

Global Sci-tech Cooperation Needed to Benefit Humanity

By Staff Reporters

Humanity has accumulated and established a set of scientific norms through years of human endeavor, emphasizing that science knows no borders and technology benefits all of humankind. The global sci-tech community must adhere to these basic rules and concepts going forward. These are the thoughts of Xue Lan, a member of the Standing Committee of the China Association for Science and Technology (CAST) and dean of Schwarzman College of Tsinghua University, speaking at the 23rd Annual Meeting of CAST at the end of July.

Xue pointed out that in recent years, international scientific and technological cooperation has encountered many new challenges, which have affected sci-tech innovative cooperation.

Wan Gang, vice chairman of the National Committee of the CPPCC and president of CAST, delivered the keynote speech at the meeting. He said, in the face of ongoing global challenges such as COVID-19, climate change, food crisis and biodiversity crisis, there is an urgent need for the joint action from the global scientific and technological community.

"We need to advocate the principle of openness, trust and cooperation together and inject impetus into the innovation and cooperation with a new driving force," said Wan.

This is the consensus reached by the other experts attending the meeting. In September 2020, China announced the goal of peaking carbon emission before 2030 and achieving carbon neutrality by 2060 at the UN General Assembly, which serves as a solemn commitment that China has

made to the world and represents a profound social and economic transformation.

According to Jin Yong, an academician of the Chinese Academy of Engineering, China needs to reorganize the industrial structure and build a more high-end and high-quality manufacturing industry in order to achieve these goals.

One of the critical areas of global cooperation is deep space. It is a shared responsibility and common mission for humanity to explore, understand and benefit from deep space.

"Deep space exploration is confronted with a number of questions, such as the origin of the universe, life and other major scientific questions. It aims to study how the solar system evolves, which is the most direct concern of humankind. And relevant technologies are being developed to enter and exit outer space," said Zhang Rongqiao, a member of the Standing Committee of CAST and chief designer of China's first Mars exploration mission.

Zhang also said that stepping out of the Earth-Moon System, going faster and further into deep space are common challenges faced by the scientific community.

"China landed its Mars probe, Tianwen-1, on the red planet, ushering in a new chapter of China's deep space exploration. The purpose of our deep space exploration is to show China's responsibility as a major country in the advancement of human civilization," said Zhang, adding, "We are ready to make a contribution to the sustainable development for human society with our counterparts from all over the world."

Cultivating young people's global awareness is advised by Xue to better cope with future challenges. He said that in the process of promoting globalization over the past years, we have not provided enough opportunities for young people to develop a global vision and cultivate global competence. More efforts should be made to enhance exchanges and cooperation among the scientific community, especially among young scientists.

In terms of the role that China's sci-tech community plays in the world, Wan stressed that it will always serve as an advocate for open cooperation, a participant in sci-tech governance and

a contributor to innovative development. In addition, he said, "We will always uphold the principle of openness, trust and cooperation and promote multilateral and bilateral international cooperation, actively integrate into the global innovation network to facilitate the exchange of scientific knowledge and scientific thinking and stimulate the vitality of technological innovation."

According to Wan, China seeks to actively conduct the work on impact assessment and rules design for sci-tech risks, and continue to work with the international sci-tech community to jointly tackle major challenges to benefit the development of humanity.



The opening ceremony of the 23rd Annual Meeting of CAST (PHOTO: CAST)

Third Vaccine Dose for the Entire Population under Consideration

By Staff Reporters

Some people who have been fully vaccinated against COVID-19 are still becoming infected with the virus. Does this mean that the effectiveness of the COVID-19 vaccine is somehow weakened? And more importantly, do we need a booster shot even after being vaccinated?

Shao Yiming, a member of the expert group of the vaccine R&D team, told a press conference held by the Joint Prevention and Control Mechanism of the State Council on July 31, that there is no evidence right now showing the entire population needs a third dose (booster dose). However the necessity and time for a booster dose to more-at-risk people is being studied.

