., Ltd. under the China Aerospace Science and Technology Corporation, will be used to conduct scientific experiments in space, the company said. The launch marked the 142nd flight for the Long March rocket family. (Source: [Xinhua net](#))

Int'l Astronomical Union congress to be held next year in Beijing

About 3,000 astronomers will get together in Beijing in August 2012 to attend the 28th congress of the International Astronomical Union (IAU). The China Astronomical Society representing China won the bid to host the congress for the first time at the 26th congress in Prague four years ago. The 12-day Beijing congress will include eight large academic seminars, 25 small-scale symposiums, four lectures, as well as elections for the new IAU leadership. (Further details in source: [Xinhua net](#))

Space Technology for World Heritage Protection

July 24, 2011, UNESCO inaugurated the establishment of the world's first space technology based world heritage research and training institution at an inaugural meeting held in Beijing. The UNESCO International Centre on Space Technologies for Natural and Cultural Heritage is designed to provide technical support to the monitoring, protection and management of the world heritages on the soils of UNESCO members, taking advantage of the space and earth observation strength of CAS Earth Observation and Digital Earth Center. (Further details in source: [MOST](#))

China to launch civil survey satellite late this year

China will put into space a high-definition civil survey satellite, the first of its kind in the country, at the end of this year, said an official of the National Administration of Surveying, Mapping and Geoinformation. The map will provide geographic information for the country's water conservancy, transportation, energy and telecommunication projects, the administration said in a statement. (Further details in source: [Global Times](#))

China, Bolivia launch telecom satellite project

China and Bolivia jointly launched a communications satellite project that will be completed within three years. According to the deal signed on Dec. 13, 2010 between the Bolivian state-run space agency and China Great Wall Industry Corporation, a subsidiary of China Aerospace Science and Technology Corporation (CASTC), Bolivia will have its first communications satellite by the end of 2013 or the beginning of 2014. Once completed, the satellite will be launched at Xichang Satellite Launch Center in southwest China's Sichuan Province and is

expected to provide telecommunication services in Bolivia and support the country's educational and medical initiatives. (Further details in source: [Xinhua net](#))

Int'l Astronomical Union congress to be held next year in Beijing

About 3,000 astronomers will get together in Beijing in August 2012 to attend the 28th congress of the International Astronomical Union (IAU). The Chinese Academy of Sciences (CAS) and the China Association for Science and Technology said the 28th congress will be held from August 20 to 31. The China Astronomical Society representing China won the bid to host the congress for the first time at the 26th congress in Prague four years ago. The 12-day Beijing congress will include eight large academic seminars, 25 small-scale symposiums, four lectures, as well as elections for the new IAU leadership. (Further details in source: [Xinhua net](#))

China launches communications satellite for Pakistan

China launched a communications satellite PAKSAT-1R for Pakistan. A Long March-3B carrier rocket carrying the communications satellite PAKSAT-1R blasts off from the Xichang Satellite Launch Center in Southwest China's Sichuan province, August 12, 2011. The satellite was carried by a Long March-3B carrier rocket, according to the launch center. It is China's first in-orbit delivery to Asian customers and also the first commercial satellite export to international users this year. According to statistics from the control center, the satellite successfully separated from its carrier rocket and entered geostationary transfer orbit as scheduled, 26 minutes after being launched. (Further details in source: [China Daily](#))

China launches maritime satellite

A Long March-4B carrier rocket lifted off carrying a maritime satellite at the Taiyuan Satellite Launch Center in North China's Shanxi province on August 16, 2011. The orbiter, Haiyang-2, is for the supervision and survey of maritime environment and will be an important tool for the prevention and reduction of maritime disasters. (Source: [China Daily](#))

Chinese orbiter fails to enter designated orbit due to rocket malfunction

China's experimental orbiter SJ-11-04, which was launched by a Long March II-C rocket failed to enter the designated orbit due to a malfunction of the rocket. The rocket experienced malfunction during the flight following its launch from Jiuquan Satellite Launch Center at 5:28 p.m. Beijing Time in northwest Gansu Province. The specific cause of the failure is being analyzed. (Source: [Global Times](#))

Space lab prototype blasts off



As a prelude of a multiphase construction program aimed at building China's own large space station around 2020, the Tiangong-1 space lab prototype is scheduled to blast off in early September as a test-bed for experiments related to space rendezvous. According to the China National Space Administration (CNSA), Tiangong-1 is an eight-ton-class space lab prototype with a cylinder-shaped body and two docking ports on its ends. Its diameter is wider than the Shenzhou series

spacecraft. (Further details in source: [People](#))

China completes 1:50,000 national map database for geographic information

China announced that its mapping scientists have finished a 1:50,000-scale map database for comprehensive geographic information. The database will provide essential geographic reference to China's economic and social development, said an official with National Administration of Surveying, Mapping and Geoinformation at a press conference held by the State Council's Information Office. (Source: [Xinhua net](#))

Second dawn for lunar probe

China's second lunar probe, Chang'e-2, has reached an orbit 1.5 million kilometers from Earth for an additional mission of deep space exploration, the State Administration for Science, Technology and Industry for National Defense announced. It arrived at what is called a Lagrangian point, where it will stay till the end of next year to conduct scientific observations and test deep space tracking and control capability for future possible explorations of Jupiter and the poles of the Sun, experts said. (Further details in source: [China Daily](#))

China reschedules launch of unmanned space module

Chinese scientists have decided to reschedule the launch of the Tiangong-1, an unmanned space module, due to the failed launch of an experimental orbiter, a spokesperson with the project said. The decision to delay the launch was based on the consideration that the carrier rocket Long-March II-F, which would be used for the upcoming launch, belongs to the same series as the malfunctioning one that led to the experimental orbiter SJ-11-04 failing to enter Earth's orbit in August. (Further details in source: [Xinhua net](#))

