

Science and Technology Daily

VOL.6-NO.242

MAY 30-31, 2026

Sci-tech Ties Nurture China-Serbia Ironclad Friendship

By BI Weizi & LONG Yun

China and Serbia, both recognized as global centers of origin for functional plants, have joined forces to protect endangered botanical resources and advance rural development. Against the backdrop of biodiversity loss driven by climate change and human activity, a China-Serbia collaboration originally launched as a research project has grown into a full-spectrum partnership encompassing technology transfer, poverty alleviation and sustainable agriculture. This "small yet smart" model of cooperation embodies the shared vision of building a community with a shared future for mankind.

Joint conservation and utilization of endemic functional plants

This scientific collaboration took root during an international training program in 2019, when researchers from the Institute of Vegetables and Flowers (IVF), Chinese Academy of Agricultural Sciences (CAAS), conducted academic exchanges with Dr. Željana Pribić, principal research fellow at the Institute for Medicinal Plants Research "Dr. Josif Pančić" in Belgrade. Subsequently, the two institutions signed cooperation agreements on resource sharing and academic communication, laying a solid foundation for subsequent joint research.

In 2020, the two sides jointly applied for the national key R&D international cooperation project, focusing on the conservation and efficient utilization of endangered functional plant resources endemic to China and Serbia. Centering on Paeniacaceae and Asteraceae resources, the team has achieved fruitful outcomes.

According to Xue Jingqi, a researcher at IVF, they have collected and preserved 65 valuable plant resources, built 120 mu (eight hectares) of resource nurseries, and planted over 50,000 seedlings with optimized seed breeding and tissue culture technologies.

They have also compiled a survival risk report on endemic functional plants, solving key technical bottlenecks including low propagation coefficient and slow industrial promotion of new varieties.

In addition, the cooperation has produced seven academic papers, two authorized new plant varieties and two national invention patents, forming a replicable technical path for transboundary plant resource protection and utilization.

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New Graphic

By the end of April 2026

THE NUMBER OF CHINA'S
EV CHARGING FACILITIES

21.955 million

▲ 47.4% Y-O-Y

Public
Charging Facilities

▲ 29.6% Y-O-Y

Source: National Energy Administration
Designed by SONG Ziyao / Science and Technology Daily

WECHAT ACCOUNT



E-PAPER



The three astronauts aboard China's Shenzhou-23 spaceship entered the Tiangong space station and met with another astronaut trio on Monday, starting a new round of in-orbit crew handover. This image captured at Beijing Aerospace Control Center shows a group picture of the crew of Shenzhou-21 and Shenzhou-23 spaceships on May 25, 2026. (PHOTO: XINHUA)

STI Frontier

Xuelong 2 Maps Rare Antarctic Marine Secrets

By BI Weizi & BI Wenting

China's polar icebreaker, Xuelong 2, also known as Snow Dragon 2, has officially completed the country's 42nd expedition to the Antarctic, achieving several breakthroughs in technological innovation and international cooperation, along with large-scale application of domestically-developed polar equipment.

Antarctic Ocean health checkup

During its summer oceanographic survey, Xuelong 2 focused on two key regions: the waters adjacent to the Antarctic Peninsula and the Cosmonaut Sea. In just 32 days, the team conducted a thorough, multidisciplinary survey across six transects and 38 stations, ensuring comprehensive coverage of the water column, sediments and other environmental factors.

As key species within the Antarctic

ecosystem, Antarctic krill and mesopelagic fish (deep-sea marine species), serve as both food sources for predators and "indicators" of climate change. The expedition team conducted multiple trawling operations, cumulatively capturing over 1,000 krill and nearly 900 fish, including Antarctic lanternfish. This provided crucial support for research into the structure of the Antarctic ecosystem and the mechanisms of climate adaptation.

Furthermore, in the basin and continental slope regions of the Cosmonaut Sea, the team successfully retrieved two high-quality sediment cores with a combined length of approximately seven meters. Cao Shunan, leader of the expedition's Ocean Team, said: "These columnar sediment cores allow researchers to directly obtain invaluable geological records of two typical ventilation scenarios in the

Southern Ocean. This enables them to decipher the complete intrusion process of Circumpolar Deep Water — warm water found in the ocean depths — as it upwells from the ocean basin. This preserves a precious geological archive for forecasting global climate change trends."

Autumn-winter scientific research

In March, Prydz Bay in Antarctica entered the transitional period between autumn and winter. After completing the autumn voyage in the Ross Sea during China's 41st Antarctic Expedition, China broke through seasonal constraints once again by launching the 2026 Joint Antarctic Expedition to Prydz Bay (hereinafter referred to as the Joint Expedition).

The Joint Expedition brought together 97 scientific researchers from 19 research institutions across six nations, including Australia and the United States.

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Tau Scaling Law: New Semiconductor Evolution Path

By Staff Reporters

Huawei has proposed a revolutionary semiconductor evolution paradigm called the "τ (Tau) Law," shifting the industry's focus from transistor size to system time cost.

The law, announced at the 2026 IEEE International Symposium on Circuits and Systems on May 25, aims to sustain performance gains by systematically compressing "time costs" across devices, circuits, chips and software. It offers a practical route beyond the physical limits of Moore's Law.

From geometric to time scaling

According to Moore's Law, proposed by Intel's co-founder Gordon Moore in 1965, more transistors delivered in the same area of integrated circuit can drive

performance increases and cost reductions.

Unlike Moore's Law, which relies on shrinking transistor dimensions (geometric scaling), the Tau Law introduces τ scaling (time scaling), redefining semiconductor progress: the primary metric is no longer how small a transistor can be, but how fast the system responds.

"The core breakthrough is reconstructing the semiconductor industry's 50-year evolution path," Zhou Jianjun, a professor at Shanghai Jiao Tong University's School of Integrated Circuits, told *Science and Technology Daily*. Instead of focusing solely on making transistors smaller, the new law pursues full-dimensional optimization with the time constant τ as the core physical anchor.

