Guideline to Boost Int'l Sci-tech Innovation Centers

Policy Express

By TANG Zhexiao

China has issued a guideline to promote financial support for the construction of international sci-tech innovation centers in the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Guangdong-Hong Kong-Macao Greater Bay Area (GBA).

The guideline, issued by the People's Bank of China and 10 other government departments, sets a two-phase goal. By 2030, the full-chain financial service system supporting sci-tech innovation will be improved, with stronger backing for applied basic research, technology innovation, commercialization of research outcomes, industrial upgrading and talent aggregation. By 2035, a sci-tech finance system tailored to internationally influential sci-tech innovation centers will be established.

The guideline promotes sci-tech finance systems with regional characteristics, laying out distinct financial service directions and key tasks for the three innovation regions.

The Beijing-Tianjin-Hebei region will focus on original innovation and regional collaborative innovation, with financial support strengthened for major sci-tech infrastructure. Measures include leveraging the demonstration role of the Zhongguancun sci-tech innovation finance reform pilot zone and exploring the formation of major research insurance consortia for fields such as intelligent driving, humanoid robots and biomedicine.



Inside the Zhongguancun International Innovation Center, Beijing. (PHOTO: VCG)

The Yangtze River Delta will build on its industrial cluster synergy to create a multi-party sci-tech finance service ecosystem featuring joint contribution and shared benefits. Measures include deepening the sci-tech innovation finance reform pilot zones across Shanghai, Nanjing, Hangzhou, Hefei, and Jiaxing, accelerating implementation of Science and Technology Innovation Board Market reform measures, and optimizing region-specific financial services along the G60 (the Shanghai-Kunming expressway) Sci-Tech Innovation Corridor.

The GBA will advance financial reform and opening up to build an open sci-tech finance service system. Measures include deepening cross-border credit cooperation among the three places and supporting enterprises at home and abroad to list on capital markets.

Financial resources will be guided toward orderly investment in national strategic sci-tech forces, including national laboratories, national research institutions, high-level research universities and sci-tech leading enterprises.

Regarding opening up, the guideline proposes studying the establishment of an insurance system covering the professional liability, and medical, and health needs of sci-tech talent. For returning scientists and sci-tech entrepreneurship talent included in national and local key talent programs, foreign exchange facilitation support plans will be explored.

A range of measures will be introduced to support cross-border facilitation. High-quality enterprises engaged in service trade, such as R&D, intellectual property, software, and computing power services, will receive more efficient and convenient cross-border fund settlement services from financial institutions.

Hangzhou's Next Chapter: From West Lake to Frontier Industry

Case Study

By LONG Yun

"Hangzhou has been open to international exchange for centuries," said Marco Amabili, chair professor at Westlake University and an international member of the National Academy of Engineering (USA), at the 2026 Hangzhou International Human Resources Exchange and Cooperation Conference held recently.

Amabili, who spent 15 years teaching in Canada before joining Westlake University in Hangzhou, east China, said his journey between Hangzhou and Italy today is "much easier and faster than Marco Polo's," referring to the celebrated European traveler's historical visit to China in the 13th century.

That openness is now taking a new form. Hangzhou is building platforms where researchers, companies and public institutions can move ideas from the lab into real applications. One example sits in the Hangzhou Future Sci-Tech City. At the Brain-Computer Science Innovation Demonstration Center, visitors can control machines with thought alone. The center is dedicated to brain-computer interface technology, spanning industry exhibition, immersive experience and public science education. In its experience zone, visitors can try out intelligent bionic hands that decode neural and muscle signals, or brain-controlled robotic arms that translate thought into motion.

BrainCo, a flagship brain-computer-interface (BCI) enterprise in the region, is one of the few companies globally to achieve large-scale production of BCI products. The company has received U.S. FDA certification and European CE certification. In January 2026, BrainCo completed approximately two billion RMB in financing.

The "Lingjing Space" Spatial Computing Experience Center, located a few kilometers away, opened in April 2026, showcasing the fusion of the physical and digital worlds. Built around the technology of Rokid, a Hangzhou-based augmented reality company, the center demonstrates spatial computing applications for consumers, industry and urban governance. It also serves as an ecosystem hub, hosting developer salons, technology roadshows and industry exchanges.