32nd International Cosmic Ray Conference Held in Beijing



(<http://icrc2011.ihep.ac.cn/>). The conference covered a wide range of topics in cosmic ray studies. As was expected, solar and heliospheric phenomena (SH session), cosmic ray origin and galactic phenomena (OG session), high energy phenomena (HE session) were still hot spots and attracted most of the attendees. 7 invited review talks and 15 highlight talks were delivered at the plenary sessions. About 450 oral talks and 600 posters were presented. (Further details in source: [CAS](#))

Atlas of the Milky Way Leads to Discovery of Two Supernova Remnants

After almost ten years of work, researchers at the Max Planck Society and the Chinese Academy of Sciences have completed their investigation into the polarised radio emission in the galactic

plane. The atlas is based on observations undertaken with the 25-metre radio telescope in the Chinese city of Urumqi and shows an area of 2,200 square degrees of the sky. (Further details in source: [CAS](#))

Satellites improve disaster monitoring efficiency in China

Two small disaster monitoring satellites, launched in 2008, have allowed China to more rapidly monitor natural disasters with greater range, said the National Commission for Disaster Reduction. Since the two satellites were put into operation in November 2008, they have provided government agencies with disaster information three to six times faster than previously, said a statement from the commission office. In addition, the monitoring range has been expanded ten times beyond the previous range, the statement said. The two satellites, the first of their kind launched by China, are equipped with optical, infrared and hyperspectral sensors. Over the past three years, they have been under stable operation, providing data for damage assessments to guide rescue and reconstruction work in more than 70 natural disasters, the statement said. They also monitored the situation of 15 disasters abroad, including the devastating Haiti earthquake in 2010, it said. (Further details in source: [Xinhua net](#))

Malfunction at devices connection blamed for orbiter launch failure

China Aerospace Science and Technology Corporation said that malfunction at connection between devices of rocket led to the orbiter launch failure. Investigation result showed that malfunction of the Lang March II-C rocket resulted as connection between servomechanism and second stage venier engine failed in second flight phase, the company said in a statement on its website. China's experimental orbiter SJ-11-04, which was launched by a Long March II-C rocket on August 18, failed to enter the designated orbit due to a malfunction of the rocket. The rocket malfunction occurred during the flight following its launch from Jiuquan Satellite Launch Center at 5:28 p.m. Beijing Time in northwest Gansu Province. (Source: [Xinhua net](#))

People

Govt spends chunk of GDP on education

China spent an amount equal to 3.69 percent of the country's GDP on education in 2010, a senior official of the Ministry of Finance said. "Education is a long-term strategic investment, which the ministry will give more priority to in budgets before 2012," said Wu Guosheng, deputy director of the department of education, culture and science and technology under the Ministry of Finance. In making such resolutions, the central government is trying to fulfil a promise it made in China's Medium- and Long-term Plan for Education Reform and Development (2010-2020). The plan calls for the country to spend an amount equal to 4 percent of its GDP on education in 2012. Wu said the country's budget for education has risen by an average of 23.3 percent a year from 2006 and 2010. The rate of the increase exceeded that of the increase in fiscal spending during those years. (Further details in source: [China Daily](#))

35 Chinese universities rank among world's top 500

35 Chinese universities rank among the world's 500 best in a ranking released by China's Shanghai Jiao Tong University. National Taiwan University, Chinese University of Hong Kong and Tsinghua University are the top three Chinese universities and also entered the Top 200 worldwide. Six other Chinese mainland universities rank among the Top 300. Shanghai Jiao

Tong University itself ranks in the top five of mainland universities after Tsinghua University and Peking University. Two Chinese mainland universities, Beihang University (formerly known as Beijing University of Aeronautics & Astronautics) and Beijing Normal University, rank among the Top 500 for the first time. (Further details in source: [China Daily](#))

China to cultivate 100,000 student entrepreneurs

China will cultivate about 100,000 promising student entrepreneurs and 3,000 university-based technological start-ups over the next five years, according to a government plan issued on 18 August. The five-year plan is centered around the country's university-based science parks and drafted by the ministries of technology and education. It aims to boost students' startup businesses and employment. China has 86 university-based science parks, which transferred more than 4,600 technological projects into products last year, statistics show. By 2015, the number of university-based science parks will reach 200, and they are projected to transfer about 10,000 technological projects into products within five years, the plan states. (Source: [China Daily](#))

Foreign Researchers Begin to Make Their Mark

China has been going all out to persuade ethnic Chinese researchers stationed abroad to return and bolster science in their motherland (Science, 31 July 2009, p. 534). Conditions in China are improving so quickly, research chiefs say, that labs are now wooing top overseas scientists, no matter their ethnicity. Last month, CAS held a workshop here to assess a pair of fellowship programs launched in 2009 to bring non-Chinese scientists to CAS labs. Thus far the programs have supported 179 postdocs and 477 professors, paying annual stipends as high as 500,000 yuan (\$77,000). Whatever their reason for flocking to China, foreign fellows have had an impact. For starters, they have helped catalyze interdisciplinary studies that are sorely lacking in China, says Zhou Zhonghe, director of CAS's Institute of Vertebrate Paleontology and Paleoanthropology here. Not all is rosy. Researchers say CAS should offer more fellowships and that these should permit longer stays and include funds for research materials. CAS should also host more top-notch conferences so foreigners can become better acquainted with Chinese science. (Further details in source: [CAS](#))

