



Science, Technology and Education News from China

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Introduction

As from the 8th day of the 8th month in 2008, the world witnessed excellent shows and events of the Beijing Olympics – many of them putting on display top-edge technologies. The Chinese Academy of Sciences, the premier research institute in China, was highly involved in making it a “Green Olympiad”. Together with the Ministry of Environmental Protection (MEP), CAS also started to map the whole of China with eco-friendly zones so as to stimulate sustainable development. It is also a time to break records, not only for the athletes, but also for the scientists, as we see the first transgenic cow being born to help fight cancer, and the first Chinese Lunar Probe Satellite to the Moon functioning well after a partial eclipse with the Sun.

Contents

1. CAS Researchers Contribute To "Green Olympiad"	2
2. China's First Transgenic Cow Born To Help Fight Cancer	2
3. Mega-Science Projects at CAS	2
4. List of 2008 Innofund Projects Unveiled	2
5. Studies Shed New Light on Ginseng-Drug Interactions	3
6. Projects of A3 Foresight Program in 2008 Approved	3
7. China to release 700 hours of Chang'e-1 data.....	3
8. China's First Lunar Probe Satellite Normal after Eclipse.....	4
9. China's First Eco-Function Map Released.....	4
10. China's Arctic Expedition Team Sets Up Temporary Research Station on Ice.....	4

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1. **CAS Researchers Contribute To "Green Olympiad"**

(CAS, 25-08-2008)

By using energy-efficient technologies such as photovoltaics (PV), electric vehicle engines and its control system, researchers with the CAS Institute of Electronic Engineering (IEE) have made contributions to the lighting and transportation of the Beijing Olympics. IEE scientists have accomplished four solar energy power projects including the 100kWp PV station for the National Indoor Stadium, the 80kWp grid-connected PV power system at the Olympic Park, awning integrated PV system for road lamps at the Olympic core area, and a series of PV station at the Olympic Village. The total PV installed capacity amounts to 358kWp.

IEE researchers have also developed advanced driving systems for electric vehicles for the Games in Beijing. According to CAS researchers, their technology could make the vehicles up to advanced world level in late 20th century. For instance, its vector-controlled system contains a 100/160KW AC asynchronous motor with the peak power of 160kW and peak torque of 850Nm, which could meet the start, uphill and acceleration needs of the vehicles in full capacity. Its nearly 90% efficiency and energy regenerative control features a upgrading of the vehicle's range on one charge. And its CAN communication protocol ensures the stable communication among various bus systems.

2. **China's First Transgenic Cow Born To Help Fight Cancer**

(Xinhua, 11-08-2008)

Chinese scientists announced that they have bred a genetically altered cow capable of producing cancer fighting proteins for humans. The cow, which can produce CD20 antibodies in its milk, was born in Beijing on 2 August 2008, and a dozen more are due to be born in September 2008. Researchers said mass breeding of the animal would enable China to mass produce the therapeutic proteins cheaply.

More details on http://news.xinhuanet.com/english/2008-08/11/content_9171181.htm

3. **Mega-Science Projects at CAS**

(CAS, 01-08-2008)

With the support of Chinese government, CAS has been undertaking national mega-science projects in line with both the requirements of the national socio-economic development and cutting-edge development of science and technology in the world. At present, a total of seven such projects are under construction at CAS and five projects are to be started by CAS researchers in the near future. Examples include a "Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST)", the upgraded "Beijing Electron-Positron Collider" (BEPCII) or the "Shanghai Synchrotron Radiation Facility" (SSRF).

More details on <http://english.cas.cn/eng2003/news/detailnewsb.asp?InfoNo=27281>

4. **List of 2008 Innofund Projects Unveiled**

(MOST, 23-08-2008)

Recently, the Ministry of Science and Technology and the Ministry of Finance have approved the first batch of projects in 2008 under the Innovation Fund for Small Technology-based Firms (Innofund). The projects cover a wide range of fields such as electronic information, biomedicine, new materials, mechatronics, new energy and environmental protection. A total of RMB 970.24 million (CHF156.8 million) will be channeled to 1,592 projects. To boost openness, fairness and equity, the project list will be released and undergo public scrutiny for two weeks.