The improvement of chip perfor-

mance will no longer rely solely on more advanced manufacturing processes. It can also be achieved by reducing time delay, including signal propagation, memory access, interconnection and synchronization latency, said He Tingbo, president of Huawei's Semiconductor Business.

How it works

Huawei has already implemented the law through practical engineering methods. The key technique is "logic folding," which vertically stacks digital, analog and memory circuits in three-dimensional space. This shortens critical signal paths and reduces interconnect delays, achieving a coordinated optimization of performance, power and area.

The approach has been validated in mass production.

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International Cooperation

From Earth to Space: China-Pakistan Ties Expand

By LU Zijian

As China and Pakistan celebrate the 75th anniversary of their diplomatic relations this year, bilateral sci-tech cooperation is reaching new heights, with a Pakistani astronaut scheduled to join a mission to China's space station.

The two countries have made substantial achievements in sci-tech cooperation under various mechanisms, especially the China-Pakistan Economic Corridor, a flagship project under the Belt and Road Initiative.

Space cooperation reaches new heights

Aerospace is a key area for sci-tech cooperation. At a recent press conference, it was announced that two Pakistani astronauts are participating in training with Chinese taikonauts, and one of them will undertake a short-term mission to China's space station as a payload specialist.

One month ago, China launched a Pakistani satellite, PRSC-EO3, from the Taiyuan Satellite Launch Center in northern Shanxi province. The launch marked the third mission supporting the PRSC-EO satellite constellation.

The latest developments are part of a long-standing partnership in space. Pakistan's first satellite Badr-1 was launched via China's Long March 2E rocket in 1990.

In 2023, Pakistan joined the International Lunar Research Station project initiated by China. In 2024, the Pakistani satellite ICUBE-Q, jointly developed by Pakistan's Institute of Space Technology and China's Shanghai Jiao Tong University, was launched into space as part of the Chang'e-6 mission and successfully captured images of the moon, marking Pakistan's first lunar exploration mission.

Cooperation benefits communities on ground

While space cooperation often attracts the most public attention, bilateral sci-tech collaboration has also delivered tangible benefits on the ground, particularly in disaster prevention and mitigation.

Developed by China Meteorological Administration (CMA), the "MAZU" early warning system, a cloud-based meteorological system designed to help countries better broadcast extreme weather, is deployed in Pakistan.

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WEEKLY REVIEW

Bridge with Four World Records Closed

On May 27, the Shituo Yangtze River Bridge — a key control project of the newly constructed Chongqing-Wanzhou High-Speed Railway — was successfully closed. This bridge holds four world records, including the world's tallest twin-tower structure (Tower 6 stands at 253 meters), and the world's first road-rail combined bridge with twin towers.

Asia's First 10-year Roadmap for Synthetic Cells Published

Led by a researcher at the Shenzhen Institutes of Advanced Technology of the Chinese Academy of Sciences, a group of international scholars recently published Asia's first 10-year roadmap for synthetic cells in the journal *Nature Biotechnology*. This will set new scientific benchmarks for synthetic cell research over the next decade.

Europe Advances Plans for Future Circular Collider

European physicists are planning a 91-kilometer particle accelerator, the Future Circular Collider, which would be the largest of its kind if built. The project, estimated to cost €15-20 billion, would succeed the Large Hadron Collider era at CERN, the European Organization for Nuclear Research, and initially collide electrons with positrons.

NASA's Psyche Spacecraft Completes Mars Gravity Assist Flyby

NASA's Psyche spacecraft recently completed a Mars gravity-assist flyby, gaining additional velocity without using propellant, as it continues its journey toward the metal-rich asteroid Psyche. It is expected to arrive there in 2029.

Ethical Guidelines to Regulate Human Genetic Data Research

Policy Express

By XU Zhilong, LIU Yin & LI Linxu

China's Ministry of Science and Technology has issued ethical guidelines for human genetic data research to promote responsible innovation and the healthy, orderly development of human genetic data.

The document seeks to regulate relevant scientific research and technological development activities, while protecting the legitimate rights and interests of research participants and related groups.

"The issuance of this document marks a crucial step forward for China's ethical governance in the field of human genetic data research, moving from a stage of 'principled advocacy' toward 'refined guidance,'" said Cong Bin, an academician of the Chinese Academy of Engineering.

Human genetic data refers to various kinds of data obtained or derived from human biological samples that directly reflect human hereditary information. This includes, but is not limited to, deoxyribonucleic acid (DNA) sequence data of the nuclear genome and mitochondrial genome, transcriptomic data, genotyping data and epigenetic modification data.

The rapid development of gene se-



Staff members conduct a hearing test for a young patient undergoing gene therapy in Jinan city, Shandong province. (PHOTO: XINHUA)

quencing, omics technologies and data analysis methods has supercharged genetic research. The advancement has deepened our understanding of disease etiologies, developmental mechanisms, classification systems and therapeutic pathways, providing crucial scientific support for biomedical research, disease prevention and precision medicine.

However, human genetic data possesses unique attributes, including high identifiability, lineage and population correlation and transgenerational continuity. Consequently, related sci-tech activities may trigger multi-layered and complex ethical, legal and social issues.

The guidelines lay down comprehensive regulations governing the basic principles, general requirements, special requirements and public science popularization of human genetic data research.

Sci-tech activities involving human genetic data should uphold the basic principles of promoting human well-being, respecting autonomy, controlling risks, doing no harm and preventing abuse, and ensuring fairness and justice.

They should aim to drive progress in life sciences, medicine and related technology fields, so as to improve human health, advance disease prevention

and treatment, and boost public interests and human well-being.

