

Inclusiveness Makes Science Flourish

Dialogue

By LONG Yun

"I think [international sci-tech cooperation] is fundamental because we are in one single society in the world," French scientist Piotr Breitkopf told *Science and Technology Daily*, adding that by pushing science forward collectively, it allows humanity to reap the collective benefits, rather than fragmenting progress into isolated efforts.

Breitkopf currently serves as a researcher at the French National Center for Scientific Research and a visiting professor at Northwestern Polytechnical University (NPU) in China. Breitkopf's collaboration with research teams at NPU dates back 20 years. In this time, he has been deeply engaged in closer people-to-people exchanges and sci-tech cooperation between China and France.

In 2023, he was honored with the Three Qin Friendship Award, the highest honor presented by Shaanxi province to foreign experts for their outstanding contributions to promoting international cooperation. "Breitkopf's receipt of this award is well-deserved. In his professional field, he has consistently worked to promote Sino-French sci-tech exchanges.

Moreover, in terms of his connection with China, he is an experienced 'China hand.' "Every time when he returns [home] from China, he eagerly shares the country's developments and progress with his friends around the world," said Meng Liang, an associate professor at the School of Mechanical



Professor Piotr Breitkopf. (PHOTO: ZHANG Wei/Beijing Review)

Engineering at NPU and once one of Breitkopf's students.

Problem solver

Breitkopf is a prominent figure in the field of computational mechanics. His research efforts span various industries, directly impacting people's lives and contributing to sustainable development. The broad context of his work is improving living conditions by enhancing energy efficiency, transportation and environment. According to Breitkopf, air pollution affects millions of people worldwide, leading to health issues and environmental degradation. "Without health, things will become meaningless," he said.

Elaborating on the real-life influence of his research, he cites the example of electric vehicles. He specializes in computational mechanics, centering on model reduction and lightweight structural design. For instance, he can reduce the weight of structures in new energy vehicles by optimizing the design of these vehicles, which ultimately makes

them lighter and more energy-efficient.

Setting good examples

As an educator, Breitkopf highlights China's commitment to fostering education and the remarkable development of tertiary education over the years. From his perspective, the new campuses are not just existing but thriving. Although some challenges may arise along with rapid development, he believes that sharing experiences and expertise can be valuable and "a developing society is always interesting."

Breitkopf is always generous in sharing his experience and knowledge. Through his work, he has established platforms that promote educational and research exchanges, notably with Chinese students. He encourages students to take on more complex technical work in the lab with the guidance of teachers.

According to Breitkopf, Chinese students show a strong drive for learning and continuously strive to expand their knowledge. He also stresses that finding

a healthy balance between work and leisure is essential for their personal well-being and overall success.

Breitkopf's commitment and attitude in the classroom have been well received by his Chinese students. Meng praised Breitkopf for his openness and kindness, saying, "He sets a great example for me as an educator, shaping my ideal vision of a teacher-student relationship."

As Meng described, Breitkopf would brew the students a cup of coffee and engage in some general life chat almost every day. This "ritual" made the subsequent research work more efficient and enjoyable, said Meng.

Support for further sci-tech cooperation

Breitkopf has been instrumental in setting up cooperative platforms and international research centers that further collaboration.

As he emphasizes, cooperation at a personal level is beneficial, but having an organized framework may allow multiple parties to come together effectively. For instance, international conferences and seminars can play an important role in gathering professionals from diverse backgrounds and places.

Looking ahead at the future of Sino-French scientific cooperation, Breitkopf remains optimistic. He acknowledged that he could not predict the future, but he drew inspiration from the longstanding tradition of collaboration between the two countries. He hopes that this tradition will endure, ushering in the potential for new breakthroughs and discoveries.

This article is also contributed by NPU.

Expats Activities

'Xi'an Magnet' Effect on Globalization of Science

By LONG Yun

Xi'an in Shaanxi province, northwest China, once the capital of ancient China, has long been a hub of East-West cultural exchange and mutual learning. A symposium of foreign experts held in the city on November 3 explored ways to promote international sci-tech cooperation and increase openness.

Lou Wenxiao, deputy director of Xi'an Municipal Science and Technology Bureau, spoke about how Xi'an has become a magnet for foreign professionals. "The relevant departments of Xi'an have been tirelessly working to create an attractive and accommodating environment that allows overseas talent to unleash their potential with comprehensive service, enhancing what we like to call the 'Xi'an magnet' for overseas talents," Lou said.