5. Studies Shed New Light on Ginseng-Drug Interactions

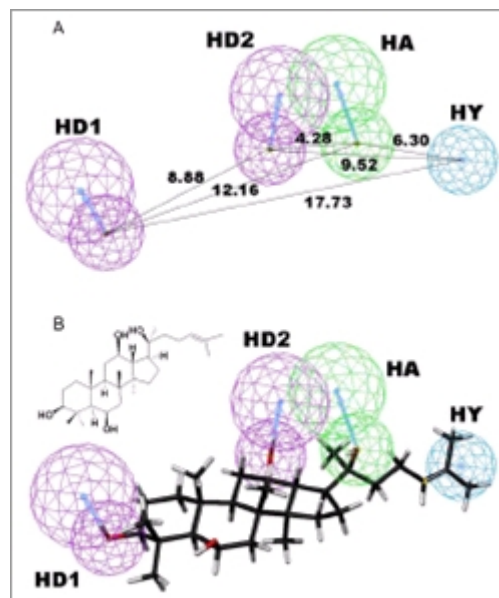
(CAS, 12-08-2008)

Supervised by Prof. WANG Hui with the CAS Institute of Nutritional Sciences, doctorate student HAO Miao and co-workers recently achieved new progress on influence of ginseng and its derivatives on human metabolism.

The work was reported by a recent issue of PLoS ONE. Ginseng, a traditional herbal medicine, may interact with several co-administered drugs in clinical settings, and ginsenosides, the major active components of ginseng, may be responsible for these ginseng-drug interactions (GDIs). However, results from previous studies on ginsenosides' effects on human drug-metabolizing P450 enzymes are inconsistent and confusing.

More details on

<http://english.cas.cn/eng2003/news/detailnewsb.asp?InfoNo=27295>



6. Projects of A3 Foresight Program in 2008 Approved

(NSFC, 06-08-2008)

On the basis of evaluations by the National Natural Science Foundation of China (NSFC), Japan Society for the Promotion of Science (JSPS) and Korea Science and Engineering Foundation (KOSEF), respectively, an agreement has been made on the A3 Foresight Program for 2008 in the area of advanced materials that the following two projects will be co-funded with a duration of 3 years by NSFC, JSPS and KOSEF, with a total budget of RMB4 million (CHF0.65 million) from NSFC:

Project 1 Title: Joint research on novel properties of complex oxides

Chinese PI: FENG Donglai, Professor, Fudan University

Japanese PI: Shin-ichi Uchida, Professor, University of Tokyo

Korean PI: Se-Jung Oh, Professor, Seoul National University

Project 2 Title: Exploration of new functions and application potentials of multifunctional ceramics

Chinese PI: FU Zhengyi, Professor, Wuhan University of Technology

Japanese PI: Koichi Niihara, Designated Professor, Nagaoka University of Technology

Korean PI: Soo Wahn Lee, Professor, Sun Moon University

7. China to release 700 hours of Chang'e-1 data

(CAST, 01-08-2008)

China has released over 700 hours of data sent back by the Chang'e-1 satellite to domestic authorized users and the European Space Agency, according to the State Administration of Science Technology and Industry for National Defence (SASTIND). As of 2 pm on 1 August, the country's first moon probe satellite had sent back more than 700 hours of data to two ground receiving stations, one in Miyun County on the outskirts of Beijing, and the other in Kunming, capital of the southwestern Yunnan Province, according to SASTIND. The data included three-dimension data of the moon, which was captured by a charge-coupled device (CCD) camera installed on the satellite, SASTIND said. The satellite had orbited the moon 3,024 times since it was launched on 24 October. It marked the first step of China's ambitious three-stage moon mission. It was expected to experience another moon eclipse on 16 August. "Judging from the power consumption during the first moon eclipse (in February), the satellite can survive the second trial," said Ye Peijian, chief commander and designer of the country's first moon probe satellite system. Chang'e-1 went through its first moon eclipse test on the morning of 21 February for 2.5 hours and performed three orbital adjustments. The remaining fuel weighed 270 kg.