The Hangzhou Future Sci-Tech City reported 834.9 billion RMB in core digital economy revenue in 2025, up 14.5 percent year on year. The region aims to build a spatial computing industry worth 30-50 billion RMB within three to five years.

In Qiantang district, the Hangzhou Biopharma Town has grown into one of China's most concentrated biopharmaceutical clusters since its launch in 2017. It hosts more than 1,800 biomedical enterprises with an industry scale exceeding 50 billion RMB, and 27 listed or pre-listed companies. The Chinese Academy of Sciences Hangzhou Institute of Medicine is a research institution in Hangzhou focused on medicine. As of 2026, the Hangzhou Medical Port has seen four Class 1 innovative drugs approved for marketing, with 138 additional innovative drugs in clinical trials. Of these, 14 are in Phase III clinical trials. What connects these sectors is talent.

The city's universities and research platforms, including Westlake University, the Chinese Academy of Sciences Hangzhou Institute of Medicine, and four provincial laboratories, provide the intellectual foundation.

Amabili's own path illustrates this logic. His research in applied mechanics, nonlinear vibrations and AI integration exemplifies the cross-disciplinary thinking that frontier industries demand. "Hangzhou provides a fantastic foundation," he said, citing its "stellar AI and innovation ecosystem" that brings together leading technology companies, excellent universities and research institutions, and a dynamic international environment.

Amabili is one of the many who have come to Hangzhou from abroad. The city has long attracted talent from around the world. As the Chinese saying goes, "Above there is paradise, below there are Suzhou and Hangzhou."

Today, Hangzhou is earning a new reputation, not only as a place of natural beauty, but also as a paradise for innovation.

Turboshaft Engine Demonstrates Airworthiness

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Within 15 seconds of the blade release, the engine casing must contain the high-energy fragments without being penetrated by them or triggering an uncontrolled fire.

This is a major test that comes at the cost of an engine worth over 10 million RMB. If it failed, it would deal a major blow to the development of the entire engine program, Li Gaiqi, chief designer of AES100 and chief scientist at Aero Engine Corporation of China Hunan Aviation Powerplant Research Institute, said.

The team began tackling the technical challenges collectively five years in advance, all for those 15 seconds. They systematically identified and eliminated potential risks across more than 10 technical fields and 36 critical risk areas associated with the engine containment test. They also carried out successive rounds of validation, progressing from material properties and component strength to subsystem reliability and simulated full-engine testing.

Two months before the official test, the team conducted the operation test for the high-speed shaft-cutting equipment. In this test, the power transmission shaft had to make over 30,000 revolutions per minute. There was a moment of alarm when the rotating speed reached 29,000 revolutions per minute and the vibration amplitude exceeded the limit. The shaft ran the risk of breaking.

The problem lay in the complexity and length of the power transmission shaft. The team managed to find a solution before the official test, and the test was successfully conducted in September 2023.

Balancing ice and fire

The last major challenge was the icing test. The standard for passing the test is rigorous, and the engine is required to remain in stable and reliable operation in dozens of typical icing working conditions, such as in -30 ℃, 6,000 meters high in the sky, cloud and mist.

"Without adequate ice protection, large quantities of ice crystals in high-altitude clouds could be ingested into the engine, striking, eroding and damaging the compressor blades at high speed, potentially damaging the engine," Zhao Zunsheng, senior designer of the AES100, explained.

To address this, the team devoted a lot of effort to designing the engine's ice protection system, equipping it with two layers of "winter jackets." The first was an inlet screen that blocked high-speed cold airflow and water droplets at the air intake. The second was a hot-air anti-icing system for the inlet assembly.

However, this system cost some of the engine's power output, reducing overall engine efficiency. This meant the team had to strike a balance between anti-icing performance and overall engine efficiency, finding the optimal point between "ice and fire."

After extensive simulations, they identified an optimal bleed-air extraction ratio of 2.8 percent. This provided effective ice protection across the full operating envelope while minimizing power losses, achieving the best trade-off between protection and operating efficiency.

With this dual-layer ice protection system, the engine maintained stable operation with all operating parameters within normal ranges, successfully withstanding tests in a range of extreme icing conditions. This achievement fills a gap in China's airworthiness compliance verification for whole-engine icing.