"Prioritizing human well-being means that all research activities must put people first," Cong said. Upholding a cautious approach, the guidelines emphasize risk control and the prevention of abuse. This fully demonstrates China's firm stance on the ethical governance of science and technology.

According to the guidelines, the principles of scientific rationality, legitimate purpose and minimal necessity should be adhered to, and the legitimate rights and interests of individuals respected and protected.

Relevant activities should strictly comply with national laws and regulations. Those engaged in such activities should possess the required qualifications and professional expertise.

Such activities should respect and protect the participants' right to know and choose freely, and follow legal procedures for informed consent.

According to the guidelines, sci-tech activities involving human genetic data should ensure that all data sources are legal, compliant, authentic, accurate and fully traceable.

Such activities should strengthen the protection of genetic privacy. Mining or using data with the intent to violate personal privacy is prohibited.



ulation and digital twin technologies to assess resource and energy consumption, as well as environmental impacts in key processes including manufacturing, usage and disassembly, while building product lifecycle databases and green design knowledge bases.

Going forward, the MIIT will work with relevant departments to develop green design solutions, advance the integration of "AI+Green Design," formulate related standards, promote representative green design products, expand training for green design professionals, and deepen international exchanges and cooperation.

These initiatives will help increase the supply of green products, stimulate green consumption, and strengthen the momentum for green development.

joint statement, agreeing to tap into the potential for cooperation. The areas include energy, digital economy, scientific and technological innovation, artificial intelligence, and information and communication.

They also agreed to scale up personnel training, advance trade liberalization, and jointly safeguard the stability and security of industrial and supply chains.

Cooperation in areas ranging from space exploration and Earth sciences to artificial intelligence and the digital economy will continue to expand in the future.

ray in this region.

Cao said: "These ocean-bottom seismometers act like sensitive 'stethoscopes' for the deep sea, capable of continuously capturing natural seismic waves and recording minute tremors within the Earth's crust." Through them, researchers can conduct year-long passive-source ocean-bottom seismic observations to acquire natural seismic signals from this area and its surrounding regions.

This expedition challenges the traditional reliance on the summer season for Antarctic scientific research and provides a valuable model for achieving continuous, year-round observations in the polar regions. Furthermore, international collaboration and data sharing in polar research serve as a global public good, highlighting China's significant contribution to international cooperation in this field.

Global Journal Observatory

Angewandte Chemie

Spotlighting Innovations that Inspire Chemical Community

By Frank Maaß & Nathalie Weickgenannt

Angewandte Chemie, meaning "applied chemistry" in German, is one of the world's leading journals for the publication of chemical research. With an impact factor of 17 and over 5,000 publications in 2025, it is a high-impact, high-volume journal with a mission to disseminate innovative research from around the globe that drives the advancement of chemistry across all sub-disciplines, from biocatalysis to battery research, from inorganic materials to transition-metal catalysis.

In 2025, the journal recorded more than 40 million full-text downloads, corresponding to over 75 article views per minute. This underscores its position as a central platform for the dissemination of chemical research and reflects the size and diversity of its global readership. For authors, a publication in *Angewandte Chemie* offers broad international visibility within the chemical sciences.

Founded in 1887, *Angewandte Chemie* initially focused on chemical engineering and technical chemistry. In the 1970s, the journal's focus shifted toward fundamental research as it became more international, while it retained its applied roots. Its success story is built on the close collaboration between its owner, the German Chemical Society, and the editorial team at the publisher Wiley-VCH.

Managing growth through editorial expertise

In 2000, *Angewandte Chemie* received around 150 submissions per month. By 2025, this number had risen to nearly 2,500. Handling this volume requires a large editorial team to ensure consistent and rigorous evaluation. The around 40 full-time in-house editors of the journal have extensive research experience across all areas of chemistry and adjacent disciplines, and they work collaboratively in subject-focused teams.

Every manuscript submitted undergoes an initial internal assessment by an editor, often in consultation with the subject team or the editors-in-chief. As the editors evaluate manuscripts, they look for the transformative potential of the research as well as excellent scientific quality and broad relevance that has the potential to inspire the wider chemical community.

Angewandte Chemie serves a large, diverse and international scientific community. The in-house editors closely interact with the members of the journal's Scientific Advisory Committee (SAC) and International Advisory Board, composed of internationally renowned active scientists from across the globe. They act as our eyes and ears in the community and



Front cover of Angewandte Chemie, Volume 65, Issue 21. (COURTESY PHOTO)

offer essential strategic guidance.

The current 13 members of the SAC help shape the scientific profile of the journal and provide input on editorial strategy. As active researchers, they bring hands-on experience from the bench into editorial decision-making and are closely involved in difficult decisions and appeals.

Elevating outstanding innovations

The editorial office headquarters are located in Weinheim, Germany, where the editors-in-chief are also based. At the same time, our editorial presence in Canada, China, India, South Korea and the United Kingdom reflects the global nature of chemistry and enables close engagement with researchers on the ground. The China editorial team of 13 editors, based in Beijing and Shanghai, plays a key role in identifying innovative work and maintaining close engagement with researchers.

Through ongoing dialogue and by gathering feedback from authors, the local editors provide responsive editorial support while ensuring that high-quality contributions from the region are evaluated within the journal's rigorous editorial framework.

With the launch of *Angewandte Chemie Novit*, "The Up-Transfer Journal", the *Angewandte Chemie* portfolio introduced a new route to publishing in 2025. Manuscripts originally submitted to *Angewandte Chemie* and rated as exceptional by the reviewers undergo an additional manuscript selection process, identifying a small number of particularly outstanding studies for publication. The SAC members play a key role in this process. As a highly selective journal with limited annual output, *Angewandte Chemie Novit* offers exceptional global visibility and recognition from the research community.

The authors are the editors-in-chief of Angewandte Chemie.