Salon provides platform to understand different cultures

"Enlightenment and Education", a salon held afternoon in Beijing, produced a heated discussion on the comparison of German and Chinese educational philosophy and systems. The salon is part of "Enlightenment in Dialogue" program that started in April. It is affiliated with the biggest German exhibition in China, The Art of the Enlightenment, in the National Museum of China. Venued in Ullens Center for Contemporary Art Center, the salon attracted over 100 guests including Dr. Michael Schaefer, German Ambassador to China, and Michael Kahn-Ackermann, former director of Goethe Institute in Beijing and currently a senior advisor to Confucius Institute Headquarters, who chaired the salon. "This discussion is particularly interesting," Dr. Schaffer said. "We are attempting to understand how the triangle of education, knowledge and enlightenment interacts with each other." Dr. Dietrich Benner, a former professor with Humboldt University in Berlin, put forward the idea that enlightenment in German culture means to question and to criticize status quo, yet it must go hand in hand with education. Dr. Schaffer quoted German philosopher Immanuel Kant that one needs to be a responsible individual who thinks independently while contributing constructively to society. Dr. Wang Peili, who teaches Chinese in Germany, said most Chinese students are test-result driven -- namely the college entrance examination -- while German students are more interest-drive, which requires the teacher to be more proactive. (Further details in source: [China Daily](#))

Rise in US tuition fees no deterrent

A considerable number of American universities are going to increase their tuition fees for the approaching fall semester. However, the rise has not stemmed the enthusiasm of Chinese students wanting to study abroad. Instead, the desire for an education in the United States has intensified year-on-year. The number of Chinese students studying in the US has soared from about 98,000 in 2009 to 127,628 in 2010 - a 30 percent increase. For the first time the number of Chinese students in the US exceeds the number from India and is now the largest international students group, according to statistics from the annual Open Doors report released by the Institute of International Education with the US State Department. Chinese students make up 18.5 percent of international students in US universities at present, said the report. The fallout from the financial crisis and consequent fiscal contraction means a lot of US public universities are poised for the most dramatic cuts in the history of American higher education. Because many states are facing severe economic difficulties, there will inevitably be significant increases in tuition fees. "American universities raise their tuition fees annually. This year some public universities imposed an increase of 15 to 20 percent," said Richard Yang, director of Aoji Enrollment Center of International Education Ltd, a Beijing-based intermediary agency. However, Chinese families do not seem so bothered. Nearly 80 percent of parents did not consider the issue when they went through the application process, said Yang. (Further details in source: [People](#))

Training Program on Traditional Chinese Veterinary Medicine Technology for Developing Countries Launched

The training program on traditional Chinese veterinary medicine technology, which target developing countries, was launched in Lanzhou on the morning of July 12th. It was sponsored by the Department of International Cooperation of MOST and organized by Lanzhou Institute of Animal Husbandry and Veterinary of Chinese Academy of Agricultural Sciences. (Source: [MOST](#))

Training Program on Biogas Energy Application and Optimization in Drought Conditions Launched

The training program on the application and optimization of biogas biomass energy technology in drought conditions in developing countries was launched in Lanzhou on July 11th. It was sponsored by MOST and organized by Lanzhou University. During the 20-day program, 22 trainees from different countries, such as Pakistan and South Korea, will discuss the application and optimization of biogas biomass energy technology in drought conditions, as well as the latest development and discovery in related research. (Source: [MOST](#))

Training Program on Development and Utilization of Solar Power in Central Asia Launched

The international training program on the technology for the development and utilization of solar power in Central Asia was launched in Urumqi on July 11th, 2011. It was sponsored by the Department of International Cooperation of MOST and organized by Xinjiang Economic Information Center of Central Asia S&T. 20 trainees from Russia, Kazakhstan, Tajikistan and other countries will participate in the three-week program. The program aims to give the trainees a better understanding of China's solar energy technology, China's policies for developing clean energy technology and low carbon industry, and solar products created by Chinese enterprises. It intends to promote the mutually beneficial cooperation among China, Central Asia countries and

Russia in the field of solar utilization technology and increase enterprises' innovation capability. (Source: [MOST](#))

1,000 Studios for Skill Masters

The CPC Central Committee Organization Department and the Ministry of Human Resources and Social Security recently released a medium and long term plan to enhance the capacity building of highly skilled personnel for the period of 2010-2020. According to the Plan, as of the end of 2020, China will build some 1,000 national studios for Grand Skill Prize winners, skill masters working at major tech sectors and groups, and for the masters who are good traditional and unique skills. (Further details in source: [MOST](#))

China plans to attract more overseas Chinese scholars in next 5 years

The Chinese government has set the goal to attract at least 500,000 overseas Chinese scholars from 2011 to 2015 as the country is in large demand of high level talents to boost its development. Scientists, team leaders and other talents in innovative science and technology who can "achieve technological breakthroughs and boost the country's hi-tech and emerging industries" are the country's main targets, according to the 2011-2015 blueprint on returned overseas Chinese talents released by the Ministry of Human Resources and Social Security. The country also aims to attract talents in fields including equipment and manufacturing, information, bio-technology, new material, aviation, environmental protection, energy resources and modern agricultures. In addition, the country plans to have 200 business start-up incubators by 2015, which are expected to house 15,000 enterprises run or participated in by returned Chinese who have studied abroad. Figures show that the current 150 incubators are providing business start-up services for more than 8,000 enterprises and over 20,000 returning students. (Further details in source: [Global Times](#))

World University Presidents Forum concludes

After two-day discussions on various issues in global higher education, the World University Presidents Forum concluded in south China's Shenzhen on 14 August. The forum, in line with the Shenzhen Universiade, was themed "New Mission and Talents Training." The two-day forum covered four topics, including the internationalization and talents training of higher education, promotion of university students' ability to meet the economic and social development, physical education of universities, physical education and the fostering of international vision and creative spirit, and green university construction. Aiming at enhancing exchanges and cooperation among universities from home and abroad, the forum attracted 163 university presidents from 68 countries and regions over the five continents. (Further details in source: [China Daily](#))

