Faiola's Scientific Journey to the East

Dialogue

By LONG Yun & BI Weizi

Renowned Italian Professor Francesco Faiola, a dedicated scientist with a curious mind and caring attitude, is the first full-time foreign researcher at the Research Center for Eco-Environmental Sciences of the Chinese Academy of Sciences (CAS) in China.

He has established the Stem Cell Toxicology Research Group at the Laboratory of Environmental Chemistry and Ecotoxicology of CAS. He recently sat down with *Science and Technology Daily* to discuss his research, scientific outreach and education, and China's sci-tech progress.

Professor Francesco Faiola. (COURTESY PHOTO)

Breaking ground

Faiola's research interests lie in stem cell toxicology, which combines stem cell biology and environmental toxicology to develop *in vitro* toxicity evaluation models for environmental pollutants.

His passion for natural sciences began during his high school years in Italy. After completing his Ph.D. in molecular biology in the US, he conducted postdoctoral work in the same field. His expertise in stem cell research led him to join the Laboratory of Environmental Chemistry and Ecotoxicology in China, where he has been dedicated to the assessment of health risks from environmental pollutants over the past nine years.

Faiola's research has made significant contributions in the field of stem cell toxicology. He has developed specialized stem cell models for environmental toxicology. These models obviate the need for animal models, resolve ethical and welfare issues, and establish safer, more economical, and highly efficient toxicology models.

Additionally, Faiola has developed a high-throughput toxicology data analysis and visualization platform that employs text mining, neural network clustering, and data characterization to visually display the characteristic toxic targets of different chemicals.

He has also established multiple stem cell technology platforms for toxicology research in China, which conform to the international initiative of replacing animal testing and have significantly shortened experimental cycles and saved research costs.

According to Faiola, stem cell toxicology can play a crucial role in developing environmentally friendly products and reducing the use of toxic chemicals, thereby promoting sustainable development in environment protection.

Global benefit of scientific progress

Faiola's positive experience of working and living in China can be attributed to the country's strong support for sci-tech innovation, including its investment in basic scientific research fields, promotion of innovation, incentives for technology transfer, and development of state-of-the-art research facilities.

This Italian scientist sees China's development as an opportunity for the world. "China's rapid scientific research advancements will bring new vitality to the international community,"said Faiola, adding that the country will play a significant role in a more diverse global scientific research community in the future.

Faiola's perspective highlights the importance of international collaboration in advancing innovation and foresight in science and technology. He pointed out that strengthening cross-border exchanges and cooperation can efficiently use global sci-tech resources.

Bridging gaps between science community and public

Faiola is a scientist who recognizes the importance of scientific outreach and education in modern society. As technology continues to advance and scientific knowledge becomes increasingly complex, it is crucial to promote an atmosphere of learning and exploration in science. He said that science outreach activities play a vital role in bridging the gap between the general public and scientific knowledge.

Faiola's Lab has been actively promoting public understanding of science. This includes publishing popular science articles on cutting-edge science, as well as participating in multiple popular science lectures.

Moreover, Faiola believes that benefits of science outreach activities extend beyond just improving scientific literacy. They can also promote a culture of scientific curiosity and inquiry, encouraging people to ask questions and seek out answers. This mindset can be applied to other areas of life, leading to a more curious, creative, and innovative society.

Faiola hopes to cultivate a group of young people with the potential to become scientists and who are willing to dedicate themselves to scientific research by stimulating their curiosity, imagination, and desire for exploration.

This article is also contributed by YIN Nuoya from the Research Center for Eco-Environmental Sciences of CAS.

My China Story

Enjoying Rich Cultural, Academic Experiences

By Staff Reporters

Four years ago, Malaysian scientist Goh Hui Hwang first made his way to China, where he took up a post as a professor at the Department of Electrical Engineering, Guangxi University. In a recent interview with *Science and Technology Daily*, he shared his enriching experiences in China.

Professor Goh Hui Hwang. (COURTESY PHOTO)

A voyage of culture and research

Since his first visit to China, Goh has been mesmerised by China's civilization, which spans over 5,000 years. The traditions of Chinese calligraphy, painting, and human values such as modesty, courtesy, and straightforwardness enchant him.

China's research and innovation atmosphere has impressed Goh, a researcher at Guangxi University. He emphasized that China prioritizes the advancement of science and technology and is intent on advancing scientific research.

Goh's scientific studies have been advanced by Guangxi University's robust scientific research and teaching environment. According to him, enormous resources and manpower were devoted to the construction of an experiment platform, thereby laying the groundwork for in-depth scientific research.

The ramifications of Goh's research on electrical power systems, renewable energy, and energy efficiency are enormous. Although fossil fuels continue to generate a significant portion of the world's electricity, they are nonrenewable and will run out someday. Using fossil fuels has also contributed to environmental issues. Goh's research focuses on improving the energy efficiency of present power systems and assuring the dependability of electric supply. His research is consistent with China's "dual carbon goals" to reduce carbon emissions and develop renewable energy sources.

Despite the advantages of conducting research in China, Goh has been confronted with some challenges. Though the pandemic has delayed the completion of his research lab, Goh is optimistic and feels that the delay will not hinder his research in the long term.

BRI promotes expansion of international collaboration

The Belt and Road Initiative (BRI) is an important worldwide corporation programme that has been instrumental in supporting the growth of international cooperation. China is implementing this initiative, which entails the construction of infrastructure and transportation networks across Asia, Europe, and Africa in order to stimulate economic growth and development in these regions.

According to Goh, whose country has profited from the BRI, based on the concepts of consolidation, cooperation, and shared benefits, this effort has encouraged peace, friendships, mutual understanding, and trust among nations through widespread collaboration and shared progress.

