

From Curiosity to Frontiers: ICBS Honors Four Women Scientists

Dialogue

By Staff Reporters

Among the nine recipients of the ICBS Medal awarded at the 2026 International Congress of Basic Science (ICBS), four are women: Claire Voisin, Andrea J. Liu, Bao Zhenan, and Zhuang Xiaowei.

Shing-Tung Yau, chair of ICBS, highlighted this in his opening address, noting that "women researchers are contributing to every stage of scientific progress through their distinctive intellectual perspectives and sustained dedication." He hoped the scholarly journeys of these four laureates would inspire more women to pursue their dreams with courage and to embark on the path of science toward truth and the unknown.

While the quartet shares the same prestigious honor, the paths that led them to the forefront of global science are as diverse as their fields of study. Their stories are shaped by childhood curiosity, deliberate choices and decades of unwavering commitment.

'Made of freedom, adventure, and hope'



Professor Claire Voisin

For Claire Voisin, mathematics was a sanctuary discovered amidst the joyful chaos of a large family. Born in France as the 10th of 12 children, she did not have a room of her own until high school graduation. Her intellectual curiosity was broad, including philosophy, painting and poetry. While at the prestigious école Normale Supérieure, she seriously considered switching to philosophy, a dilemma that lasted for years. Ultimately, a philosopher friend advised her to stay in mathematics. Looking back, Voisin admits she never had a single, defining moment of decision; her path was a natural, organic evolution.

She describes mathematical research

as "a wonderful experience, made of freedom, adventure, and hope," though she does not shy away from acknowledging the failures and despair that researchers inevitably face. For her, the recognition is not only a great pleasure but also a welcome encouragement for the future. Her devotion to algebraic geometry stems from its "incredible wealth of concepts and a variety of viewpoints." She once remarked that its richness makes it "worth studying for one's whole life, and even one's second life." Underlying all her work is the conviction that "all the powerful theoretical tools we develop will sooner or later find an application."

'The returns do come, and often from directions not originally intended'



Professor Zhuang Xiaowei

Zhuang Xiaowei's scientific journey began with an innate intuition for the physical world. Born in Jiangsu, east China, to a university professor couple, she was a quiet child who never attended kindergarten. Her extraordinary physical insight was apparent early on. At 15, she took the national college entrance exam and was admitted to the prestigious Special Class for the Gifted Young at the University of Science and Technology of China. There, she achieved perfect scores in all four core mechanics courses.

Her career has been driven by the curiosity that unites all scientists, "an understanding of how nature works, ranging from elementary particles to living systems and to the universe." She develops tools to unveil nature's mysteries, yet she is keenly aware that "exactly how our research will turn into a product that directly impacts our everyday lives is often not immediately clear."

In an era when "the world wants applications and returns at a mass pace," she reminds us that "history keeps teaching the same lesson. The returns do come, and often from directions not

originally intended." Her own inventions, STORM, one of the earliest and most widely used super-resolution imaging methods, and MERFISH, a massively multiplexed single-molecule imaging method, stand as proof of this.

'The seeds of the technology of tomorrow'



Professor Andrea J. Liu

Andrea J. Liu's path to physics was not a straight line, but a choice made in the face of another powerful passion: history. Born in New York and raised in Iowa, the daughter of a condensed matter physicist, she initially found herself drawn to the human stories of history while an undergraduate at UC Berkeley, even planning to switch majors.

The turning point came when she encountered Maxwell's equations. The four simple, elegant formulas that unified electricity, magnetism, and light captivated her. The sheer beauty of their mathematical structure and the profound physics they contained won her over, securing her future in the physical world. She traces her love of physics back to her father, "with whom I wrote my first seven physics publications," while her interest in communicating science came from her mother, "who was a writer."

Receiving the Marie Curie Medal at ICBS holds special significance for Liu, who regards Curie as "a physics hero who exemplifies the values of ICBS." She points to Curie's research on radioactivity as a classic example of how fundamental discoveries lead to unexpected applications — "radiation therapy for cancer, which she also pioneered." In an age when "technology is so dominant in the public conversation and people even wonder whether AI is better at science than scientists," Liu says "the importance of basic science requires more emphasis than ever." She sees "the inspiring fundamental discoveries that people are making today" as "the seeds of the technology of tomorrow,"

and she considers it "part of our professional duty to stand up for science."