Taiwan univ sets up recruiting office in Beijing

Taiwan's Fu Jen Catholic University opened an office in Beijing to recruit more students from the Chinese mainland. As one of the island's most prestigious universities, Fu Jen has recruited 99 mainland students so far this year, exceeding its planned number of 40, said Liu Zhaoming, head of the university's office of academic affairs. The university plans to offer scholarships and give primary admission to students selected from prestigious high schools on the mainland starting from next year, according to a statement issued by the university. This year, Taiwan began allowing students from six mainland provinces and municipalities - Beijing, Shanghai, Zhejiang, Jiangsu, Fujian and Guangdong - to study at the island's 100-plus universities and colleges. Scholarships for mainland students who wish to complete bachelor's degrees at Fu Jen

amount to 500,000 New Taiwan dollars (\$17,200) per year, helping them to cover their tuition and living expenses, the statement said. Scholarships for students pursuing master's degrees amount to 250,000 New Taiwan dollars."The scholarship program is specifically designed for mainland students," said Liu, adding that the program provides not only a fellowship, but also includes guidance for the students' studies, internships and employment. (Further details in source: [China Daily](#))

Only 30% of Chinese back after study abroad

Only about 30 percent of Chinese students have come back to their motherland after studying abroad, from 1978 to 2009, the Nanfang Daily reported, quoting the Overseas Chinese Study 2011 edited by Huaqiao (Overseas Chinese) University. According to the report, the first one focusing on overseas Chinese, about 1.62 million Chinese students went abroad to study between 1978 and 2009, among whom only 497,400 have come back. The rest mainly stayed in the developed countries. The phenomenon is accompanied by another trend of more and more wealthy people from the Chinese mainland moving abroad, forming a huge outflow of capital. Data from the Beijing Entry & Exit Service Association show that about 1,000 Chinese people applied for a US EB-5 investment green card visa in 2009, up from 500 in 2008. (Source: [China Daily](#))

3,000 Young R&D Leaders for Next Decade

Seven Chinese government agencies, including the Ministry of Science and Technology, recently released a national medium and long term plan (2010-2020) for the development of human resources in the area of science and technology. It says in the coming decade, China will strive to train and bring out 3,000 young talented leaders for the development of cutting edge technologies and strategic emerging industries. The Plan says China will make young scientist's proprietary research activities part of the national science and technology projects, through the mode of "talents + projects", in an effort to enhance the capacity building of researcher contingents and young academic leaders, under the combined mode of strengthening the existing team of academic leaders, while reserving and developing the new one. (Further details in source: [MOST](#))

New Favors for Returned Overseas Chinese

Chinese Ministry of Human Resources and Social Security circulated a document on returned overseas Chinese students during the 12th Five-year Plan period (2011-2015). It says China will see a newly added population of returned overseas Chinese students by 500,000 during the period. The document says during the 12th Five-year Plan period, the returned overseas Chinese students who have rendered services to the country will hit the level of 300,000 person-time. In addition, 50 more industrial parks will be created at different levels for returned overseas Chinese students, making the total of such parks 200 in number. Of them, some 50 parks will be jointly created by the Ministry of Human Resources and Social Security and local governments. By then, returned overseas Chinese students' businesses stationed in the parks will reach 15,000 in number. (Further details in source: [MOST](#))

Hundred Studios for Leading Scientists

According to a national medium and long term plan recently released for human resources development in the area of science and technology (2010-2020), China will build 100 studios for world-class scientists and their teams in the coming 10 years. Meanwhile, China will strive to nurture some 3,000 promising young innovation leaders in the areas of cutting edge technologies

and emerging strategic industries. The Plan points out that in the next 10 years, China will secure sustained support to the capacity building of Chinese scientists, creating agreeable research climate and condition for them, and fostering a research contingent enjoying original innovations. The proposed 100 studios will enjoy the sustained support of state treasury for operation and research. The studios will be governed under an internationally accepted management system. Chief scientists will be allowed to build their own teams in a self-managed, free exploring, and self-restraint manner, in an attempt to generate original S&T findings of international impact, and raise the influence of Chinese scientists in the world. The Plan also says in the next 10 years, China will gear up the development of innovation leaders and research teams, with an enhanced policy support to young scientists, especially to the outstanding young scientists under the age of 35 for independent studies. (Source: [MOST](#))

China to drastically increase post-doctorates

China plans to raise the annual enrollment of post-doctorates to 17,000 in 2015, an increase of over 60 percent from that in 2010, according to a five-year blueprint for the development of post-doctoral education. The 12th Five-Year Program (2011-2015) on post-doctoral education was jointly released by the Ministry of Human Resources and Social Security and the national committee on post-doctorate management. According to the program, over 20 percent of Ph.D graduates will be enrolled as post-doctorates by 2015, and post-doctorates' share among new recruits in key universities and research institutes should reach 30 percent. The program also says enterprises will increase the number of working stations specifically designated for post-doctorates in order for them to make up a greater proportion of research personnel. China should give full play to the roles of post-doctorates in the country's innovation drive, the program says. (Source: [Xinhua net](#))

Research infrastructures

National Space Science Center Officially Launched in Beijing

National Space Science Center (NSSC) was officially launched at the Center for Space Science and Applied Research, Chinese Academy of Sciences in the morning of July 7, 2011. The newly established center is fully build up on the current Center for Space Science and Applied Research (CSSAR), but has new duties. The most important duty is to carry out a so called strategic pioneer project – space science. The Space Science Project includes development of 5 space science satellites, select and support several new mission studies before the engineering phase, support a number of long term enabling technology studies for future missions and finally leading future strategic study for space science in China. Those studies have never been supported by other national programs, therefore it is a truly national program and the budget of it is directly from the central government. National Space Science Center endeavors to further deepen international cooperation. Prof. BAI Chunli, the President of the Chinese Academy of Sciences, who delivered a speech on the inaugural ceremony, pointed out that the National Space Science Center should seize the great opportunity to further enhance international cooperation to make the center a show case for international cooperation. (Further details in source: [CAS](#))