Journal Review

Angewandte Chemie stands as one of the most influential and trusted journals in the chemical sciences. Its name carries a rich heritage, yet the journal has evolved far beyond its original scope to embrace the growing interdisciplinary nature of modern chemistry research. Today, it publishes groundbreaking research articles alongside authoritative reviews and highlights that bridge chemistry with physics, biology and materials science. This inclusive and forward-thinking culture is the cornerstone of *Angewandte Chemie's* enduring success.

China has become one of the largest contributors to *Angewandte Chemie*, verifying both the growing excellence of Chinese chemical research

and the journal's commitment to fostering global scientific exchange. By providing a high-quality platform for rigorous and innovative work, *Angewandte Chemie* empowers researchers worldwide to share discoveries that push disciplinary boundaries.

Looking ahead, I hope *Angewandte Chemie* will continue to champion scientific rigor and cross-disciplinary collaboration, serving as an indispensable resource for the global chemistry community while reflecting the dynamic contributions of Chinese scientists to the field.

Tang Zhiyong, academician of the Chinese Academy of Sciences, and director of the National Center for Nanoscience and Technology

Industrial Design Goes Green

By TANG Zhexiao

Industrial products are in for a green design makeover, along with the green and low-carbon development of the manufacturing sector, after China recently released a set of guidelines to expedite the process.

The guidelines were jointly issued by the Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission, the Ministry of Education, the Ministry of Ecology and Environment and the State Administration for Market Regulation.

Green design, also known as ecodesign, is a design philosophy and methodology oriented toward sustainable development. It seeks to reduce or control resource consumption, and environmental impacts, across the entire product lifecycle starting from the initial design phase, according to the document.

Research shows that 80 percent of a product's lifecycle resource consumption and environmental impact are determined at the design stage.

In response to the evolving needs of green and low-carbon development both domestically and internationally, the guidelines promote industrial consensus on green design and outline 11

key priorities: long-life design, non-hazardous design, lightweight design, energy-saving design, water-saving design, material-saving design, noise-reduction design, space-saving design, easy recycling and regeneration design, reusable design, and zero-carbon design.

In addition, the document integrates these 11 priorities with real-world industrial applications. This is done through proposing 126 targeted solutions to guide product R&D personnel in applying green design concepts and methods to 15 key industries.

Under the guidelines, enterprises are encouraged to use 3D modeling, sim-

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To cope with specific meteorological disasters such as glacial lake outburst floods, monsoon surges and torrential rains in Pakistan, the CMA and relevant departments in Pakistan jointly developed a customized version of the system.

Another example of growing cooperation on the ground is the China-Pakistan Joint Research Center on Earth Sciences (CPJRC), jointly established by the Chinese Academy of Sciences and

Pakistan's Higher Education Commission in 2023.

The CPJRC focuses on such areas as natural disasters, ecological environment, resource development and sustainable development.

Its researchers proposed a digital platform to share disaster-related open data in a fully digital format, so as to enhance data accessibility and lower economic and technical barriers, providing a replicable model of data aggregation,

open sharing, rapid response, and research promotion for underdeveloped regions.

New opportunities for broader cooperation

The achievements in both space exploration and disaster management have created new opportunities for broader cooperation in emerging fields.

During Pakistani Prime Minister Shehbaz Sharif's visit to China from May 23 to 26, the two countries issued a

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Over the course of 23 days, the team conducted surveys at 41 stations, focusing on three core scientific questions: melting ice shelf, carbon sequestration mechanisms and biological overwintering strategies.

The research team collected over 5,700 seawater samples, 2,289 filter membrane samples and 829 biological samples in total. According to Chen Jianfang, the deputy leader of China's 42nd Antarctic Expedition and chief scientist of the Joint Expedition, preliminary investigations revealed signals of super-cooled water at certain depths near the front of the Amery Ice Shelf and within the Mackenzie Polynya. Low-temperature signals were detected on the northwestern continental slope of Prydz Bay,

and signs of Circumpolar Deep Water intrusion were observed on the northern continental slope. However, it appeared that high-density shelf water was unable to flow off the continental slope during this particular season.

The Joint Expedition also conducted stratified surveys of various biological organisms, thereby providing the crucial data needed to construct a year-round operational model of the Antarctic ecosystem.

High-precision observation network

On the night of April 16, amid the strong westerly winds, the Xuelong 2 crew deployed 28 monitoring buoys in the core regions of mesoscale eddies. This marked the first time China had deployed a network for observing meso-

scale eddies in the Southern Ocean. Mesoscale eddies are crucial for transporting matter and energy, however observational data for autumn and winter remain scarce. The deployment of China's domestically developed 6,000-meter "Deep-Sea Basalt" buoy, which made its maiden voyage in the Southern Ocean, will provide the first set of in situ observational data to support research on deep-sea warming.

Domestically produced equipment also played a pivotal role in the 42nd Antarctic Expedition. During the summer phase, team members deployed 15 ocean-bottom seismometers manufactured in China in the waters surrounding the Antarctic Peninsula, thereby establishing China's first ocean-bottom seismic observation ar-

Anthropic's Push Against Chinese AI Is Driven by Anxiety

Clear Voice

By LIANG Yilian & HU Dingkun

On May 14, Anthropic, a U.S. artificial intelligence (AI) company, released a policy paper that was inexplicably ill-timed. Rather than advocating dialogue and cooperation between China and the U.S. on AI, Anthropic instead advised Washington to adopt tougher measures to slow down China's AI development.

The paper, "2028: Two Scenarios for Global AI Leadership," sketches out two possible futures for AI by 2028. In one scenario, the U.S. maintains a 12 to 24 month lead over China and dominates the formulation of AI rules and governance standards. In the other, China and the U.S. stand on roughly equal footing, with China's strength in real-world AI applications shifting the balance of power in Beijing's favor.

