

BRI Collaboration: Key to Solving Challenges

Dialogue

By LONG Yun, ZHONG Jianli & LU Zijian

In an era where geopolitical tensions often dominate global headlines, science remains one of the most powerful tools for international cooperation. Recently, two world-renowned scientists shared their insights into mega-science projects' international significance, China's pivotal role in promoting global exchanges, and how science can transcend borders.

Open science knows no boundaries

As a founding member and major contributor to the Square Kilometre Array (SKA) project, China has played a critical role in advancing the observatory's development. Dr. Philip Diamond, director general of the Square Kilometre Array Observatory (SKAO), highlighted China's strong background in radio astronomy and its robust ecosystem of research institutions and high-tech companies.

Diamond told *Science and Technology Daily* that one of the core principles guiding the SKAO is open science. The observatory ensures that data collected by its telescopes will be made freely available to the global scientific community after an initial proprietary period of 12 - 18 months. He praised this policy as aligning with the tradition of "open skies" in radio astronomy — a metaphor for unrestricted scientific collaboration.

While the SKAO is not officially part of China's Belt and Road Initiative (BRI), Diamond acknowledged the value of BRI's emphasis on international science and technology cooperation. "We very much value the international collaborative model promoted through the BRI, especially its focus on open science," he said. "This kind of cooperation reinforces our belief that science should be accessible to all."

When asked about China's participation in the SKAO, Diamond responded with a phrase often used within the SKA community: "The SKAO was born global."



Felix Dapare Dakora (L), a member of the African Academy of Sciences. Philip Diamond (R), director general of the Square Kilometre Array Observatory. (PHOTO: LI Zhongming / Science and Technology Daily)

He explained that the idea for the SKA originated nearly 35 years ago through informal conversations among scientists from different countries, united by a shared vision of exploring the universe in unprecedented detail.

"The SKA would not exist without the free exchange of ideas across borders," he said. "International collaboration has been central to our success."

Toward the end of the interview, Diamond said that China's growing influence in science and technology is not a threat but an opportunity. "Having worked closely with Chinese universities and institutions over many years, I believe in China's commitment to open and transparent global science," he said.

Big science project for food security

Just as Diamond sees science as a unifying force in astronomy, Professor Felix Dapare Dakora, a Member of the African Academy of Sciences, echoes this sentiment in agriculture. Recently, he discussed his views on mega-science projects initiated by China and China's role in enhancing global sci-tech exchanges.

Dakora describes the Genome to Phenome (G2P) program as a "mega-science" project, emphasizing its scale, scope, and potential to address some of humanity's most pressing issues. The initiative brings together scientists from around the world to study how genetic

information translates into observable traits in crops and livestock under diverse environmental conditions.

"This is not just about studying genes," Dakora explained. "It's about understanding how plants and animals respond to real-world stressors like drought, salinity, temperature changes, and nutrient availability."

"Food security affects every continent," Dakora noted. "But it disproportionately impacts regions like Africa, where smallholder farmers are often hit hardest by climate variability."

Dakora emphasized inclusivity, shared resources, and collective problem-solving in such mega-science projects. "The beauty of the G2P program is that it allows participation from all kinds of countries, institutions, and scientific backgrounds," he said. "This kind of open, collaborative model is key to solving global challenges."

He compared this new paradigm to older models dominated by institutions in the Global North. Now, thanks to initiatives supported by China through platforms like the BRI, scientists from developing countries have unprecedented opportunities to contribute and lead.

"China's involvement has laid the foundation for greater inclusivity in science," Dakora said. "It's visionary leadership that can fast-track global development and empower the Global

South."

Beyond technological innovation, Dakora highlighted human capital development as one of the most transformative aspects of big science projects. "These big projects create environments where young researchers from Africa, Asia, Europe, and Latin America can collaborate, learn from each other, and build lasting professional networks," he said.

Connecting world through science

Such collaborations also foster cultural exchange and mutual understanding among future scientific leaders and bring benefits to local communities. Dakora cited examples from astronomy projects in South Africa that led to improved education in rural areas. "Science doesn't just advance knowledge; it drives social development too."