China's submersible Jiaolong completes test dive mission

China's manned submersible, the Jiaolong, is returning to shore after completing five test dives in the Pacific Ocean, reaching 5,188 meters during its deepest dive, the State Oceanic Administration (SOA) said. The Jiaolong and its three crew members completed the dives

between July 21 and Aug. 1, according to a statement released by the SOA work team in charge of the mission. The submersible conducted a series of undersea research experiments, retrieving a great deal of information from the ocean floor, it said. "The mission has tested the submersible's functionality in deep sea environments," it said. The test mission will pave the way for a record-breaking 7,000-meter test dive in 2012. (Further details in source: [Xinhua net](#))

Carrier set for maiden voyage



China is making use of an obsolete aircraft carrier that was bought from Ukraine and is being refitted for scientific research and training purposes, said Defense Ministry spokesman Geng Yansheng said. The pursuit of an aircraft carrier program would not change the navy's strategy of inshore defense, he said at a news briefing in Beijing. The ex-Soviet Varyag, which remained incomplete when the Soviet Union collapsed in 1991, was bought for \$20 million in 1998. Ukraine disarmed it and removed its engines before selling the craft to China. The vessel, delivered in 2002, has been undergoing refitting work at Dalian since 2005. (Further details in source: [China Daily](#))

National Supercomputing Center in Changsha

Tianhe-1, a 100-teraflops supercomputer stationed at Changsha National Supercomputing Center, the second of its kind in the country, was recently put into operation, providing supercomputing services to the public. According to a plan, the 100-teraflops supercomputer will be upgraded to the 300-teraflops level in the coming October. The Hunan Meteorological Bureau and Hunan Provincial Department of Land Resources, the first users of the supercomputer, are currently working on their meteorological and geographic platforms using the supercomputer. Researchers also developed high-end applications for advanced machinery and equipment design. (Source: [MOST](#))

China opens 1st rescue center for endangered white dolphins

A rescue and breeding base for endangered Chinese white dolphins started a trial operational period in the southeastern seaside resort of Xiamen. The base is the first of its kind in the country. The base, located on the city's Huoshaoyu Islet, includes a rescue center and a breeding area and can accommodate up to four to six white dolphins, said Pan Shijian, vice mayor of Xiamen. Previously, rescuers had to return injured white dolphins back to the sea after giving them simple medical treatment due to the lack of a rescue base, Pan said. (Further details in source: [Xinhuanet](#))

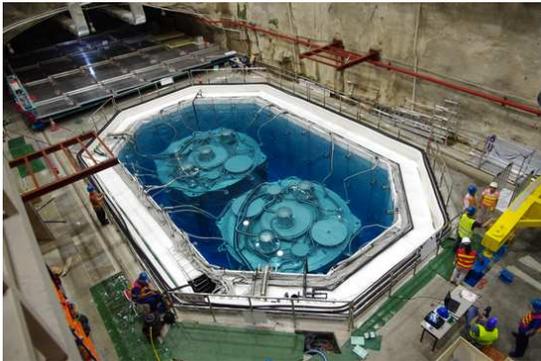
MOST and MIIT Cooperation on Key Labs

July 14, 2011, WAN Gang, Vice-Chairman of Chinese People's Political Consultative Conference and Minister of Science and Technology, and MIAO Wei, Minister of Industry and Information Technology, attended an MOU signing ceremony to jointly establish a national key laboratory breeding center. (Further details in source: [MOST](#))

ITER Components into Mass Production

A ceremony was recently held at CAS Institute of Plasma Physics to celebrate the mass production of the components that make the operation of the International Thermonuclear Experimental Reactor (ITER) possible. WU Yu, leader of the ITER's conductor project, told reporters that China's ITER conductor production has achieved 100% localization. The Institute has built a workshop of more than 4,000 square meters, equipped with the proprietary conductor former and cable winch. In addition, the Institute has established the world's first 1,000-meter long piping line to facilitate the contractual missions. (Source: [MOST](#))

The Daya Bay Reactor Neutrino Experiment Begins Taking Data



The Daya Bay Reactor Neutrino Experiment has begun its quest to answer some of the most puzzling questions about the elusive elementary particles known as neutrinos. The experiment's first completed set of twin detectors is now recording interactions of antineutrinos (antipartners of neutrinos) as they travel away from the powerful reactors of the China Guangdong Nuclear Power Group in southern China. (Further details in source: [CAS](#))

NSFC and CAS's New Round Collaboration for Large Scientific Facilities

Natural Science Foundation of China (NSFC) signed an agreement with Chinese Academy of Sciences (CAS) on July 12 in Beijing, initiating the phase II collaboration for large scientific facilities. According to the agreement, during 2012-2014, the two sides will invest a total of \$180 million RMB for the joint fund to support the use of large scientific facilities for scientific research. Prof. Shen Wenqing, Vice President of NSFC and Prof. Zhan Wenlong, Vice President of CAS signed the agreement on behalf of the two parties. The joint fund aims at guiding researchers in the country to carry out their research work by using of these large scientific facilities and give a full play of scientific supporting capabilities of them. According to the phase II agreement, following research areas will be included: scientific issues in frontiers of physical science (physics, chemistry, materials science); scientific issues in the field of information science; scientific issues in life science (biophysics and medical science) ; scientific issues in the areas of environment and resources ; interdisciplinary scientific issues, etc. (Further details in source: [NSFC](#))