Adrien Oger Peulvast, a French railway signal expert, said he has witnessed Xi'an's transformation over the years: "Its development is relentless in terms of its infrastructure, which has been well-implemented. Also, its development lies in its internationalization and the infusion of numerous international elements."

Peulvast's assessment of Xi'an's contribution to international technology cooperation was echoed by the other experts. "Science is international. There is no good science going on without international cooperation because this is not a local event but something where a lot of people work together," said German scientist Helmut Kettenmann, chair professor at the faculty of life and health sciences, Shenzhen Institute of Advanced Technology in south China. "It is crucial for people from different countries to engage in dialogue, and provide feedback," Kettenmann added.

The experts also recognized China's development as one of the significant global powers. Canadian scientist Abdul

Ghani Razaqpur who teaches at Nankai University in Tianjin city neighboring Beijing, pointed out the need for countries with different levels of development to explore common ground for collaboration.

China, he noted, has shown a commitment to address climate change through policies and investments in new energy sources and battery technology. China's commitment to carbon reduction and advanced technologies positions it as a crucial partner in achieving global climate goals, making the dual targets of carbon peaking and carbon neutrality achievable.

Rasha Khalil, a Syrian scholar with the Sichuan International Studies University, told *Science and Technology Daily* that China's role in global affairs, symbolized by initiatives like the Belt and Road, has transformed the world and enriched the international community.

"I've witnessed the passion and dedication that China brings to the global stage, fostering economic, diplomatic and scientific unity," Khalil said.

Leonid Chornogor, a Ukrainian scientist with Qingdao University in north China, lauded the development of cutting-edge research and the integration of advanced fundamental research with applied technologies in China. These elements, he said, have laid the groundwork for China to become a global center of sci-tech innovation in the future.

As an important innovation hub in western China, Xi'an has intensified its endeavors to promote global scientific and technological exchanges. According to Lou, it has established 154 international sci-tech cooperative bases and set up six overseas sci-tech working stations in countries like Singapore and Germany.

Xi'an will become a fertile ground for international cooperation and exchanges because it possesses vast resources and potential, Peulvast added.

China Impression

By LONG Yun

Xi'an stands as a crucial cradle of the rich Chinese civilization, which today drives its vibrant appeal. In a recent activity held to experience the charm of this time-honored city, foreign experts were invited to discover the historical delights and cultural passions that embody Xi'an. Some of them shared their own experiences and impressions with *Science and Technology Daily*.

When history meets modernization

Canadian scientist Abdul Ghani Razaqpur is in Xi'an for the third time. "Xi'an is the combination of history with modernization that makes this city unique in some ways," said Razaqpur, noting that the miracle of the Terracotta Warriors reminds him of Chinese people's determination to complete large or important projects in spite of difficulties.

His comments were echoed by other foreign experts. "While deeply rooted in history, Xi'an is also a modern and rapidly developing city. It has seen significant economic growth and urbanization in recent decades, with a booming technology and education sector," said Rasha Khalid, a Syrian scholar from Sichuan International Studies University.

Flora Gaetani, an Italian professor from Xi'an Jiaotong University, came to the city one year ago. She is impressed by the historical aspects, particularly

Xi'an, an Ever-evolving City

the intricate patterns and textures found in its ancient architecture. At the same time, Gaetani said that the modern and efficient ways of transportation system in Xi'an makes it a favorable place for her to live and work in.

A city undergoing all-round changes

Dirk Werner Hartmann, a German language expert working at Xi'an FanYi University, considers himself a Xi'an local despite his foreign origin and underscored the city's evolving nature.

In 1988, Hartmann, then a German exchange student, took a grueling 23-hour hard-seated train journey from Wuhan to Xi'an to celebrate the Spring Festival with his Chinese classmates. He has been living permanently in Xi'an for 12 years and witnessed the city's rapid development in many fields. "The wide availability of high-speed trains has transformed our lives, significantly improving our efficiency. This change has brought tangible benefits to people," said Hartmann, adding that these positive changes have also impacted Chinese people.

As a language teacher, Hartmann attaches great importance to the internationalization of Xi'an. The city has made efforts to incorporate English into its infrastructure, with proper English transla-

tions on road signs. These initiatives reflect Xi'an's commitment to promoting openness.

