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SCIENCE AND TECHNOLOGY REVIEW

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China unveils Space Science National Plan 2024-2050

China's first space science plan, “The National Medium and Long-term Development Plan for Space Science (2024-2050)” was jointly [released](#) by the Chinese Academy of Sciences, China National Space Administration and China Manned Space Agency on 15 October. Ding Chibiao Vice President of the Chinese Academy of Sciences, [stated](#) that the plan will be the “foundation of China’s space science mission deployment and space science research for decades to come.”

Overall, the plan outlines 17 priority areas where scientists will conduct research under five scientific themes: extreme universe, space-time ripples, panoramic view of sun-earth, habitable planets and biological and physical sciences. It also outlines a roadmap for the development of space science in China through to 2050. In the first phase (2024-2027), it will exclusively focus on implementing manned lunar exploration and planetary exploration projects, and around eight space satellite missions will be approved. During the second phase (2028-2035), an international lunar research station will be constructed and around 15 scientific satellite missions will be carried out. During the third phase (2036-2050), China will launch over 30 space science missions.

With the backdrop of the plan, Wang Chi Director of the China National Space Science Center, [stated](#) that China “will deepen international cooperation and space science exchanges to ensure that the achievements better benefit humankind.”

China releases world first International Standard for Stem Cell Data

In a major milestone in biotechnology, the Institute of Zoology of the Chinese Academy of Sciences, [published](#) the world's first global standard for stem cell data-IS08472-1. Qiao Gexia, Director of the Institute of Zoology, states that IS08472-1 will not only enhance research quality and data handling efficiency, but also lay the groundwork for future advancement in global stem cell standards.

Scientific Collaboration Projects

To generate new knowledge and better understanding of world environmental conditions and biological communities, over 200 experts from 19 countries [gathered](#) for the Third Open Science Meeting (OSM) of the International Long-Term Ecological Research Network (ILTER) in Xishuangbanna in southwestern China’s Yunnan province from 14 to 19 October. The core objective of this project is to enhance joint efforts to bridge the gaps between societal needs and scientific imperatives through data sharing, research collaborations and capability building in the sciences, both at a regional and global scale.

Scientific Research Breakthroughs and Discoveries

Developed by the Aerospace Information Research Institute (AIR), Chinese Academy of Sciences, China officially launched the first domestically [developed](#) integrated sky-ground monitoring and early warning system for vegetation pests and diseases, known as “Smart Eye. The Smart Eye integrates several technologies: intelligent ground-

level in-situ detection, low-altitude remote sensing and large-scale smart monitoring and early warning capabilities. Prof. Huang Wenjiang from AIR, stated that with the development and deployment of Smart Eye, a significant breakthrough has been made in protection and monitoring of vegetation pests and diseases in China by harnessing the power of AI and aerospace information technology.

An international team led by the Chinese Academy of Sciences, [developed](#) a high-efficiency solar cell and named it the “perovskite-organic tandem solar cell.” Dubbed as the next generation of solar technology, the perovskite solar cell delivers several benefits, including easier preparation, lightweight construction and potential for flexible device fabrication. According to Li Yongfang, the perovskite solar cell can achieve a photoelectric efficiency of 26.4 per cent, the highest efficiency of any solar cell to date. A research team from the Dalian Institute of Chemical Physics (DICP) [developed](#) a technology for sustainable production of bio-based ethylene glycol (EG) with a production capacity of 1000 tonnes annually, marking a major step forward in China’s green transformation. Zheng Mingyuan from DICP said such breakthroughs in technology will support China’s sustainable economic development and realize the goal of “dual carbon” i.e. reducing carbon emissions by 2030 and achieving carbon neutrality by 2060.

An engineering team from Tsinghua University and the Aerospace Information Research Institute of Chinese Academy of Sciences successfully [developed](#) a buoyant airborne turbine (BAT) for harnessing stronger, steadier winds from higher altitudes to generate power. During one

operation, the helium-filled S500 blimp ascended to 500 meters above ground in Jingmen city, breaking the record for both the maximum flying height and power generation at a rate of over 50 kW. High-altitude wind is considered a widespread and stable source of clean energy which can be harvested at low cost.

China Science Diplomacy

Led by Jiang Song, Vice President of the National Natural Science Foundation of China, a meeting was [held](#) on 8 October in Beijing with a visiting delegation from the American Physical Society headed by President Young-Kee Kim on 8 October. In the meeting both sides shared thoughts on strengthening exchanges and cooperation in the field of physics based on the principle of “integrity, transparency and reciprocity.”

On 15 October, Zhuang Jia, Deputy Director of the International Cooperation, Chinese Ministry of Science and Technology and Frithjof Maennel, Deputy of International Cooperation of Federal Ministry of Education and Research of Germany [held](#) a meeting in Beijing for enhancing Sino-German scientific and technological cooperation.

Also, the 10th meeting of the China-Spain Joint Committee on Science and Technology Cooperation was [held](#) in Beijing. The meeting was co-chaired by Chen Jiachang, Vice Minister of the Chinese Ministry of Science and Technology and Dr. Juan Cruz Cigudosa, Secretary of State for the Ministry of Science, Innovation and Universities of Spain. At the meeting both sides reviewed the agreements signed in the past years and proposed projects that need to be carried forward, including exchange of researchers and joint funding.