China's First Internationally Compatible Marine Map

On August 25, 2011, Chinese Navy released in Beijing an official electronic marine map covering China's offshore areas. Prepared in line with international standards, the electronic map enjoys numerous merits, including international compatibility, easy updating, enhanced precision for ship positioning, and standardized rich information. Working with an electronic chart display and information system, the marine map is able to show the GPS position of a ship in an automatic manner, free from information lag caused by chart plotting. When overlapped with radar echoes, the map allows people to see the environment surrounding the ship. (Further details in source: [MOST](#))

International S&T relations

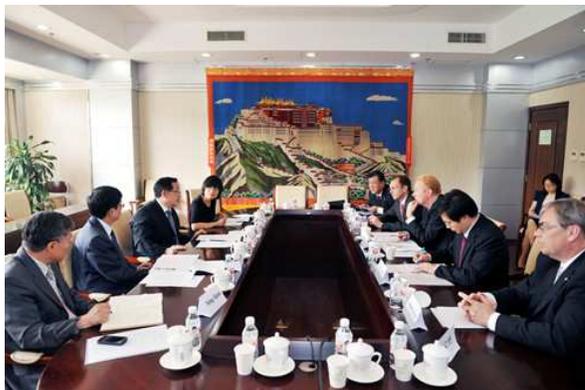
National Conference on International S&T Cooperation

Chinese Ministry of Science and Technology (MOST) opened on August 28, 2011 its 9th national conference on international S&T cooperation in Beijing. At the meeting, MOST released an array of policy documents for the 12th five-year period (2011-2015), including a special plan on international S&T cooperation, a by-law on supervising international S&T cooperation projects, and a by-law on managing international S&T cooperation centers. China has so far established S&T partnerships with 152 countries and regions, and inked 104 inter-governmental science and technology cooperation accords with 97 countries and regions. MOST has stationed 141 diplomats in charge of S&T affairs in 69 missions in 46 countries. China has become the member of more than 200 inter-governmental S&T cooperation organizations, which shaped up China's diversified S&T cooperation system dominated by inter-governmental cooperation. During the 11th five-year period (2006-2010), China has secured the support to 1,728 international scientific and technological cooperation projects, with an investment worth RMB 4.375 billion, and harvested fruitful results from them. China has been part of a range of large science projects, including international genomes project, Integrated Ocean Drilling Program (IODP), Group on Earth Observations (GEO), International Space Station-Alpha Magnetic Spectrometer project, International Thermonuclear Experimental Reactor (ITER), Galileo project (European Civil Global Navigation Satellite System) among others. In addition, China has worked with the United States, Russia, Europe, and Japan in preparing international standards and addressing major global issues. Meanwhile, China has launched a range of campaigns to attract talented scientists and innovation leaders, through the mode of "talent + project", in an attempt to land breakthroughs in key technical areas. China has recruited more than 3,000 specialists from the Thousand Talents Program, Cheung Kong Scholars Program, and CAS Hundred Talents Program. Up to date, China has established 33 international joint research centers at the national level, 207 international S&T cooperation bases, and 5 international innovation parks, making them an important platform for international S&T cooperation. In addition, China has staged major projects in the developing countries, promoting the transfer and application of Chinese made technologies through diversified modes, including establishing high-tech parks and national laboratories, perfecting scientific research systems, sponsoring training seminars, staging joint researches, and establishing demonstration areas in the developing countries. The efforts have accommodated the urgent needs of developing countries for raising their technical capabilities, while enhancing the mutual trust and friendship between China and other developing countries. For example, the CBERS data receiving station project, a role model for the South-South cooperation, allows satellite data being shared among African countries for crop yield assessment, disaster mitigation, and environment monitoring. (Source: [MOST](#))

China, DPRK to boost renewable energy co-op

China and the Democratic People's Republic of Korea (DPRK) have agreed to share their experience and beef up cooperation in exploring and utilizing renewable energy. The agreement was made during a meeting between senior Communist Party of China (CPC) official Zhou Yongkang and a delegation from the Korean Workers Party (KWP), led by Thae Jong Su, an alternate member of the KWP's Political Bureau and member of the Secretariat. Thae told Zhou that the main purpose of his current China trip is to learn from China's experience in developing geothermal resources, as specified by the DPRK's top leader, Kim Jong-il. (Further details in source: [China Daily](#))

WAN Met with German Guests



WAN Gang, Chinese Minister of Science and Technology, met with the visiting Bayer Chairman Marijn Dekkers on June 20, 2011. WAN briefed the other side of the new materials and new medicines component of China's S&T planning for the 12th five-year period. WAN said he is delighted to see Bayer station its global healthcare and material science centers in Beijing and Shanghai respectively, and move some operational Headquarters to China. (Further details in source: [MOST](#))

TWAS Executive Director Visits IMCAS

Dr. Romain Murenzi, executive director of TWAS, visited the Institute of Microbiology, Chinese Academy of Sciences (IMCAS) on July 20, 2011. His visit is the prelude to 2011 TWAS-ROESEAP Symposium on Industrial Biotechnology from August 26 to 30. Dr. Murenzi emphasizes the importance of Science and Technology capacity in the sustained economic growth of a country. For better conditions of living environment, investing more in science, technology and innovation become a necessity. He also stresses the crucial role of scientific cooperation among countries. He hopes that TWAS is a linkage to realize this goal, providing more opportunities for students in poorer countries to study advanced technology in other countries such as China. CAS-TWAS Fellowship Program serves this purpose. Two new awardees from Nigeria and Pakistan come to study in IMCAS this year. IMCAS is one of the training bases of CAS-TWAS Fellowship Program. Since 2005, 16 awardees of the fellowship from Third World countries have studied or conducted scientific research in IMCAS, including five awardees of the Postgraduate Fellowship, six winners of the Postdoctoral Fellowship and five awardees of the Visiting Scholar Fellowship. This August will also see 2011 TWAS-ROESEAP Symposium on Industrial Biotechnology in Beijing. 98 attendees from 21 countries have registered the symposium up to now. The objective of this symposium is to review the most recent progress in the area of industrial biotechnology in developing countries. TWAS, the academy of sciences for the developing world founded in 1983 by a distinguished group of scientists from the developing world under the leadership of Nobel laureate Abdus Salam of Pakistan has the aim of promoting scientific capacity and excellence for sustainable development in the South. (Further details in source: [CAS](#))