Dakora applauded the BRI's role in promoting international sci-tech exchanges and supporting international mega-science. "I would describe it as fantastic, deep-thinking, and a smart move," he said. "This may be one of the best cooperative models of the 21st century."

"China's leadership in promoting global scientific partnerships through the BRI has allowed the Global South to realize that unity is strength. Together, we can solve problems faster, innovate more effectively, and ensure no country is left behind," Dakora concluded.

My China Story

Passion for Kung Fu Creates Cross-cultural Friendship

By YIN Wei and BI Weizi

From the rugged Caucasus Mountains and tropical shores of Malaysia to the bustling streets of Tianjin, three students from Georgia, Malaysia and China formed an unlikely friendship through their shared passion for martial arts. Ilia, Ooi Chongqi and Tian Yuze met at Tianjin University and transformed their love of kung fu into a friendship that transcends borders and cultures.

Shared passion sparks friendship

Hailing from Tbilisi in Georgia, Ilia, 20, was inspired to study kung fu after watching *Kung Fu Panda* as a child. Fascinated by Chinese culture, he enrolled at Tianjin University. Initially, he found the language barrier challenging. However, joining the university's kung fu club provided him with a universal language that helped him integrate into campus life quickly.

The 22-year-old Ooi Chongqi comes from Malaysia's Kedah state, and was once a leader of his local kung fu team. When he was admitted to the School of Mechanical Engineering at Tianjin University in 2020 to pursue a bachelor's degree, he thought that his kung fu pursuits might be over. However, he was overjoyed to learn about the Tianjin University kung fu club, where he quickly hooked up with a group of like-minded individuals.

The 27-year-old Tian Yuze, a native of Tianjin, is a doctoral candidate at the university's School of Mechanical Engineering. Inspired by the legendary Chinese martial artist Huo Yuanjia — also a Tianjin native — Tian has practiced kung fu since his teenage years. Despite the demands of his academic research, he has found a way to

maintain a balance between his academic research and training.

Harmony, balance and respect

The three young people each practice a unique style of kung fu. Tian specializes in Baguazhang, which is considered the most circular and spiraling system of Chinese kung fu, featuring constant movement and change. Ooi practices Southern Fist, characterized by stabilized feet and fists, and powerful motions. Ilia, meanwhile, prefers Long Fist, which emphasizes fully extended kicks and striking techniques.

Although there is a range of different styles of kung fu, the philosophy is centered on the concept of yin and yang, representing the balance between opposing forces in the universe. It is this spirit of balance, harmony and respect for others, as well as the importance of self-discipline, hard work and perseverance, which unites these three young people from different cultural backgrounds together.

Bonds beyond the training mat

Outside the training area, the three friends' bond continues to grow through their daily interactions. "The martial arts team has enabled me to make friends from all over the world," said Huang. "We are not only teammates, but also like a family."

Their story reflects Tianjin University's vibrant international community and highlights the role of martial arts as cultural ambassadors. Through their training, these students have found a common language, turning kicks and punches into a dialogue of mutual respect. "It starts with martial arts, grows with passion, and ends in understanding," said Tian.

Traditional Eastern Wisdom

Xuan Paper: Centuries-old Legacy

By BI Weizi

Xuan paper originated in ancient China, and is renowned for its softness and delicate texture, making it ideal for expressing the artistry of Chinese calligraphy and painting.

Xuan paper was first mentioned in an ancient Chinese book *History of Famous Paintings across Dynasties*. It was originally created in Jing county, Anhui province, during the Tang Dynasty, which fell under the administration of Xuan Prefecture (Xuanzhou), from where the name was derived.

The distinct water quality and mild climate of Jing county are two essential elements in the art of producing Xuan paper. Made from the resilient bark of the Blue Sandalwood tree and rice straw, Xuan paper is recognized for its durability, smooth texture, high water absorbency, and ink-softening properties, and can be folded multiple times without tearing. It has been extensively used in

painting, book printing, and calligraphy.

The conventional production process has been passed down orally over generations and is still practiced today, performed entirely by hand through more than a hundred steps such as steeping, washing, fermenting, bleaching, pulping, drying and cutting — all of which takes more than two years. Genuine expertise in the intricate process is achieved only through a lifetime of dedicated commitment. Xuan paper is still closely associated with the area, where numerous artisans continue to practice the craft.

