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## BRICS as Major Force on International Stage

By CEN Yingjie & ZHANG Jiaxin

At the 2024 BRICS Summit in Kazan, Russia, President Xi Jinping called on its member nations to work for high-quality development of greater BRICS cooperation.

"As the world enters a new period defined by turbulence and transformation, we are confronted with pivotal choices that will shape our future. Should we allow the world to descend into the abyss of disorder and chaos, or should we strive to steer it back on the path of peace and development?" he said.

At the summit held from October 22 to 24 with the theme "Strengthening Multilateralism for Just Global Development and Security," new members were ushered in, marking a milestone in the evolution of BRICS as a major force on the international stage.

### Promoting greater BRICS cooperation

President Xi put forward five suggestions:

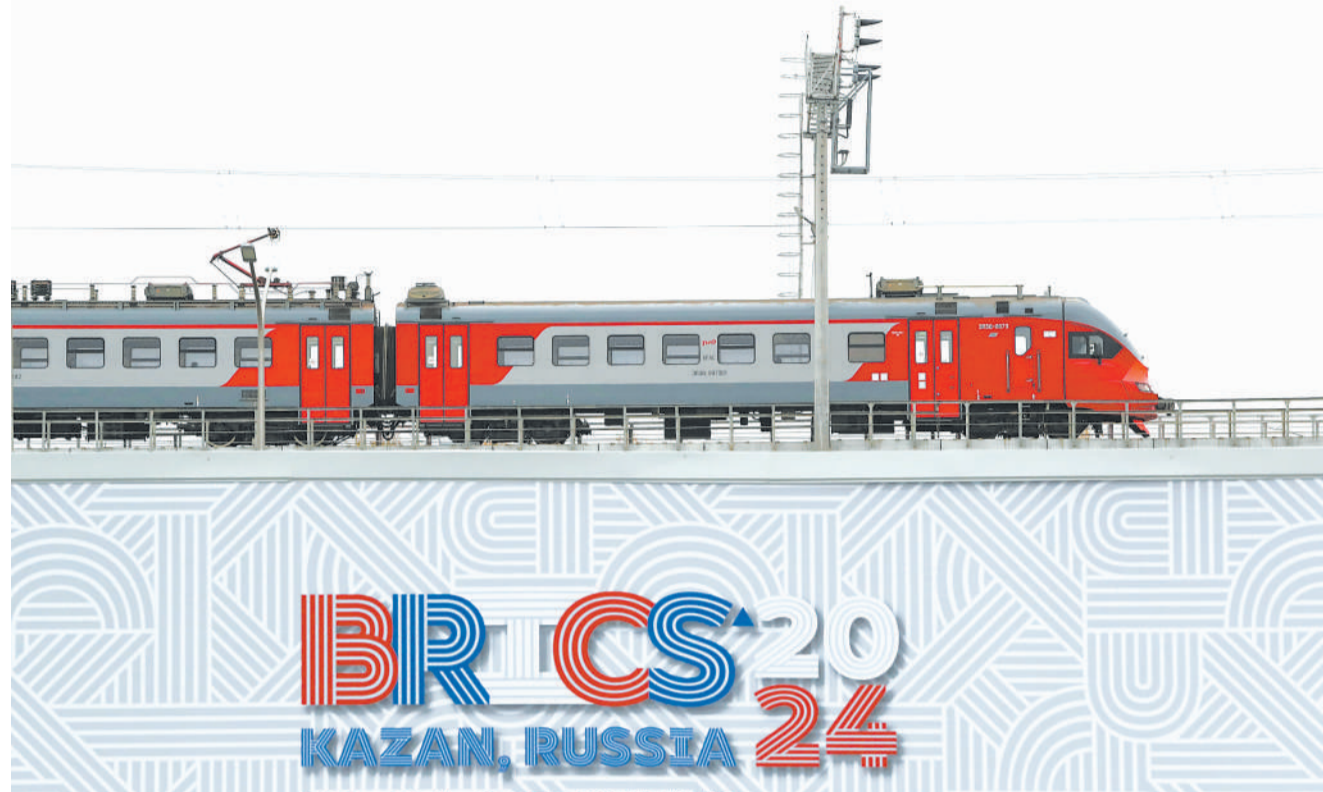
"We should build a BRICS committed to peace, and we must all act as defenders of common security. We should build a BRICS committed to innovation, and we must all act as pioneers of high-quality development. We must keep pace with the times and foster new quality productive forces."