Xi'an is home

Xi'an is a city of inspiration with many hidden gems. Croatian couple Ivica Somic and Vitomira Loncar now work as professors at Xi'an Eurasia University and for both of them Xi'an is home.

Somic shared a touching story from his arrival in China in 2015. During that time, he was struggling to find his creative passion.

One day, while visiting a beautiful museum of traditional architecture, he stumbled upon a tiny outdoor theater. In this setting, he witnessed a group of locals playing traditional music, and he

was captivated by the sheer passion and joy they put into their performance. He felt a strong connection with the man playing the banjo, who seemed to embody the passion and vitality he had lost. "I found a brother in China." He has since grown to feel a sense of belonging in engaging with the culture and its people.

The story of Vitomira, Somic's wife, is about "giving." Two years ago, one of her students with limited English proficiency made their interaction mainly dependent on phone messages or translation tools. Gradually, Vitomira's passion for the arts ignited the student's interest in theater and English learning and led her to excel in her exams. The students even successfully applied for international learning opportunities due to Loncar's help. "Those experiences enrich my life and inject new passion into my life," she said.



The ancient city wall of Xi'an. (PHOTO: XINHUA)

Dulunche: Applying the Leverage Principle

Traditional Eastern Wisdom

By BI Weizi

The Chinese wheelbarrow was called *Dulunche* in the *Dream Pool Essays* written by Shenkuo in the Northern Song Dynasty (960-1127). The earliest image of wheelbarrows can be found in the stone carvings of the Wuliang Temple in the Eastern Han Dynasty, dating back more than 2,000 years. The wheelbarrow is a human-powered, single-wheeled cart used to carry all kinds of loads, from harvested crops to mine waste, and pottery to construction materials. Wheelbarrows could also be used to transport the sick, wounded, or elderly.

The structure of a wheelbarrow consists of a wheel in the center of the body, a wooden frame plate on top, and two rear shafts mounted on the frame plate. The common feature of wheelbarrows is the single wheel, but the shape

and structure of the vehicle plates are different. One type of frame plate is flat and can carry things or people; the other type has a stand in the middle of the frame plate, and both sides of the stand are used to carry things or people. Between the two axles is a rope that rests on the person's shoulders to help both hands hold the axles. By using the wheel as a fulcrum, the load's point of resistance is closer to the fulcrum, which improves its own operating efficiency and can prevent the human body from directly bearing heavy pressure. When pushing a wheelbarrow, it becomes relatively easy for people to carry a load.

The wheelbarrow, which has been used by Chinese for over 2000 years, is a demonstration of the ancient Chinese mastery and application of the principle of leverage, sharing the load between the wheelbarrow and the person. Instead of carrying heavy loads on one's back or burdening a pack animal with them, a person could place them in a tub or basket that has a wheel and long handles attached for pushing or pulling.



A villager pushes a wheelbarrow in Zhujiaju village, Shandong province. (PHOTO: VCG)

Exemption of Academic Qualification Verification

Service Info

By BI Weizi

Foreign nationals may be asked to have their degrees verified, while applying for a China work permit or other purposes related to China. If the degree is issued by a university outside China, an applicant may be required to get the degree verified by the Chinese Service Center for Scholarly Exchange (CSCSE)

under the Ministry of Education, which is probably an easier and cost-efficient way to verify the degree.

CSCSE is a national institution that provides a variety of services related to international education. One of its services is to verify degrees issued by international universities. For more details, please visit <https://zwfw.cscse.edu.cn/>.

Based on the desirability and eligibility of the expatriates, determined by a comprehensive evaluation system, work permits in China can be classified into three types - Type A, Type B and

Type C.

Type A work permit applies to highly qualified talents. In practice, the most common Type A work permit applicants are those whose salary is more than six times the social average salary of the city. They are not limited by education degree or working experience and do not have to go through the process of degree verification in China.

Type B work permit is the most common type, which applies to professional people in line with labor

market demand. Those whose salary is four times higher than the average of local employees can also be exempted from academic qualification verification upon initial application. Subsequent renewals must be supported by evidence of relevant salary commitments.

Specifically in Shanghai, according to the "Shanghai Foreign Talent Position in Urgent Need Catalogue (Trial)", some professionals with certain majors can be exempted from the academic qualification verification.