Anthropic leaves little doubt about which future it prefers. According to the paper, the first scenario requires Washington to pursue three key policies: tightening export controls on AI chips destined for China, restricting Chinese laboratories' access to U.S. AI models while penalizing alleged "distillation" practices, and aggressively promoting American AI technologies internationally.

Setting aside the merits of these proposals, Anthropic is primarily a technology company — not a professional think tank specializing in international affairs. Rather than concentrating on technological innovation, it has taken



Visitors watch a demonstration of an embodied robot at an Expo in Tianjin on May 28. (PHOTO: XINHUA)

on the role of advising the U.S. government on how to contain China's AI sector, a role that is clearly outside its lane.

Anthropic's geopolitical position did not emerge overnight. In March and April this year, the company publicly recruited multiple "geopolitical analysts." One role specifically called for tracking "full stack of AI competition" and delivering high-quality briefings to government stakeholders, with annual compensation reaching as high as 295,000 USD.

In truth, Anthropic's growing investment in geopolitical analysis appears less about providing objective policy recommendations or informing the public about global AI trends, than about advancing its own commercial interests. The newly released paper ap-

pears more like a public relations or lobbying document, than an independent research report — one that appears to pursue at least three objectives.

First, it seeks to elevate itself by diminishing others. By portraying China's AI progress as heavily dependent on American chips and on "distilling" U.S. large language models, Anthropic casts doubt on Chinese AI companies while reinforcing its own perceived technological superiority.

Second, it seeks to weaken competitors. By encouraging Washington to adopt harsher restrictions against Chinese AI companies, Anthropic appears eager to leverage political power to constrain market rivals.

Third, it seeks commercial gains

abroad. By pressing the U.S. government to more aggressively promote American AI technologies in international markets, Anthropic stands to benefit directly from expanded access and increased demand.

A deep dive into these objectives gives an indication of Anthropic's anxiety over market competition.

Anthropic ranks among the most expensive large-model providers in the industry. According to an analysis by U.S. AI benchmarking company Morph, comparing the Application Programming Interfaces (APIs) of 11 leading AI models worldwide, Anthropic's products are priced significantly above those of its competitors. Generating 50 million tokens using Anthropic's models reportedly costs two to three times more than comparable OpenAI offerings and dozens of times more than China's DeepSeek models.

For a company that has invested heavily in compute-intensive AI development and relies on premium pricing to recover those costs, competition from increasingly capable and affordable Chinese models presents an obvious challenge.

Whatever the motivation, publicly urging one's own government to suppress foreign competitors is unlikely to win broad support, nor will it resolve the commercial pressures Anthropic faces.

For Anthropic, a more convincing strategy might be to reduce the charging fee of its AI models and increase their accessibility to businesses, developers and users worldwide, rather than hiring geopolitical analysts or producing policy manifestos.

faces potential price pressure as new capacity comes online over the next two years. Gu emphasized that Chinese firms must build durable competitive advantages through high-end, technology-driven differentiation.

Frontier innovations such as hollow-core and multi-core fibers are now accelerating toward commercialization. At the 2026 Optical Fiber Communication Conference and Exhibition in the United States in March, Chinese companies drew attention with next-generation ultra-low-loss hollow-core fiber, which reduces transmission latency by 31 percent compared with conventional fiber.

This breakthrough could significantly shorten cross-node communication time in distributed AI training, boosting overall computing efficiency. Domestic telecom operators have already begun pilot deployments.

"The rollout of AI computing infrastructure, together with the 'East Data, West Computing' initiative and the integrated national computing network, will support strong industry momentum through 2027," Gu said.

China's optical fiber industry is now at a critical juncture, transitioning from cyclical undervaluation to a leap in value. Going forward, mastering core technologies and high-end product positioning, while carefully managing the pace of new capacity expansion and uncertainties in AI deployment, will be key to the industry's healthy development.

strategic importance, and circuit innovation, architectural changes, and system-level optimization can help close the process technology gap to deliver high-performance chips.

However, since it is a newly proposed methodology, the Tau Law's applicability across different scenarios and its full adaptation to existing electronic design automation tools and ecosystems still require further validation and optimization.

Voice of the World

China Pulls Ahead in AI Video Race

Edited by GONG Qian

The *Financial Times* (FT) recently reported that Chinese AI tech companies have moved ahead of U.S. rivals in video generation. By highlighting ByteDance's Seedance 2.0 and Kuaishou's Kling, the report said that their models now produce more realistic, stable and controllable videos, driving rapid commercial adoption, in comparison with their Western competitors.

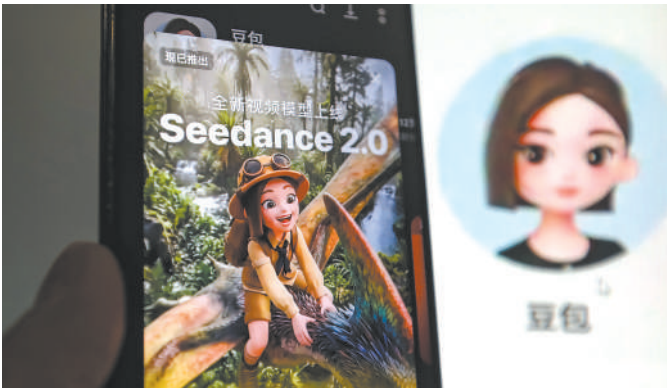
The FT said the shift marks a divergence in the AI race: while OpenAI, Google and Anthropic lead in large language models and areas, their video tools are falling behind Chinese alternatives in both quality and usability.

Seedance 2.0 made international headlines with its February upgrade, hailed for outstanding performance of generating cinema-quality videos. "Many industry experts and filmmakers believe Seedance is a new chapter in the development of video-generating technology," BBC reported at the time.

AI ethics researcher Margaret Mitchell told BBC that it stands out by integrating text, visuals and audio into a single system. The complex action sequences it is producing look more realistic than its competitors, David Kwok, who runs a Singapore-based animation studio, told BBC.