'Science begins with curiosity'



Professor Bao Zhenan

Bao Zhenan's scientific approach was shaped by a simple childhood experiment. At the age of three, her father asked her if a popsicle would sink or float if thrown into a lake. She guessed it would sink, but after trying it, she watched it float.

Born into a family of scientists, Bao was encouraged from a young age to be endlessly curious. At 17, she entered Nanjing University's Chemistry Department. Throughout her career, she has been driven by a simple question: "Can we create electronic materials and sensing systems that behave more like human skin?" By bringing together chemistry, materials science, electronics, and biology, her group has recreated skin's softness, stretchability, and self-healing properties in synthetic materials, moving electronics beyond the limitations of rigid silicon. Her innovations are now opening new possibilities in healthcare, robotics, prosthetics, and human-machine interfaces, including NeuroString, "a hair-thin sensing fiber that may transform how we monitor the brain, the heart, the gut, and many other organs over long periods of time."

For Bao, "science begins with curiosity" and "the excitement of discovering something that no one has known before," but she believes "the journey does not end there. It becomes even more meaningful when those discoveries are translated into technologies that improve people's lives." Beyond her own research, she envisions a world where nations work together toward the betterment of humanity.

This article is compiled based on speeches and materials from the 2026 ICBS.

Tech+Culture

When 1,500-year-old Cliff Comes Alive

By ZHAO Xiangnan & LONG Yun

speak with the present.

Imagine a temple nailed to the side of a sheer cliff, its wooden walkway clinging to the cliff face more than 50 meters above ground. Built in AD 491 during the Northern Wei Dynasty, the Hanging Temple (Xuankong Temple) near Datong, Shanxi province in north China, has defied gravity and belief for over a millennium.

It is the only surviving temple in China to enshrine the three major philosophical and religious traditions of Confucianism, Buddhism, and Taoism. *Time* magazine once named it one of the world's 10 "most precarious buildings."

Today, the ancient cliff has another miraculous temple, this one created with light and shadow. The light show "Why the Hanging Temple Endures" debuted on May 18, recreating the millennium-old temple through light and shadow and bringing to life the epic history of the Hengshan Mountain region.

The light show turns the mountain's Cuiping Peak into a giant screen. With the mountain and river as the backdrop and the ancient temple as a stage prop, the thousand-year cultural feast creates an immersive audio-visual feast.

Boasting a staggering projection area of more than 37,500 square meters, the show has been certified by Guinness World Records as the world's largest cliff projection show. At the award ceremony, an immersive cliffside performance unfolded, where legendary characters like the poets Li Bai and Yuan Haowen, the traveler Xu Xiake, and the Taoist reformer Kou Qianzhi appeared, "crossing" a millennium to

In developing cultural heritage tourism, the core challenge is how to balance heritage preservation with the visitor experience. The production team employed customized cold-light source technology so that there would be no risk of ultraviolet or thermal radiation damage to the ancient temple. Every aspect, from the sound field design to the stage aesthetics, was devised to ensure zero impact on the cultural relics, maximizing tourism resources while ensuring cultural protection.

To project a fluid image onto the rugged, uneven surface of the peak, the production team fused multiple cutting-edge technologies, including multimedia digital lighting, real-time rendering, and ultra-large projection mapping and splicing. This achieved a seamless fusion of light and the mountain, where the real landscape and digital images enhance each other. "Once the light created the Hanging Temple across this giant cliff, the Hengshan Mountain ceased to be just a mountain," said Yang Jianlin, the director of the show. "It became a space-time theater where one could 'travel' through 1,500 years of history."

The performance plan fully complies with the temple's conservation plan. All equipment was installed "invisibly" on the cliff face, and is completely detachable. All audio, lighting, and electrical equipment uses the customized cold-light source technology, averting any potential hazard from chemical damage or heat aging of the ancient structure. "The impact of the light on the Hanging Temple is much weaker than that of normal daytime sunlight," Yang said.



Live scene from the light show "Why the Hanging Temple Endures." (COURTESY PHOTO)

2026 Beijing ICBS: Advancing Basic Science for Humanity

From page 1

Bao Zhenan, K.K. Lee professor of chemical engineering at Stanford University, said: "Science begins with curiosity. It begins with the excitement of discovering something that no one has known before. The prize is the pleasure of finding things out. I could not agree more."