Goh is optimistic that the Chinese government will always follow the values of peaceful collaboration, openness, inclusivity, mutual learning and win-win benefits, which not only develop political mutual trust, but also economic integration and cultural variety.

This year marks the tenth anniversary of the BRI, and Goh is certain that BRI will continue to contribute to the world's ability to solve issues, create opportunities, and develop confidence.

This article is also contributed by Guangxi University.

Expats Activities

Bookhouse Facilitates People's Exchanges in Shandong

The picture shows the opening ceremony of the first Foreign Expert's Bookhouse in Shandong province. (COURTESY PHOTO)

By FU Ying

The first Foreign Expert's Bookhouse in China's Shandong province was inaugurated at Shandong University (SDU) on March 8. This initiative is established to further promote cultural and people-to-people exchanges.

With multilingual literature in the fields of politics, economics, social and natural science, and technologies, the Foreign Expert's Bookhouse is designed to communicate Chinese culture to international experts living and working in China so that they can better understand the country.

This initiative has been widely welcomed by foreign experts working in SDU. In an interview with *Science and Technology Daily*, Norman Schultz, a German teacher at the School of Foreign Languages and Literature said, the Bookhouse initiative will be an invaluable gathering place for people from different cultures to share ideas.

"It is an example of the openness and hospitality that characterize Chinese culture, and I feel fortunate to have had the opportunity to engage with people from all walks of life in this welcoming environment," he said.

Abdelali Dadda, an associate professor at the School of Civil Engineering at SDU also regarded this move as a "smart idea" to make intercultural communication more accessible to diverse groups.

Traditional Eastern Wisdom

The Secret of Casting Bronze

By BI Weizi

China has a rich history of over 5,000 years of artistic advancement and is the birthplace of one of the world's oldest civilizations. An important part of this advancement is that by 1100 BC, the Chinese had achieved a high level of artistic and technical excellence in bronze casting.

The bronze alloys of copper, tin and lead are inherently difficult to work and shape with a hammer, a technique most commonly used by ancient Europeans and Middle Easterners. However, by the end of the Neolithic period, the Chinese had already demonstrated technical proficiency with hard, thin-walled ceramics, and were able to use these skills to develop a most unusual method of casting, called piece mold casting.

Siyang Fangzun, the four-goat square zun vessel dating to the Shang Dynasty,is one of the most precious pieces of archaic bronzework excavated in China. (PHOTO: VCG)

In piece mold casting, a model of the object to be cast is made and a clay mold is made on top of the model. The clay mold is then cut into sections to separate it from the model, and these sections are reassembled after firing to form the mold for casting. If the object to be cast is a vessel, a core must be placed inside the mold to create a cavity for the vessel.

Piece mold casting was probably the only method used in China until at least the end of the Shang Dynasty (1600-1046BC). One of its distinct advantages was that decorative designs could be engraved or stamped directly onto the inner surface of the mold, prior to firing. This technique allowed bronze workers to achieve a high degree of definition and clarity in even the most complex designs.

Today, early Chinese bronzes are renowned for their enduring beauty, but they also offer insight into the culture in which they developed, as well as more modern objects. Their ornate and utilitarian character clearly reflects the quality of Chinese metalworking over thousands of years.

Seasonal Flu Questions Answered

Science Outreach

By Staff Reporters

According to the Chinese Center for Disease Control and Prevention, the recent infections of influenza viruses, mainly type A virus, are increasing across the country.

Several medical experts were invited by National Health Commission to shed light on some concerned questions, to help people navigate the flu season.

The characteristics of Type A influenza and antiviral medication use

Wang Guiqiang, director of the Department of Infectious Diseases at the Peking University First Hospital, said that Type A influenza is an acute respiratory infection caused by influenza type A virus, which is different from the common cold. The symptoms of seasonal influenza are generally more severe than those of the common cold and can lead to persistent fever, headache, muscle and joint pain, vomiting and diarrhoea, and general discomfort, with the elderly and children prone to gastrointestinal manifestations. Sometimes it can even lead to pneumonia in severe cases, and there is also a risk of triggering exacerbation of underlying illnesses in the elderly.

Influenza is self-limited in most healthy individuals, but early use of antiviral drugs is recommended to people at increased risk of poor outcomes after infection, including people 65 years and older, people of any age with certain chronic medical conditions, pregnant women, and children younger than five years. Antiviral treatment can shorten the duration of illness, ease symptoms and lower the risk of severe illness.

As for the diagnosis of Type A influenza, Tong Zhaohui, vice director of Beijing Chaoyang Hospital, said that one of the most common symptoms of influenza is an abrupt onset of fever, which usually reaches 39 degrees Celsius or above and lasts three to five days, with severe cases lasting five to seven days.

Protect people at high risk of infection

The elderly and children are the vulnerable groups during influenza epidemics. Firstly, it is recommended that infants, children and the elderly with underlying illnesses should be vaccinated before the annual epidemic season; secondly, it is recommended that people at high risk of infections should go out less and wear masks; furthermore, special attention should be paid at day care centers and schools, where children gather. If a child has a fever, it is recommended that he or she stay at home and wait until a full recovery is made.

According to Wang Quan, director of Emergency Department at Beijing Children's Hospital, influenza usually causes mild illness in the majority of children, mainly showing signs of respiratory tract infections. Timely antiviral administration, drinking more water and enough rest can help children recover more quickly. During the flu epidemic, if a child has a slight fever for more than three days or has a temperature of 40 degrees Celsius or higher, or has breathing difficulties, pale face, vomiting and diarrhoea, reduced urine output, confusion and other symptoms, medical help is needed.

Vaccination of high-risk groups for influenza before the onset of the annual flu epidemic can reduce the likelihood of catching the flu. For infants under six months, who are unable to receive the flu vaccine, their caregivers are encouraged to receive flu shots.