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# CHINA

## SCIENCE AND TECHNOLOGY REVIEW

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## Ethical Guidelines on Brain-Computer Interface Research and Research on Human-Animal Chimeras

For the first time, [the Artificial Intelligence Ethics Sub-committee of the National Science and Technology Ethics Committee](#) under the China Ministry of Science and Technology issued guidelines on 2 February titled “Ethical Guidelines for Brain-Computer Interface Research.”

Brain-Computer interface is a new cross-technology which creates information channels between the brain and external devices and realizes direct information exchange between the two.

The fundamental purpose of the guidelines is to ensure social value while conducting brain-computer interface research. The guideline is based on six principles: protection of health; respecting individual privacy and apply appropriately; adhering to fairness; risk control and safety; disclosing information and support innovation under strict regulation. The guidelines stipulated that for serious-life threatening and rare diseases in which there is no other effective treatments, clinical trials of innovative brain-computer interface products can be carried out with full informed consent and in strict compliance with the relevant national regulations on medical and clinical research.

Meanwhile, [the Life Sciences Ethics Sub-Committee under Ministry of Science and Technology](#) also issued a [guidelines for research on human-animal chimeras](#). The fundamental objective of the guidelines is to adhere strictly to the rationality and scientific research value and also the privacy of the individuals.

Human-non-human animal chimera refers to the introduction of human cells (including human stem cells and their derivatives, primary cells, embryonic cells, etc.) into non-human animal embryos or bodies, so that they are chimerized into another species and in certain Individuals formed by coexisting together at specific stages. In recent years, research on human-non-human animal chimeras has developed rapidly, which is of great significance for exploring human development, drug screening, constructing animal disease or injury models, finding new ways to treat diseases, studying human organ regeneration, and carrying out organ reconstruction.

## Scientific Collaboration Projects

A collaborative project titled “[Multi-source Satellite-coordinated Remote Sensing Monitoring of Crop Diseases and Pests](#)” between Aerospace Information Research Institute of Chinese Academy of Sciences and Institute of Methodologies for Environmental Analysis under the Italian National Council of Research, has produced fruitful results in the remote sensing monitoring of crop diseases and pests at regional and national scales.

By combining meteorological data, ground survey data, and considering the occurrence characteristics and spread patterns of major crop diseases and pests, the project has successfully devised robust remote sensing monitoring models. These models facilitate quantitative assessments of the spatial distribution and prevalence areas of crop pests and diseases, spanning various scales from global to national levels.

The project’s achievements have gained traction and endorsement globally from international organizations such as the Food

and Agriculture Organization (FAO) of the United Nations and the Global Biodiversity Information Facility (GBIF). Notably, these achievements have reportedly been embraced and commended by relevant authorities in countries such as Pakistan, Somalia, Azerbaijan, Turkmenistan and Iran.

## Scientific Research Breakthrough and Discoveries

In a major [scientific breakthrough in measuring the solar magnetic field](#), the Accurate Infrared Magnetic Field Measurements of the Sun (AIMS), the world first solar magnetic-field telescope located in Lenghu, northwest China's Qinghai Province, at an average altitude of about 4,000 meters has achieved a breakthrough by improving its measurement accuracy. Wang Dongguang, Chief Engineer of Huairou Solar Observing Station of National Astronomical Observatories stated that scientific data shows that the AIMS telescope has carried out precise measurements of solar vector magnetic fields for the first time with an accuracy exceeding the 10 Gauss level.

A new brand of [‘artificial leaf’, a liquid metal-embraced photoactive film](#), which harnesses solar energy to produce hydrogen through direct water splitting, has been developed. According to research team leader Liu Gang of Institute of Metal Research, the film, similar to a natural leaf, converts solar energy directly into a chemical fuel, holding great promise in direct solar-to-hydrogen energy conversion. This development is particularly promising under the context of the carbon-neutral initiative.

The China Academy of Space Technology announced [the development of robot for cultural relics protection](#), which,

combined with electron beam irradiation technology, can be used as an intelligent mobile system to eradicate bacteria that thrive on ancient murals in small tombs.

On 7 February, [China’s fifth Antarctic scientific outpost, known as Qinling station](#), located near the U.S. McMurdo station and just south of Australia was opened. The station covers 5,244 square meters and can house up to 80 people during summer months.

[According to Chinese Foreign Ministry spokesperson Wang wen-bin](#), “the station will contribute to humanity’s scientific understanding of the Antarctic, provide a platform for joint scientific exploration and coordination between China and other countries and help advance peace and sustainable development in the region.”

Zhongshan, Taishan, Kunlun, and Great Wall are China’s four other research stations in Antarctica, built between 1985 and 2014.

## China Science Diplomacy

A ceremony of the [2023 Chinese Government Friendship Award](#) was held at the Great Hall of the People in Beijing on 4 February, where 50 foreign experts from 26 countries were honored for their outstanding contribution to China reform and development. Prominent awardees of this year include Yvon Le Maho, a renowned French biologist, Kazakh ophthalmologist Saulebek Kabilbekov, ex-president of the Brazilian Space Agency Jose Raimundo Coelho and Norwegian Erik Solheim, Executive Director of the United Nations Environment Programme.

Appreciating foreign talents for their contribution to China’s economic and social development, [Chinese Premier Li Qiang](#) stated

that China will continue to “provide broad space for foreign experts and other talents” to advance “high-quality development in an all-round way.” The Chinese Government Friendship Award, officially began in 1991, is an honor established by the Chinese government to commend foreign experts working in China, who have made significant contributions to China’s reform and development. So far, nearly 1,900 foreigners from over 80 countries and regions have been awarded.

On 6 February a meeting between the [President of China Association for Science and Technology \(CAST\) Wan Gang](#) and [President of the Friedrich Albert Foundation](#), Germany was held in Beijing. The two sides exchanged views on advancing science and technology cooperation between China and Germany in the fields of climate change, renewable energy, biodiversity and new energy vehicles (NEVs).