The 15th Meeting of China-Korea Joint Committee for Basic Scientific Research in Busan

The 15th Meeting of the China-Korea Joint Committee for Basic Scientific Research was successfully held in Busan, Korea on June 16, 2011. 33 bilateral cooperative projects were selected by the Committee for FY 2011, including 21 joint research projects and 12 joint seminars. The Committee members made in-depth discussions on the issues of strengthening future cooperation and topics for the Northeastern Asian Symposium. (Further details in source: [NSFC](#))

NCSTE and KEIT sign MOU

A delegation from Korea Evaluation Institute of Industrial Technology (KEIT) visited National Center for Science and Technology Evaluation (NCSTE) on July 13th. Director Chi Ji of

NCSTE and President Young-Ju Suh of KEIT signed a Memorandum of Understanding (MOU). The two sides will cooperate in the field of S&T evaluation and planning through data- and information- sharing, personnel exchange, joint research and evaluation, etc. (Source: [MOST](#))

UNESCO Assistant Director-General Visits CSTEC

UNESCO assistant director-general Ms. Grechen Kalonji headed a delegation to China S&T Exchange Center (CSTEC) on July 25th. Both sides exchanged views on jointly promoting south-south sci-tech cooperation to address climate change. Director General Sun Hong briefed the delegation on the mission of CSTEC. He also told the guests that under the support of the Department of International Cooperation of MOST, CSTEC is busy compiling the 2nd edition of Applicable Technology Manual: South-South Cooperation on Science and Technology to Address Climate Change, and building an information service platform for international sci-tech cooperation (including a platform for climate change). (Further details in source: [MOST](#))

New Round China-Australia Joint Committee Meeting

The 8th China-Australia Joint S&T Committee meeting was held on August 2, 2011 in Shanghai. WAN Gang, Chinese Minister of Science and Technology, and Kim CARR, Australian Minister for Innovation, Industry, Science and Research, spoke at the opening ceremony. After the opening ceremony, WAN and Carr jointly inked an MOU on science and research fund management. The two sides stated that the Fund is established to support the scientific and technological cooperation in the strategic fields, and to foster more long-term inter-agency partnerships. The Fund will be used to support the research projects in the priority areas, and establish joint research centers. The priority areas to be supported include agriculture and biological science, new energy, environmental protection, new materials, information and communication technology, mining, astronomy among others. The Fund will also be used to promote research alliances between industry, universities and research institutes, in a bid to spur up the commercial applications of S&T findings, and to enhance bilateral exchanges of S&T personnel. (Further details in source: [MOST](#))

MOST and UNEP Water Resources Cooperation

A meeting was held on August 3, 2011 in Beijing to discuss an African water resources project jointly initiated by the Chinese Ministry of Science and Technology (MOST) and the United Nations Environment Program (UNEP). The meeting is staged to discuss the details of collaboration, and define the framework for the cooperation accord. The cooperation project, jointly initiated by China, the United Nations, and African countries, works on water resources related technologies and studies, including water resources planning, water environment protection, water treatment, drought warning, water-saving agriculture, and sand control, in an attempt to enhance the technological capacity building of African countries, promoting the sustainable development across the continent. (Further details in source: [MOST](#))

China-US Young Scientists Forum

The first China-US Young Scientists Forum was held on August 5, 2011 in Beijing. WANG Zhixue, Head of Science and Technology Daily, and Robert S Wang, charge d'affaires of the U.S. Embassy in Beijing, attended and spoke at the opening ceremony. Young scientists from 16 Chinese research institutes and 39 American universities attended the forum. The 2nd China-US Young Scientists Forum will be held in the Fall of 2011 in Washington DC. With the joint support of the Chinese Ministry of Science and Technology and the U.S. National Science

Foundation, the American students who attended the forum have completed their two-month long research activities at Chinese research institutes. (Further details in source: [MOST](#))

Brazil and China to Set up Nanotechnology Centre in Sao Paulo

The Brazilian government is due this month in china to sign an agreement with the Chinese Academy of Sciences for construction of a nanotechnology centre in Campinas, in the Brazilian state of Sao Paulo, which will be set up in the Brazilian Synchrotron Light Technology Association (ABTLuS). According to the ministry of Science and Technology, Aloizio Mercadente, the project represents an initial investment of 10 million reais, which will be split equally amongst the partners. The minister also said that during his visit to China he would arrange for 200 doctors, medical students and post-graduates from Brazil to be sent to the research centres of the Chinese Academy of Sciences to take part in work in the areas of nanotechnology, space research, clean energy and biotechnology. The Brazilian government also plans to sign agreements with the Chinese in the area of information technology, particularly in cloud computing, and photovoltaic, solar and wind energy. (Further details in source: [CAS](#))

China-Brazil S&T Committee Meeting



The 2nd China-Brazil High-level Science, Technology and Innovation Sub-Committee meeting was held on August 23, 2011 in Beijing. CHEN Xiaoya, Chinese Vice-Minister of Science and Technology and Nuo Bule, Brazilian Vice-Minister of Science, technology, and Innovation, spoke at the meeting. Chen said the S&T communities in the two countries shall work closely to bring out practical results from the bilateral cooperation. CHEN also briefed the other

side of China's response to climate change and energy shortage, and the preparation of its 12th five-year plan.