Xi said China has already established a China-BRICS Artificial Intelligence Development and Cooperation Center, and will set up a BRICS Deep-Sea Resources International Research Center. It will also build a China Center for Cooperation on Development of Special Economic Zones in BRICS Countries, and a China Center for BRICS Industrial Competencies. In addition, a BRICS Digital Ecosystem Cooperation Network will also be created, and he welcomed participation from others.

"We should build a BRICS committed to green development, and we must all act as promoters of sustainable development," Xi said. China's high-quality production capacity, as exemplified by its electric vehicles, lithium batteries and photovoltaic products, provides a significant boost to global green development, he pointed out.

"We should build a BRICS committed to justice, and we must all act as forerunners in reforming global governance," he added. "We should build a BRICS committed to closer people-to-people exchanges, and we must all act as advocates for harmonious coexistence among all civilizations."

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The 2024 BRICS Summit takes place in Kazan, Russia, from October 22 to 24. (PHOTO: VCG)

## Editor's Pick

## Space Science Program for 2024-2050 Unveiled

By CHEN Chunyou

Exploring the vast universe has been an unremitting pursuit in human history. Currently, China's aerospace industry has accomplished remarkable progress. Sophisticated space applications in communication, navigation, and remote sensing satellites are boosting socioeconomic development.

As space science advances into a phase of innovative development, the first comprehensive national medium- and long-term development plan for space science (2024-2050) was unveiled by the Chinese Academy of Sciences (CAS), the National Space Administration and the China Manned Space Agency (CMSA) at a news briefing on October 15.

### Three-stage roadmap

The plan will be the foundation of China's space science mission deployment and space science research for decades to come, CAS Vice President Ding Chibiao said.

The overarching goal is to implement national space science missions, strengthen task-driven basic research, build a high-level talent pool for space science, and make original landmark achievements with international influence.

Breakthroughs are expected in five areas: extreme universe, space-time ripples, a panoramic view of solar-earth, habitable planets, and biological and physical sciences in space.

Seventeen areas will be given priority, such as dark matter and extreme universe, origin and evolution of the universe, and detection of cosmic baryonic matter.

The plan outlines a three-stage roadmap for space science development.

In the first stage, from now to 2027, the main task will be space station operation, implementing the manned lunar exploration project, the fourth phase of the lunar exploration program and planetary exploration project. Five to eight space science satellite tasks will be approved,

and original achievements with important international impact will be produced.

During the second stage from 2028 to 2035, China will maintain the operation of the Chinese space station, implement manned lunar exploration and the International Lunar Research Station, carry out about 15 space science satellite tasks, and attain world-leading original achievements.

The third stage will run from 2036 to 2050. China will implement more than 30 space science tasks, and key areas in space science are expected to reach world-leading levels.

### Filling the gap

"Focusing on frontier issues in space astronomy, China will launch a space telescope for sky survey, which is expected to make breakthroughs in cosmology, galaxy science, the Milky Way, and solar system celestial bodies," CMSA Deputy Director Lin Xiqiang said.

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## Sinopec Reduces Carbon Footprint Via Green Tech

By CAO Xiuying & LIANG Yilian

The Fuling shale gas field, China's first large commercial shale gas development, has reached a cumulative output of nearly 70 billion cubic meters. This success has propelled breakthroughs in shale gas exploration, expanding the industry across new regions, horizons, and depths.

On October 10, China Petroleum and Chemical Corporation (Sinopec) released a series of achievements, underscoring its commitment to green energy and advanced exploration technology.

Sinopec is accelerating green technology innovation, strengthening the green energy industry, and building a low-carbon circular economy, according to Ma Yongsheng, Sinopec's chairman.

### Breaking new ground in shale gas development

Sinopec's shale gas journey began

on November 28, 2012, with the Jiaoye 1HF well in Chongqing's Fuling district, producing 203,000 cubic meters of shale gas daily. In the following ten years, Fuling has supplied clean energy to six provinces and two municipalities along the Yangtze River Economic Belt, benefiting over 200 million residents and thousands of enterprises.