Global Journal Observatory

ACS Nano: Connecting Global Nanoscience Community Through Trusted Science

By Xiaodong CHEN

A nanometer is one-billionth of a meter. At this scale, matter can exhibit distinctive optical, electrical, mechanical and biological properties, opening pathways to advances in microelectronics, precision medicine, clean energy, and quantum technologies. Nanoscience focuses on the very small, but addresses some of humanity's biggest challenges, including health, climate change, and sustainable development.

As editor-in-chief of *ACS Nano*, I have become increasingly convinced that the mission of an influential journal extends beyond publishing the latest discoveries. It must also help the scientific community determine which questions are worth pursuing, which evidence can be trusted, and where science should go next.

Trust, the foundation for connecting disciplines

ACS Nano was launched in 2007, when nanotechnology was advancing rapidly but research remained scattered across journals in chemistry, physics, materials science, biology, medicine and engineering. Consequently, studies often struggled to present their methods, evidence, and broader scientific significance in an integrated manner. From the outset, the journal has therefore emphasized complete and in-depth studies that can withstand peer scrutiny and move the field forward.

The cover of the inaugural issue featured the words "Defining nanoscience and nanotechnology." "Defining" did not mean setting boundaries around a field that was still evolving. It meant establishing a common language through which different disciplines could share questions, methods and standards.

After becoming the editor-in-chief in 2022, I summarized the journal's value in terms of creating three profound impacts in academic, education and nanoscience community building. These are advancing important scientific discoveries, helping young researchers develop sound judgment, and translating scientific knowledge into lasting public value. All three depend on trust.

Frontiers emerge through connection and participation

More than a decade ago, neuroscientists sought to observe more clearly how neurons connect, function, and communicate, but they lacked sufficiently precise tools for measurement and intervention. *ACS Nano* brought together researchers in nanoscience, neuroscience, imaging, and engineering to develop a technology roadmap. Together, they identified what existing tools could accomplish, where critical gaps remained, and which challenges required interdisciplinary collaboration.



Front cover of ACS Nano, Volume 20, Issue 31. (COURTESY PHOTO)

This collaborative approach to identifying scientific frontiers has since been extended to other interdisciplinary fields. In 2025, we invited researchers worldwide to propose "33 Unresolved Questions in Nanoscience and Nanotechnology," bringing fundamental understanding, technological tools, real-world needs, and societal impact into a shared framework for discussion.

A list of questions does not offer standard answers; it provides a map of the unknown. A journal that brings dispersed knowledge and people together around important questions can help shape the frontier of the future.

Innovation creates value through system-level collaboration

Nanotechnology is undergoing a fundamental transition: from studying individual materials and devices to designing complex, interconnected systems, and from pursuing peak laboratory performance to ensuring reliability, safety, and sustainability in real-world settings.

A flexible sensor worn on the skin, for example, involves not only materials science and electronics but also medicine, data science, privacy and ethics. Individual performance metrics are only the starting point. Whether a device can be manufactured reliably, function consistently in real-world conditions, and avoid health or environmental risks are equally important scientific questions. Only by incorporating these considerations into the design process can innovation truly serve society.

In 2027, *ACS Nano* will celebrate its 20th anniversary. I hope it will serve not only as a platform for publishing research but also as a shared space where scholars exchange ideas, engage in dialogue, and forge collaborations across disciplines and borders.

The author is the editor-in-chief of ACS Nano, and a distinguished university professor at the Nanyang Technological University, Singapore.

Journal Review

ACS Nano was founded at a pivotal moment in the rapid development of nanoscience and has remained an important chronicler in the field. It has published numerous pioneering studies that have profoundly influenced the development of nanomaterials, nanomedicine, energy, electronics and related fields. It has also helped shape the global scientific community's understanding of the future directions of nanoscience.

As a highly interdisciplinary field, nanoscience depends on the deep integration of knowledge, methods, and ways of thinking from different disciplines. *ACS Nano* values research that is complete, verifiable, and capable of supporting further advances. Through technology roadmaps and lists of major unresolved questions, it connects researchers across disciplines, countries and generations. In doing so, it demonstrates how an academic journal can move beyond recording research outcomes to helping build a scientific community.

I hope the journal will continue to preserve space for curiosity-driven, open-ended exploration while bringing researchers together around mission-oriented studies addressing human health and sustainable development.

—— *Yu Jihong, an academician of the Chinese Academy of Sciences, and president of Beijing Normal University*