Existing vaccines still work against new coronavirus variants

"When people get infected after vaccination, these cases are called breakthrough infections. It is a normal situation and only happens to a minority

of people among the global population getting more than three billion doses of vaccines," said Shao. According to his opinion, COVID-19 vaccines are used on human beings for the first time, and more data is being collected. At present, it is judged that various new coronavirus variants are still within the controllable range of existing vaccines.

For example, in view of the previous Gamma variant, widely spread in many countries, China has carried out research on the effectiveness of inactivated COVID-19 vaccines on this variant strain. The results of the research involving more than 10 million people in Chile, show that the vaccine effectiveness against all symptoms and mild cases is over 65 percent, and effectiveness of preventing severe cases, ICU cases and death cases is as high as 87.5 percent, 90.3 percent and 86.3 percent respectively, which shows that vaccines in China can effectively reduce hospitalization, severe cases and

mortality rates.

"Existing research shows that the protection of global vaccines produced by various technical routes against the novel coronavirus variants has indeed declined to a certain extent, so personal protective measures are still needed after vaccination," said Shao.

Booster shot is being studied

"At present, after vaccination, the antibody levels of all vaccines decline over time," said Shao. In order to have a better response to the pandemic prevention and control, many countries are considering the third dose of vaccination.

The booster immunization studies are under way in various countries. There is not enough evidence to suggest that third doses are needed for the entire population. Shao noted that according to preliminary observation, it is not necessary to receive the third dose for the general population who have received immunization within one year. However, for the elderly who

have received immunization for more than 6-12 months and have compromised immune systems, patients with underlying diseases, those who need to work in high-risk areas, and those who are engaged in high-exposure risk occupations in China, relevant studies are in progress to judge the necessity and time for a booster dose.

To strengthen immunization, can vaccines of different technical routes be "mixed" together?

Shao said that according to a large number of scientific research and international research experience in the past, in order to ensure the safety and effectiveness of vaccinations, vaccines of the same technical route are generally used for booster vaccination when necessary. However, whether vaccines of different technical routes can be used together is still a question to be studied. At present, there is no consensus in the scientific community, and a large number of clinical studies are being promoted at present.

Speeding up Permits Application Process for Foreign Experts

The Shenzhen Employment and Residence Service Center for Foreigners (the Service Center) was inaugurated in December 2020. The inauguration also witnessed the online operation of an integrated service management platform

for foreigners, through which expats can apply for work and residence permits at the same time. The approval process has been shortened to seven working days. Below is the flow chart of application for foreigners.

How to apply for work and residence permits in Shenzhen?

STEP 1



Employer starts applications for both work and residence permits on the Shenzhen Foreigner Integrated Service Management Platform*.

STEP 2

The Service Center staff conduct online pre-audit on the platform. When the pre-audit is passed, a text message will be sent to the applicants.



STEP 3



Applicants bring related original documents to the Service Center.

Shenzhen Administration of Foreign Experts Affairs and the Exit-Entry Administration Division of Shenzhen Municipal Public Security Bureau will conduct joint approval for the application.



STEP 4

After 7 working days, the applicant can go to the Permit Issuing Window of the Service Center to pick up the permits



*<https://wgfw.ga.sz.gov.cn/user/wgrfwpt>

Anhui Strives to Build the Premier Innovation Center for Quantum Information Technology

By Staff Reporters

Anhui Province has taken four measures to become the hub of scientific and technological innovation of quantum information.

Firstly, Anhui has stepped up its efforts in sci-tech research and is tackling key research projects. A series of work has been undertaken to promote the implementation of programs related to "National Scientific and Technological Innovation 2030 Program." Seven programs of quantum information

were awarded the qualification for competing in the provincial sci-tech programs. At the same time, the open competition mechanism has been established to select the best candidates for the sci-tech programs. As a result, Zu Chongzhi, the 62-Bit Superconducting Quantum Computing Prototype, has been successfully completed, setting a world record for repeaterless optical fiber quantum key distribution with a magnitude of 500 km.

Secondly, there are more efficient investments. The key innovation plat-

form of quantum information has won sufficient funds of more than 2 billion RMB.