8. China's First Lunar Probe Satellite Normal after Eclipse

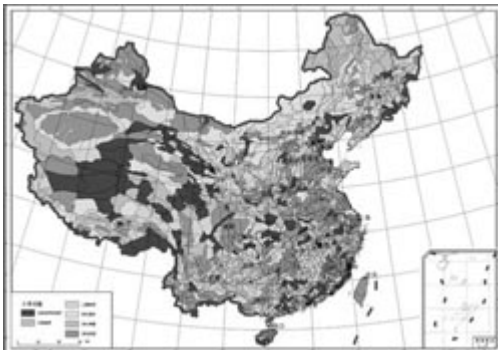
(Xinhua, 18-08-2008)

China's solar-powered lunar probe satellite Chang'e 1 stood the test of a partial eclipse on 17 August as scientists altered its orbit and temporarily turning off some facilities. Based on the signals sent by the satellite after the eclipse, the Chang'e 1 was operating as expected; Beijing News quoted Liu Junze, of the Beijing Aerospace Control Center (BACC), as saying. The ground control center changed the orbit of the satellite to shorten the time it was out of direct sunlight to 168 minutes, according to the scientist. The satellite, if its orbit was unaltered, would have been out of the sun's rays for 220 minutes, he said, adding the time had exceeded the satellite's maximum power reserve. The center also switched off some facilities at about 3:21 a.m. on Sunday to save power, and temporarily lost contact with the satellite for more than three hours, he noted.

More details on http://news.xinhuanet.com/english/2008-08/18/content_9464689.htm

9. China's First Eco-Function Map Released

(CAS, 27-08-2008)



CAS and the Ministry of Environmental Protection (MEP) recently released 2008 China's first eco-function map. CAS Vice President DING Zhongli and MEP Vice Minister WU Xiaoqing were present at its press conference held in Beijing.

Under the joint sponsorship of MEP and CAS, the map was accomplished by researchers from the CAS Research Center for Eco-environmental Sciences after six years of work. Experts say it will lay a scientific base for promoting sustainable regional development and national eco-environmental conservation.

The zoning is made in three categories: first, Category I eco-function zones for ecological regulation, product provision, and human habitation, in line with the nature of ecosystems and the dominant service types; second, Category II eco-function zones in line with the importance of ecological functions, for water origin conservation, soil moisture conservation, wind breaks and sand fixation, biodiversity protection, and flood water storage, for agrifoods, animal products, aquatic products, and timber products, and for urban belts and urban function areas; and third, Category III eco-function zones enjoying the mixed ecological functions, based on the difference in space, terrains, and land use. The zoning efforts have carved the nation into 216 ecological function zones, of which 148 are for ecological regulation, covering 78% of the nation's territories, 46 for providing products, or 21% of the nation's territories, and 22 for human habitation, or 1% of the nation's territories.

10. China's Arctic Expedition Team Sets Up Temporary Research Station on Ice

(Xinhua, 21-08-2008)

China's third scientific Arctic expedition on board the icebreaker Xuelong (Snow Dragon) set up a temporary research station on ice Thursday, to begin their research on geological and meteorological conditions in the area. Because of excessive melting of Arctic ice, Xuelong came upon small floating blocks of ice even at such high latitude, making it difficult for the scientists to find a large and intact expanse of ice to set up a station. After over 10 days of observation, they finally found suitable ice, 1.8 m thick with an area of 0.5 square km, at around latitude 84 degrees north and longitude 145 degrees west.

More details on http://news.xinhuanet.com/english/2008-08/21/content_9584602.htm