

Message from the President



The year of 2008 was a very eventful and extraordinary year for the Chinese people. Over the past year we have successfully handled the winter snow disaster in southern China and the Wenchuan earthquake in Sichuan Province. The Beijing Olympic and Paralympic Games were hosted very successfully and the manned spaceship Shenzhou VII was launched. China has also taken effective measures to meet the challenges presented by the global financial crisis.

Facing all of these challenges and opportunities in 2008, the Chinese Academy of Sciences (CAS) has focused its innovation strategies on meeting national demands at these key moments. Following our core principle of science and technology innovation, we have achieved a marked increase in innovative capacity and key research developments. CAS strives to put people first and has continued to strengthen innovative research teams and develop the skills of our personnel, thus raising innovation capacity. 2008 was notable as a year of increased international cooperation for CAS, and of productive technology transfer initiatives.

Within CAS, 2008 will be remembered for a series of major scientific breakthroughs in basic and cutting-edge research, strategic high-technology and research on sustainable development. Space observations led to the discovery of a surplus in high-energy electrons



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possibly arising from dark matter, breakthroughs were made in research on iron-based superconductors, we successfully developed the world's first quantum relay instrument, and also completed construction of the Large Sky Area Multi-Object Fiber Spectroscopic Telescope (LAMOST) and put it into operation. The construction of the Cooling Storage Ring of the Heavy-Ion Research Accelerator Facility in Lanzhou (HIRFL-CSR) was also completed, and we developed and launched the Innovation I-02 satellite, and the Fengyun III, Fengyun II, Remote Sensing V and Environment 1A and 1B satellites. Breakthroughs were made in the construction of key anti-radiation electronic devices, a

high-performance carbon fiber was successfully developed and put into industrial mass production, and the test run of the first Pressurized Ash Agglomerating Fluidized Bed (AFB) coal gasifier demonstration plant was successfully completed. A new model for Pacific Plate subduction and large-scale magmatic activities and ore-formation in South China during the Mesozoic was proposed. In the biomedical field, a cerebral cortical neuron radial migration guidance mechanism was discovered, pluripotent stem cell lines were generated from adult rat cells, breakthroughs in structural studies of RNA polymerase from the influenza virus were made, a novel fluoroquinolone anti-bacterial drug called Antuofloxacin was developed, a new intervention treatment for type II diabetes was developed, and a new drug against Alzheimer's disease was developed. In the agricultural area, a rice gene named GIF1 was identified as a key regulator of the entire grain-filling process. There were breakthroughs in the introduction of the Pacific White Shrimp (*Litopenaeus vannamei*), particularly in technologies for breeding, cultivation and small scale production, and as part of an ecological study on controlling soil erosion and improving the environment, slow release fertilizers were developed and applied throughout the country. These achievements have come as a result of a combination of CAS's strict adherence to its policy of prioritising strategic national needs and international scientific frontiers as well as the continuous innovation and progress of all CAS staff.

In 2008, CAS has been actively involved in developments in China's modernization drive and has seen significant progress in research areas

within China's 2050 science and technology roadmap. CAS has raised some major scientific issues and critical technical problems in China's modernization process and made suggestions on how to resolve them, ensuring the contribution of science and technology in realizing China's modernization goals by the end of 2050.

The year of 2008 was also the 30th anniversary of China's adoption of its reform and opening-up policy and the 10th anniversary of launching the CAS Knowledge Innovation Program. In the past three decades, CAS has responded to the aspirations and needs of the nation and people for scientific and technological development and has incorporated them into its own development goals and values. Living standards have improved and a good foundation has been laid for the scientific development of our country. By being open to new ideas, promoting reform and innovation, defining our responsibilities more clearly, and concentrating our technical workforce on major development goals, we have improved the scientific and technological environment, recruited and trained highly-talented personnel, and expanded cooperation and exchange in various fields with our counterparts at home and overseas. These moves have increased our capacity for making scientific breakthroughs and broadened our experience, laying a solid foundation for the future development of CAS.

The year of 2009 is a year full of challenges and new opportunities. CAS will confidently continue to explore and innovate. We will work diligently to make an even greater contribution to helping our country maintain stable and relatively fast economic development,

and face the new challenges that arise from scientific and technological developments, thus speeding up the national modernization process and building an innovative country and a well-off and harmonious society.

This *2009 Annual Report* is too brief to give an adequate presentation of all our achievements over the last year or to show our dedication and desire

to contribute to the development and modernisation of China through science and technology. We hope this report will help to update our friends and provide you with a better understanding of the Academy. Let me take this opportunity to express my sincere gratitude to all our friends both at home and overseas who have taken an interest in and supported the long-term development of CAS.