"Seedance 2.0 is one of the most well-rounded video generation models I've tested so far. It genuinely surprised me by delivering satisfying results on the first try, even with a simple prompt," Hugging Face's Yakefu told CNBC, adding that it demonstrates enhanced controllability, speed and production efficiency.

Besides Seedance 2.0, other Chinese AI video tools like Kling and HappyHorse 1.0 are now the definitive world-building engines, as proved by multiple usage leader boards.



AI video generation model Seedance 2.0 is developed by Chinese tech firm ByteDance. (PHOTO: VCG)

Sci-tech Ties Nurture China-Serbia Ironclad Friendship

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Joint sci-tech poverty alleviation empowers rural vitalization

Building on these achievements, CAAS and the China Rural Technology Development Center undertook the China-Serbia Joint Center for Poverty Alleviation through Functional Plant Science and Technology (hereinafter referred to as the joint center) project in 2024, with centers in Belgrade and Beijing. Marking an upgrade from pure academic research to people's livelihood-oriented industrial cooperation, the project has delivered tangible benefits to Serbian rural development.

According to Zhang Xiuxin, specialist of China Agriculture Research System-Chinese Materia Medica, the demonstration center has established ties with eight Serbian research institutions and enterprises, completing bilateral personnel exchanges 22 person-times.

Following targeted poverty alleviation principles, the project selected 17 Serbian rural households for precise support. The selected households are mainly young families under 45 years willing to engage in stable rural operations and with a higher education background, capable of adopting modern technologies and becoming local demonstration models.

Facing common rural dilemmas in-

In early April, Alibaba's HappyHorse-1.0 climbed to the top of blind-test rankings for both text-to-video and image-to-video generation on the benchmarking platform Artificial Analysis.

According to Stanford University's AI Index Report 2026, Chinese models captured eight out of the top 10 places in the authoritative VBench-2.0 ranking.

Why is China leading in AI video generation?

Vast volumes of proprietary video data are one of the important factors. "ByteDance and Kuaishou operate some of the world's largest short-video platforms, giving them a training advantage that is difficult for competitors to replicate," the FT reported.

Furthermore, it could be attributed to China's overall strength in AI competition. Mohit Kumar, Jefferies global macro strategist, told *Fortune* that China has emerged as the major victor in the AI race due to its "valuation, wider adoption of AI, [and] an advantage in power generation."

Computing power, data center infrastructure and energy can constrain a nation's AI capabilities, and China already outpaces the U.S. in energy production and transmission, Ellen Zentner, chief economic strategist and global head of Thematic and Macro Investing at Morgan Stanley, said in an analysis report.

Where Western entertainment industries are hesitant to use AI, China's micro-drama industry has embraced mass commercial application of AI-generated video.

"China has demonstrated repeatedly that it can match or exceed Western AI capabilities at a fraction of the cost, and the micro-drama industry is the most commercially visible example of that principle, applied to content creation at industrial scale," new-tech platform The Next Web reported.

AI Boom Sends China's Optical Fiber Market Soaring

Opinion

By LIANG Yilian & FU Lili

Since the beginning of this year, China's optical fiber industry has witnessed a rare simultaneous rise in both prices and output.

According to industry sources, the price of G.657.A2 specialty optical fiber — used in specific high-performance scenarios — has surged from 32 RMB to 240 RMB per core-kilometer over the past year, an increase of up to 650 percent. First-quarter production and sales across the sector rose by more than 35 percent, with some companies reporting growth of nearly fivefold.

What drives this unusual price-volume rally?

"Optical fiber used to be laid to households; now it is laid next to every GPU," said Gu Rentao, a tenured professor at the School of Information and Communication Engineering at Beijing University of Posts and Telecommunications.

He said the logic underpinning demand has undergone a structural transformation — from traditional 5G deployment and fiber-to-the-home toward high-speed optical interconnects in intelligent computing centers.

As generative AI models scale to trillions of parameters, data traffic within data centers is growing exponentially.

In 2025, global demand for data center optical fiber and cable surged by 75.9 percent year on year to 69.6 million core-kilometers. In 2026, it is projected to exceed 100 million.

While advanced optical switching architectures can help ease the pressure of surging "east-west" traffic within data centers, a hyperscale intelligent computing center may still require five to 10 times more fiber than a traditional facility, Gu explained.

Surging demand is colliding with rigid supply constraints. Around 70 percent of profits in the optical fiber value chain is concentrated in the upstream preform segment, which has high technical barriers, long expansion cycles of 1.5 to two years, and requires heavy capital investment.

During the previous industry downturn, many small and medium-sized producers exited the market, while leading firms adopted cautious expansion strategies. The result is a significant shortfall in effective global supply capacity today. According to Gu, this is a classic lag effect in a technology-intensive industry — the supply-demand imbalance cannot be corrected overnight.

Chinese manufacturers have emerged as key suppliers amid global supply shortages, leveraging their technological capabilities and reliable delivery.

Data shows that overseas sales of Chinese optical fiber companies rose by more than 55 percent year on year in the

first quarter, with orders in North America and Southeast Asia already booked in to the first quarter of next year.

"The sharp increase in overseas sales reflects comprehensive competitiveness," Gu said. He attributes this growth to several factors.

First, technological breakthroughs: Chinese firms have mastered the three mainstream preform manufacturing processes — PCVD, OVD and VAD — while also advancing frontier technologies such as hollow-core fiber. Second, advantages in cost and delivery speed, supported by a highly integrated domestic supply chain. Third, enhanced supply chain resilience through localized global production networks.

Chinese manufacturers now account for more than 60 percent of the global optical fiber and cable market, with roughly 70 percent of global preform and fiber capacity concentrated in China. Industry leader Yangtze Optical Fibre and Cable Joint Stock Limited Company stands out as the only company worldwide to master all three preform technologies, achieving full self-sufficiency and commanding 80 percent to 90 percent share of the high-end G.654.E segment.