The majority of ancient Chinese books and paintings by famous painters that survive today are well preserved on Xuan paper. Xuan paper won the Golden Award at the Panama International Exposition in 1915. In 2009, the traditional handicraft of making Xuan paper was inscribed on the Representative List of the Intangible Cultural Heritage of Humanity.



Visitors learn about the process of making Xuan paper in Jingxian, Anhui province. (PHOTO: XINHUA)

CSR Breakthrough for Chronic Illness

Science Outreach

By Staff Reporters

The Heavy Ion Research Facility in Lanzhou (HIRFL) - Cooler Storage Ring (CSR) is the first large-scale, high-energy, full-ion accelerated heavy ion cooling storage ring system designed and built by China. It is also the first time in the world that the cooling of high-energy heavy ion beams has been achieved by hollow electron beams. Its implementation is of great significance for conducting a wide range of high-

precision basic research, especially in the field of heavy ion cancer treatment.

The HIRFL-CSR uses the original cyclotron system as an injector and adopts a double-ring structure to increase the energy of the heavy ion beam from the low energy zone to the medium and high energy zone.

In 2008, the HIRFL-CSR at Lanzhou was put into operation. It achieved full ion acceleration from hydrogen to uranium and completed the leap from low and medium energy to high energy, becoming a world-class large-scale nuclear physics experimental device.

Since 2009, researchers at the Institute of Modern Physics at the Chinese Academy of Sciences have used the cooling storage ring to create

a "scale" that can measure the mass of short-lived atomic nuclei — an isochronous mass spectrometer, with an accuracy of up to 10⁻⁷.

In recent years, the HIRFL has delivered many high-quality results in the field of basic research, such as carrying out ground testing and evaluation of aerospace components.

According to Liu Jie, director of the Materials Center of the Institute of Modern Physics, satellites and the electronic equipment that astronomers carry will inevitably be exposed to space radiation full of high-energy electrons, protons and heavy ions, thus causing single-particle effects in most semiconductor devices and then seriously threatening the safety of spacecraft in

orbit. While relying on large-scale scientific facilities inside the HIRFL, researchers have built a ground simulation device for single-particle effects with world-class technical indicators to better protect China's aerospace components.

Heavy ion technology is also used to treat cancer, becoming a model for basic research to promote scientific and technological development and large scientific facilities to benefit society. Through the research and development of advanced accelerator technology, nuclear detection technology and preclinical experimental research, China has become the fourth country in the world to achieve heavy ion beam clinical treatment.

Kunming Expo Deepens China-S. Asia Cooperation

From page 1

The China-South Asia Technology Transfer Center, built by the Ministry of Science and Technology and the Peo-

ple's Government of Yunnan, has established cooperation mechanisms and platforms with all South Asian countries after 10 years of work. Branches

have been built in six of these countries including India and Pakistan, meeting their sci-tech cooperation needs, Ma Minxiang, vice president of the Yunnan Academy of Science and Technology, said.

Achievements have been made in

personnel training, project communication, commercialization of sci-tech achievements and industrial cooperation. Ma said the center has facilitated the launch of more than 80 projects in solar energy, agriculture and the digital economy.

AG600 Kunlong: Guardian of Sky and Sea

From page 1

There have been milestones after milestones — from the land-based first flight in 2017, to water takeoffs in 2018, and sea trials in 2020.

In the field of specialized aircraft development, large amphibious aircraft ar-

ea high-tech, strategically valuable asset. For many years, only a few countries were capable of manufacturing large amphibious aircraft. Russia's Beriev Be-200 and Japan's ShinMaywa US-2 are currently the mature models in the world. The development of the AG600 has broken

the long-standing technological blockade held by a few countries in this field, enhancing China's influence and voice in the global aviation industry.

China Economic News reported the Aviation Industry Corporation of China stating that the AG600 has attracted potential purchasers such as Vietnam and Australia. In the future, customized solutions will help expand its presence in

international markets.

As the AG600 enters the mass production and application stage, it will be seen not only in China's blue skies and clear seas but will also increasingly appear on the international stage. There it will contribute Chinese wisdom and solutions for global safety, environmental protection and sustainable development.