Addressing the impact of AI, Shing-Tung Yau said in recent years, AI has emerged as an important tool for basic science, with continued achievements in AI-assisted mathematical and scientific research and demonstrating remarkable efficiency and capability. Yet he remains convinced that "original thinking, spontaneous inspiration, and the eternal quest for truth and beauty in science are uniquely human endeavors that will continue to drive the major revolutions in basic science through interdisciplinary thought and the courage to explore the unknown."

Andrea J. Liu, Hepburn Professor of Physics at the University of Pennsylvania, said: "In these times, when technology is so dominant in the public conversation and people even wonder whether AI is better at science than scientists, the importance of basic science requires

more emphasis than ever. Similar to radioactivity, the inspiring fundamental discoveries that people are making today might contain the seeds of the technology of tomorrow."

Yau also noted that last month, two Chinese mathematicians, Wang Hong and Deng Yu, achieved landmark theoretical breakthroughs and were awarded the Fields Medal, one of the highest international honors in mathematics. "These two major achievements resonated throughout the international mathematical community and inspired extraordinary enthusiasm for fundamental research at home and abroad. This is both a historic opportunity for scientists of our time and an exceptional stage upon which a new generation of young scholars can demonstrate their talent," he said.

Quoting mathematician David Hilbert's resounding declaration from nearly a century ago, "We must know. We will know," Yau said: "That unwavering commitment to truth has echoed across the decades and remains alive in the heart of every scientist. May we remain true to the original spirit of scholarship, and on the journey of basic science advance with conviction toward truth and beauty."

China's Ancient Dayan Qiuyishu Algorithm for Linear Congruences

Traditional Eastern Wisdom

By BI Weizi

Dayan qiuyishu, or the "Great Extension Method for Finding Unity," is an algorithmic procedure in ancient Chinese mathematics used to solve systems of linear congruences. Systematically formalized by Southern Song mathematician Qin Jiushao in 1247, it predates and is equivalent to the modern Chinese Remainder Theorem.

The term literally translates to "method of finding one" (qiuyi), which

refers to finding the modular multiplicative inverse — a core step mathematically equivalent to the Euclidean algorithm.

Qin detailed this method in his famous work, Shushu Jiuzhang, the Mathematical Treatise in Nine Sections, where he used it to solve practical, complex problems like astronomy calendars, tax distributions, and sizing up military forces.

In a general linear congruence problem:

$$\begin{aligned}x &\equiv r_1 \pmod{m_1} \\x &\equiv r_2 \pmod{m_2} \\&\dots \\x &\equiv r_n \pmod{m_n}\end{aligned}$$

The generalized algorithm works by calculating the total least common

multiple of the moduli:

$$(M = m_1 \times m_2 \dots \times m_n)$$

Then, to satisfy each specific modular equation, Qin determined a multiplier constant (k) using a step-by-step division process until it satisfied the condition:

$$k \times \frac{M}{m_i} \equiv 1 \pmod{m_i}$$

Once these multipliers are established, summing the weighted modular remainders yields the final answer that solves the entire set of equations.

Compared to the corresponding Western algorithm, the ancient Chinese method emphasizes the practical execution of procedural steps; in the West, it was not until the 18th century that

freight transport hubs. During the 14th Five-Year Plan period (2021-2025), the government supported 37 cities to ensure this. During the 15th Five-Year Plan period, it will support around 30 additional cities for about three years, Cai said.

Moreover, major ports, key inland

ports, large logistics parks, major industrial parks, and China-Europe (Asia) Railway Express assembly centers will be focused on to develop around 1,000 multimodal transport hubs. Tailored measures will be adopted to address bottlenecks at each hub and enhance multimodal transport.

The digital and intelligent transformation of transport and logistics will be advanced. China will explore major innovation projects such as autonomous driving for freight trucks in typical application scenarios, regulate the operations of online freight platform operators, and plan pilot programs to standardize the use of autonomous delivery vehicles.

A More Comprehensive Transport Network by 2030

From page 1

The planning and development of international logistics infrastructure will be strengthened.

A new round of initiatives will be launched to address weak links and strengthen national comprehensive