Other companies, including Hengtong Optic-Electric Co., Ltd. and Jiangsu Zhongtian Technology Co., Ltd., also hold leading positions in specialty fibers and preform production.

Despite the short-term dividend of "rising volume and prices," the industry

work, progress will depend on full-stack collaboration covering devices, architectures, software and systems, rather than on lithography scaling alone.

Second, it provides strategic guidance for supply chains. "Chip manufacturing does not need to rely excessively on cutting-edge lithography equipment," Zhou said. Advanced packaging will gain

end chips to achieve transistor density equivalent to the 1.4nm process node.

Industry impact

The Tau Law is expected to reshape the semiconductor industry's basic development principles.

First, it shifts the focus of semiconductor evolution from geometric scaling to time scaling, and based on this frame-

Tau Scaling Law: New Semiconductor Evolution Path

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Huawei has designed and manufactured 381 chips over the past six years based on this framework.

The Kirin 2026 chip, to be launched in autumn, will be the first full implementation of logic folding, expanding from single-layer to dual-layer design. By 2031, Huawei expects its high-

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Editor's Note:

Tech Code is a column for Gen Z explorers from around the world to observe how technology is reshaping China's intangible cultural heritage. In this edition, *Science and Technology Daily* visits Jingdezhen, the ancient porcelain capital of China. Our guide is Ozge Atalay from Türkiye, who came to study ceramics further and realized that broken pieces are not waste but data packets, and technology is their decryption code.

Yet Jingdezhen is more than a technological laboratory. It is a global village, home to more than 5,000 foreign ceramic artists who bring their own aesthetics to clay. Here craft and code do not compete. They flow together across borders.

Decoding Jingdezhen Ceramics with Tech

When Ozge Atalay, a ceramic art student from Izmir, Türkiye, learned the craft in her own country and Germany, she was taught to work only with her hands.

Then she spent half a year in Jingdezhen in east China, renowned as the millennia-old porcelain capital of China, and her Chinese friend Zhao Nan, a young inheritor of Peking Opera facial mask making, showed her otherwise.

In her studio, Zhao showed Ozge how she uses 3D scanning. "When I make some small artworks and want to enlarge them, it's hard to keep everything the same because handmade pieces always differ," Zhao explained. "So I use 3D scanning to expand my small structure into a bigger size. I found it really easy to change the size of my work (with 3D scanning)."

For Ozge, this was a revelation. "I never knew there was such technology," she said. Watching the digital model rotate on the screen — an exact replica that could be scaled, studied and shared without even touching the original clay — she found herself wondering: could technology give ceramics a kind of life beyond the physical? A life that does not crack, fade or break?

It was the first time she considered that eternity might come not only from preservation in a museum, but from data.

From fragments to a living archive

Zhao promised to take her to a place that would help her truly understand what ceramics are and the journey began as they walked into the Jingdezhen Imperial Kiln Institute in the Imperial Kiln National Archaeological Site Park, a heritage zone in Jingdezhen. Here, the galleries are filled with broken and restored ceramics and to an untrained eye, the fragments might seem like failures.

However, Ozge learned that these "imperfect" pieces record centuries of uninterrupted firing in the "porcelain capital" and preserve details long buried by time. Now thanks to technology, these details are being transformed into data that will never decay.

Behind the quiet galleries lies a powerful digital infra-

structure: the Ceramic Gene Bank. It is the world's first systematic digital platform built around the concept of ceramic genes. Its construction began in 2022, drawing on nearly 20 million porcelain shards unearthed from the imperial kiln ruins over the past 40 years.

Xiong Zhe, head of the institute's technology laboratory, explained the unique advantage they enjoy. The institute's predecessor was the Jingdezhen Ceramic Archaeology Research Institute. Over nearly four decades starting in the 1980s, they excavated about 20 million shards. Based on this foundation, they selected the most representative pieces for sampling and specialized research.

Restoring the unseen

Having a genetic reference is only one part of the story. The real challenge lies in how to bring a shattered object back to visual wholeness without faking its history. That challenge is being met in a restoration workshop not far from the gene bank.

Hao Guojiang, head of the institute's restoration department and a recognized restorer of ancient ceramics, showed them a virtual pattern restoration software developed jointly with Peking University. "It helps us restore the patterns on pieces we have already pieced together," Hao said.

He then described the old way of working. "In the past, when a piece was missing a pattern, we had to search through literature or look at surviving pieces in museums for reference." Using traditional methods, his team spent four years restoring 116 pieces. "Traditional restoration required adding material to the missing part and then painting it by hand. But hand painting always carries a degree of subjectivity," he said.

Now, the combination of the virtual restoration software and a proprietary waterslide decal technique developed in-house has changed everything. "We print the missing design directly onto the restored area," Hao said. "It now takes only five minutes."

He pointed out a key advantage: The decal does not

touch the original surface. "You can see a clear boundary between the original and the restoration. This preserves the maximum authenticity of the piece."

Color as calculated poetry

Restoration addresses the missing parts and patterns, but what about the colors that make a ceramic piece breathe? That question led Ozge and Zhao to a different kind of laboratory — one where chemistry and data meet.

At the Jingdezhen Ceramic Research Institute, Hu Zi, director of the Craft Materials Research Laboratory, introduced them to the physical principles behind glaze colors: why *qinghua* is blue, how underglaze red forms, and how different kiln conditions affect color. "By measuring thermal expansion," Hu said, "we can determine the sintering temperature of a material. This is the point where shrinkage reaches its maximum, and that temperature is the optimal firing temperature."

He then demonstrated a thermodilatometer, which shows the material's initial melting point. "This is the most common test we run in ceramic materials research," Hu said.