Thirdly, Anhui is accelerating the pace of gathering global talents. With the formulation of policies concerning the specialized experts of the key innovation platform of quantum information and the implementation of the Jianghuai Talent Program, more than 200 experts in the field of quantum science have been recruited to conduct relevant research.

Finally, more related work is being

done to empower the transformation of innovative achievements. With the acceleration of the establishment of the Quantum Center, various specialized measures have been taken to promote the transformation of scientific and technological achievements in terms of quantum information. Based on the existing industrial foundation, quantum information technology will be expanded in the fields of government affairs, communication and electric power.

Source: Ministry of Science and Technology

Traditional Eastern Wisdom

The Space Exploration and Chinese Legend

By WEN Haoting

According to Chinese legend, there are three domains in the cosmos — Heaven, Earth, and the Underworld, and the gods who reside in Heaven were the most worshiped deities throughout China.

This led to people dreaming of becoming a deity that lives in Heaven.

The Space Station "Tiangong"

And because of this, the Chinese Space Station is also named after the heavenly palace, Tiangong. According to the China Manned Space Engineering Office, the Chinese Space Station will be fully operational around 2022, and will have three main components — the Tianhe capsule and two space labs, the Wentian and Mengtian experimental modules.

Tianhe means harmony of the heavens, indicating China's wish for open conversations and cooperation among international scientists as well

as a peaceful world. Meanwhile, in Chinese, Wentian and Mengtian translate into "asking Heaven" and "dreaming of Heaven." It symbolizes Chinese people's yearning to look into the mysteries of the universe.

On April 29, 2021, the Tianhe core module was successfully sent to space, marking the launch of the on-orbit construction of China's Space Station.

The Manned Spacecraft "Shenzhou"

In Chinese, Shenzhou means the divine vessel, and it symbolizes the pride of the Chinese nation. The Shenzhou-12 manned spacecraft was launched on June 17, 2021. Three taikonauts successively entered the Tianhe core module on the same day, marking the first time for Chinese taikonauts to enter their own space station.

The Cargo Spacecraft "Tianzhou"

In Chinese, Tianzhou means the heavenly ship, a cargo ship carrying

supplies for China's Space Station. It symbolizes a link between the earth and outer space.

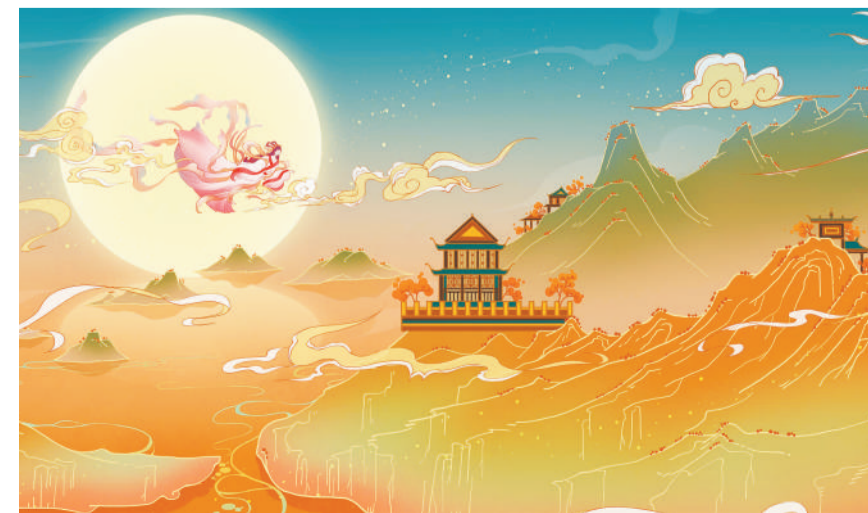
Tianzhou-2 cargo spacecraft was sent up and docked with the Tianhe core module on May 30, 2021, deliver-

ing fuel, space suits and experimental equipments.

From the first unmanned flight test to the first extravehicular activity, China has now mastered the technology of automatic rendezvous and docking.

Soon, the first Chinese Space Station will be completed and the Chinese people's dream of living in Heaven will become a reality.

Source: Our Space



"Tiangong", where Chinese ancient gods live (photo: VCG)