Participants from both sides discussed a range of issues, including innovation policy, nanotechnology, satellite meteorology, bamboo planting and associated and processing, biotechnology, climate change among others, and reached some intentions for future collaborations. (Source: [MOST](#))

CHEN Met with German Guests



CHEN Xiaoya, Chinese Vice-Minister of Science and Technology met with Juergen Mlynek, the visiting President of the Helmholtz Association and his party. CHEN told Mlynek the two countries are working hard to implement a range of accords signed between the two countries in the areas of electric car, life sciences, innovation policy, and environmental protection, under the framework defined by the talks between China and Germany when Chinese Premier WEN Jiabao visited Germany last June. The Helmholtz Association, the largest national research institution in Germany, has the priorities of research

that are quite close to the one defined by China's national science and technology planning and major S&T projects for the 12th five-year period . In this context, China is willing to support its

universities, industries, and research institutes to work with major German scientific institutions, including Helmholtz. CHEN also briefed the other side of China's preparation of its 12th science and technology five-year plan. (Source: [MOST](#))

CAS Stands out in Sino-Dutch Scientific Program

Chinese Academy of Sciences (CAS) has won four out of seven funded projects with Sino-Dutch Joint Scientific Thematic Research Program (JSTP) 2011. "The aim of JSTP is to further sustain cooperation between Dutch and Chinese researchers based on an annual theme of common interest identified jointly by the partners," said Lu Yonglong, director-general of Bureau of International Cooperation, CAS. The theme for the 2011 program is "medical devices in an aging society" and that for 2012 will be on "agriculture and food". (Further details in source: [CAS](#))

China, Netherlands renew joint science program

China and the Netherlands renewed a scientific research program to address scientific challenges brought on by climate change, energy security and food safety. Through peer evaluation, "Food and Agriculture" has been selected as the key cooperative area for 2012. The three-year Joint Scientific Thematic Research Program (JSTRP) was established in 2009 after the Ministry of Science and Technology of the People's Republic of China and the Chinese Academy of Sciences (CAS) signed Memoranda of Understanding (MOU) with the Dutch government in a bid to enhance scientific cooperation between the institutions of the two countries. The first phase of the JSTRP subsidizes projects of environmental recovery and bio-mass energy development. Cooperative projects already underway include water resource management on the Pearl River and the Rhine, the two countries' major water sources closely linked to people's survival and development. (Further details in source: [Xinhua net](#))

2nd Science and Innovation Sub-Committee Meeting Held in Beijing

The 2nd Science and Innovation Subcommittee meeting of China-Brazil High-level Coordination and Cooperation Committee was held in Beijing on August 23th. VM Chen Xiaoya and Carlos Nobre, Vice Minister for Science and Technology of Brazil, addressed the meeting. Chen reckoned that the meeting was an important event to materialize the consensus reached by the top leaders and science ministers of the two countries. China and Brazil, as the two largest developing countries with emerging market, have good foundation and broad prospects for cooperation on innovation. The scientific communities of the two sides should work closely to achieve more practical outcomes. Chen also briefed the guests on China's measures to address climate change and energy shortage, as well as the 12th five-year plan. Nobre said that Brazil spoke highly of China's progress on science and technology and its great support for socioeconomic development. He also expressed the willingness to enhance bilateral cooperation on climate change and energy crisis. The participating experts changed ideas on innovation policies, nanotechnology, satellite meteorology and climate change, and reached a number of cooperation intentions. (Source: [MOST](#))

WBGCAS, JKUAT Strengthen Scientific Cooperation

Wuhan Botanical Garden, Chinese Academy of Sciences (WBGCAS) and Jomo Kenyatta University of Agriculture and Technology (JKUAT) renewed their Memorandum of Understanding (MoU) on scientific cooperation and higher education in Nairobi on August 23, 2011. The MoU is the new phase of "The Research Contract Between JKUAT and WBGCAS" and will be valid through 2012 to 2016. Both sides will seek to boost and enhance higher

education training through research, training, innovation, technological development and capacity building in the areas of mutual interest, according to the MoU. WBGCAS and JKUAT will both provide an instrument for establishing various collaborative initiatives for the growth and mutual benefit of African and Chinese institutions. Collaborate training, joint research ventures, staff exchanges, curricular development and review, staff and students interactions and exchange of experiences and information will be carried out according to the agreement to enhance professional skills of staff in all the institutions. Both sides will encourage any other agreed activities of mutual benefits. (Further details in source: [CAS](#))

Seminar on Technical Training in Developing Countries Held in Urumqi

From August 11th to 13th, the Department of International Cooperation, MOST held a seminar on technical training in developing countries (Central Asia) in Urumqi. With closer sci-tech ties between China and Central Asian countries, MOST organized 39 training programs for Central Asian countries in the 11th five-year plan period, or 25% of the total. On the meeting, the representatives from Xinjiang Economic Information Center on Science and Technology in Central Asia shared their experiences on hosting the training programs, and the participants exchanged ideas. (Source: [MOST](#))

IMP & MPIK to Strengthen Co-op in Nuclear Physics Research

Institute of Modern Physics, Chinese Academy of Sciences (IMP) signed a Memorandum of Understanding on September 2 to strengthen bilateral cooperation with Max-Planck Institut für Kernphysik (MPIK) at Heidelberg Germany. Professor XIAO Guoqing, director of IMP and Prof. Klaus Blaum, director of MPIK signed the MoU representing the two institutes at Lanzhou. The MoU will be valid until the year of 2014. Both sides reached R&D projects on joint research and development on rare isotope research and development programs, discretionary R&D affiliated with rare isotope technologies, Radioactive Ion Beam (RIB) and atomic physics related research, theory, or experimentation, and the ion-atom/molecule collision dynamics with imaging techniques. Both parties will upgrade the ion storage capabilities at IMP (LPT/CSRe), according to the MoU. (Further details in source: [CAS](#))

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