Ozge realized that unlike relying on experience and intuition, like she had in the past, she and Zhao were now creating with relatively precise data. They tried preparing their own glaze formulas. With modern technology, they could precisely regulate glaze colors from off-white to sky blue to deep blue. Colors were no longer happy accidents, but calculated poetry.

Beyond silent pictures

Data gave them control over color. But could data also capture shape, texture and the feeling of holding a ceramic object?

That is precisely what a different kind of technology promises to do. At the digital asset exhibition hall, technicians were operating precision instruments to capture every detail of a porcelain painting board. On the screen, an optical digital model rotated slowly — each ice crack line in the

glaze, every kiln transformation mark, even the tiny bubbles formed during firing were completely captured and permanently preserved in the digital world.

"This is far more than just 'taking clear pictures,'" said Li Xiaoling, chief operating officer of Zhongsheng Technology Company. He explained that traditional documentation of cultural relics only provides rough dimensions and shapes without revealing the fine, tactile details that truly define a ceramic work. "Today, using the domestically developed Timiro technology, we can capture every texture of a porcelain piece with precision," Li said.

Timiro is a multidimensional, interactive media technology, different from conventional images, videos or 3D models. Based on Timiro, his team creates what they call "optical twins." "We turn a cultural relic into a digital asset," Li said.

Users can zoom in to see brushstrokes with stunning clarity, or examine the grain of a stone glaze as if holding the object in their hands.

Whether for museum exhibitions, academic research, or online viewing by ceramic enthusiasts, the technology enables people to experience the beauty of porcelain from multiple angles and in full dimension, exploring the secrets hidden in every curve and color.

Timiro technology, Li added, breaks through the key technical bottlenecks in ceramic digitalization, such as the difficulty in ensuring digital fidelity, managing data securely, and making files easy to use.

In this way, it empowers the protection, innovative inheritance of ceramic cultural heritage and multilateral exchanges.



① Ozge Atalay (center) and Zhao Nan (left) talk with Wisam Alsamad about his work. ② The night view of the creative market at Taoxichuan. (PHOTO: S&T Daily, XINHUA & VCG)

China's Porcelain Capital Embraces the World

For centuries, Jingdezhen has been known as China's porcelain capital. There's an old saying: "Craftsmen come from all directions; porcelain goes to all lands." The city with a thousand-year kiln history has always had an open, welcoming soul.

At its peak, more than 60,000 ceramic artists and makers flocked in to chase their dreams. Over 5,000 of them came from overseas. Many bought homes, started families and opened studios. Most importantly, they stayed.

Back in 1998, Li Jianshen had just returned from studying ceramic art abroad. He bought four old farmhouses in Jingdezhen and founded the Sanbao International Ceramic Art Village, a name that reflects its true nature. Then he invited other ceramic artists from the United States and Canada to come work alongside him. To date, Sanbao has welcomed over 100,000 international artists and travelers. As Li puts it, "We must turn our local resources into a global language, one that the world can understand and see."

The clay under Sanbao's hills once created the bluish-white porcelain of the Song Dynasty (960-1279). "The two most important elements of ceramic culture here are craftsmanship and the continuation of a post-agrarian lifestyle," he said. As the city grew more famous, the narrow Sanbao valley filled up with hundreds of ceramic studios run by locals and foreigners alike. Many never left.

Wisam Alsamad, an Iraqi ceramic artist known for blending traditional and contemporary elements, arrived in Jingdezhen in April with his daughter to prepare for a solo

exhibition.

Alsamad finds every day a profound source of inspiration. He immerses himself in clay, walks in the beautiful surroundings, and absorbs the spirit of this unique place. "Sanbao is much more than an artist residency," he said. "For centuries, some of the finest porcelains in the world were created here and sent across continents, carrying with them stories, culture and craftsmanship. It offers a rare combination of history, community and artistic freedom. From Mesopotamia to Norway, and now to Jingdezhen, the journey continues."

A few streets away, another artist is telling his story with clay, though on a very different level. Michael May, a 38-year-old ceramic artist from the U.S., has found a home for his boundary-pushing work. Passionate about creating 3D-printed ceramic works, he has built his own customized machines from scratch — designed entirely on his tablet, assembled with modified parts, and coded by his own hand.

Now he incorporates traditional techniques with 3D printing. His approach has not gone unnoticed. Artists across Jingdezhen have begun experimenting with similar fusions of digital and handmade methods, inspired by what May is creating.

"I'm happy that I can inspire people because they can also do something that maybe I haven't thought of, and then we can continue to build on all these new ideas," he said.

He has quietly settled into local life, no longer feeling

like an outsider. Jingdezhen's openness and inclusiveness convinced him to stay, keep running his studio, teach courses, and share his methods.

The same spirit shows at Taoxichuan in the heart of Jingdezhen's East City. It is a cultural project built from old ceramic factories. Walk into Taoxichuan today, and you will see tall chimneys, sawtooth roofs, and weathered red bricks. The old factory buildings have become creative studios, a dream space for ceramic lovers. Taoxichuan has been recognized as a national base for mass entrepreneurship and innovation. That means it is not just about art, but also about helping people turn their ideas into businesses.

Kang Shuying, a marketing official at Taoxichuan, said the park began operating in 2016 and now hosts 33,000 ceramic artists from about 50 countries. Whatever idea an artist has, Taoxichuan provides the space and materials to realize it. The environment is convenient, and supplies are easy to get. She said from the very beginning, this place has been popular with international artists.

Italian ceramic artist Marcello De Simone is one of them. He finds the city "efficient, professional and friendly." Materials and kiln space are easy to obtain. Local technicians know their craft. And the people around him are always willing to help. For him, that combination has made Jingdezhen feel like home.

Jingdezhen has always proved that its real treasure isn't just clay. It's the way it welcomes the world. And the world keeps coming in.



For more information about this edition, please scan the QR code.

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