With proven shale gas reserves nearing 900 billion cubic meters, Fuling accounts for 34 percent of China's total shale gas reserves. The field maintains a stable annual output of 8.6 billion cubic meters, producing 5.3 billion cubic meters in the first eight months of this year.

To maximize resource recovery, Sinopec has implemented advanced development techniques. By utilizing a multi-layer drilling strategy, the Fuling gas field's recovery rate has doubled to 23.3 per-

cent, with some well groups achieving a recovery rate of 44.6 percent, comparable to international standards.

Since 2018, Sinopec has expanded its exploration efforts into new regions and geological formations, including the successful development of the Weirong deep shale gas field and Nanchuan's atmospheric shale gas.

### Pioneering green energy solutions

Beyond shale gas, Sinopec has been actively building a new energy industry system. The company has made Xiongqian in Hebei province China's first "smoke-free city," pioneering a model for geothermal energy development. Sinopec's geothermal projects now cover vast areas across the country. These efforts reduce carbon dioxide emissions by an estimated 4.7 million tons annually.

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## International Cooperation

## China, France Promote Nuclear Energy Standardization

By Staff Reporters

Sino-French nuclear energy cooperation, spanning 40 years, is an important component of the comprehensive strategic partnership between the two nations. Its "two legs" are technological and industrial cooperation.

In nuclear energy, standardization is the foundation for technological innovation and an important guarantee for international cooperation and safe development. In recent years, China and France have made significant progress in mutual recognition of each other's nuclear power standard technologies and the formulation of international standards for nuclear fusion.

These achievements have advanced nuclear energy technology in both countries and set a new benchmark for global nuclear energy cooperation.

This year marks the 60th anniversary of the establishment of China-France diplomatic ties. To promote standardization cooperation in nuclear energy, the China National Nuclear Corporation (CNNC) and électricité de France (EDF) jointly held the Sino-French Conference on International Exchange of Nuclear Energy Standardization in Beijing on October 21.

The conference was themed "Innovating Nuclear with Technology, Developing Industry with Standards."

Fifteen standardization experts presented thematic reports on Sino-French nuclear power standardization, standardization in response to climate change, digital reactor technology, and related issues, especially intelligent operation, and maintenance and management of aging nuclear power plants. Standardization of fast reactors and fusion reactors was also on the agenda.

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## WEEKLY REVIEW

### 'Lunar Bricks' for Future Lunar Base Construction

Chinese researchers used a lunar soil simulant to make "lunar bricks" that are more than three times stronger than the standard red bricks or concrete bricks. This breakthrough is promising for constructing strong lunar bases in the future.

### Multimodal Model Emu 3 Unifies Video, Image and Text

The Beijing Academy of Artificial Intelligence released Emu3, a multimodal world model that unifies the understanding and generation of text, image, and video modalities with next-token prediction. It can serve as a powerful paradigm for multimodal models, going beyond language models and delivering state-of-the-art performance across multimodal tasks.

### 124 New Mineral Deposits Discovered

The Ministry of Natural Resources has released the China Mineral Resources 2024 report. According to it, by the end of 2023, 173 kinds of minerals had been discovered in China, and 124 new mineral deposits were discovered last year.

### Human Skin 'Map' Created

Researchers from the UK Wellcome Sanger Institute and Australian Newcastle University used single cell sequencing and other genomics techniques to create a human skin atlas and uncover how human skin, including hair follicles, is formed. These insights could be used to create new hair follicles in regenerative medicine and skin transplants for burn victims.

### Flexible Sensors Enable Health Monitoring

A research team led by Hokkaido University and the University of Tokyo in Japan has created a flexible multimodal wearable sensor patch and developed corresponding edge computing software. The software, which can be installed on a smartphone, analyzes the data collected by the sensors to monitor the user for conditions such as arrhythmias, coughs and falls.

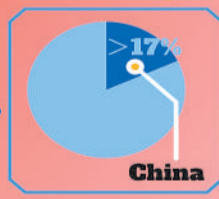
## New Graphic

### Global Digital Economy Development Index

(In 2023)

The global digital economy surpassed

40 trillion RMB



2nd The comprehensive strength of China's digital economy

The proportion of China's invention patents granted globally in the core industries of the digital economy >40%

Source: Institute of Scientific and Technical Information, Hubei Academy of Scientific and Technical Information and Wuhan University. Designed by YAO Yilu / Science and Technology Daily

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