



# Science and Technology Daily

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WEEKLY EDITION

## China's Top Sci-tech Achievements Awarded

By Staff Reporters

The awarding ceremony for China's top scientific and technological award and several national sci-tech awards was held on November 3 in Beijing.

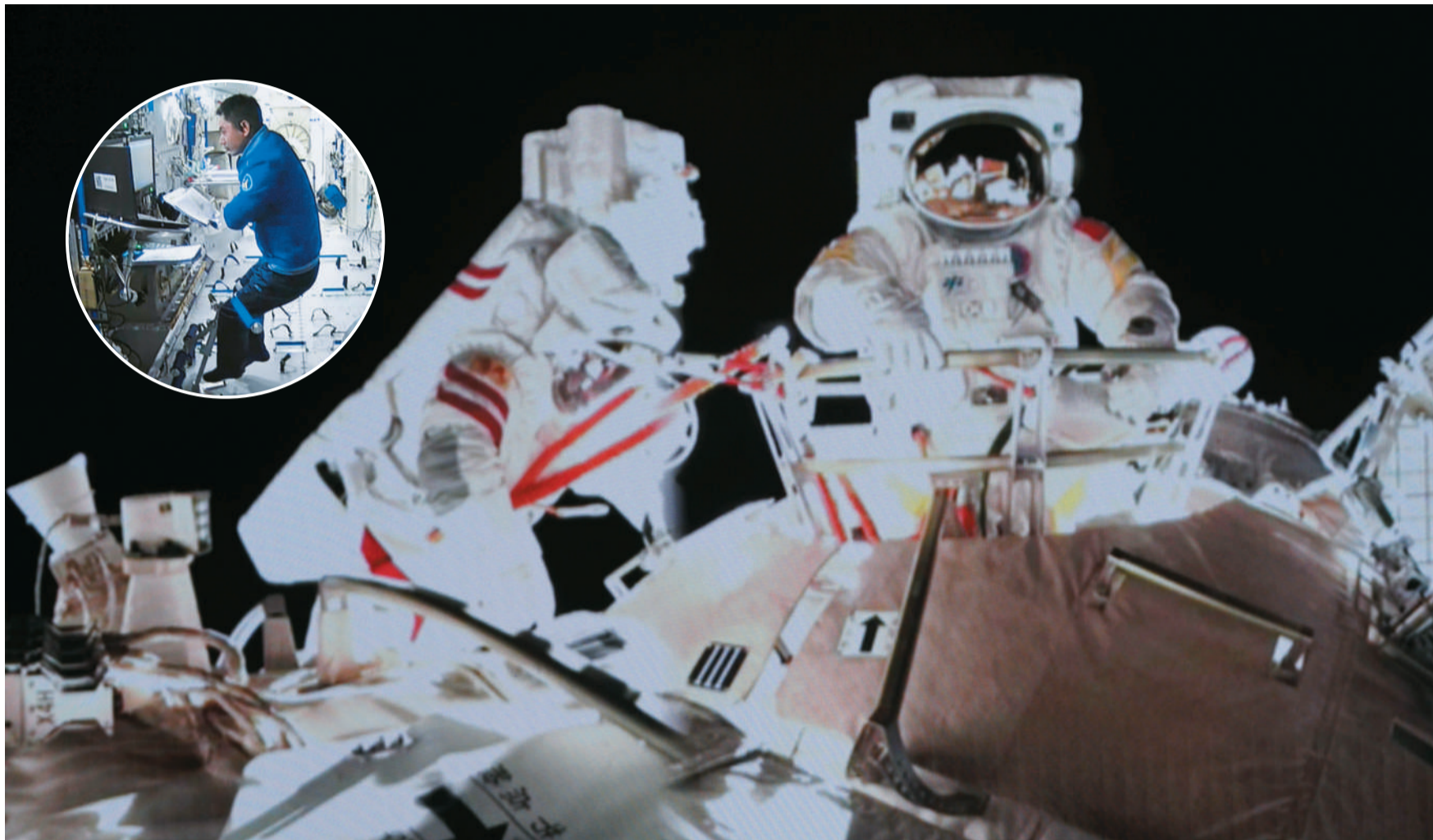
Gu Songfen and Wang Dazhong won the State Preeminent Science and Technology Award for their extraordinary contributions to the country's scientific and technological innovation. Gu led the development of China's advanced jets. He is a research fellow at the Aviation Industry Corporation of China, and an academician of the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering. A renowned nuclear scientist and academician of CAS, Wang created the world's first 10MW modular high temperature, gas-cooled reactor.

There were 46 achievements winning the State Natural Science Award, two of which were presented with the top award. One was for the invention of nano-confined catalysis by chemists from the Dalian Institute of Chemical Physics, CAS. The other was for the production and application of ordered mesoporous polymer and carbon material by scientists from Fudan University.

Three projects won the first prizes of the State Technology Invention Award, while other 58 projects obtained the second prizes. One of the first prizes went to a project on key technologies for ultra high definition video polymorphic primitive codec, which was conducted by a team of scientists with most of them from Peking University.

Two achievements (of projects) were awarded the special prize for the State Scientific and Technological Progress Award, including the Chang'e-4 project, as well as 18 achievements winning first prize and 137 achievements second prize.

Eight foreign experts and International Center for Tropical Agriculture were also honored with the International Science and Technology Cooperation Award.



Screen images show Chinese taikonaut Ye Guangfu (L) working in the space station core module Tianhe while taikonauts Zhai Zhigang and Wang Yaping were conducting extravehicular activities. (PHOTO: XINHUA)

## Editor's Pick

# Using AI to Treat Polluted Water

By SUN Yu & TANG Zhexiao

In front of the main building of the Chinese Research Academy of Environmental Sciences (CRAES), there is a big rock bearing the words, "Mountains and rivers green are mountains of silver and gold."

It is a constant reminder for Zhang Lieyu, senior researcher at CRAES, to think about how to use science and technology to treat water.

For the past decade, Zhang has visited innumerable smelly waterways and polluted rivers. He describes him-

self as a "water doctor" who specializes in treating "sick" rivers and lakes. More than 80 polluted rivers have been returned to full health after his treatment.

Recently, the first home-made artificial intelligence (AI) river basin supervision system that Zhang participated in, has been successfully launched.

This system, which can monitor 96 square kilometers of the Baihe River in Sichuan Province in real time, can realize the functions of water quality traceability, pollution prediction and intelligent decision making.

*Treating polluted water like a "clinician"*

Zhang Lieyu studied in Wuhan University of Technology as an undergraduate, and got his PhD in environmental science at the Institute of Hydrobiology, Chinese Academy of Sciences.

As early as a PhD student, Zhang determined to make protecting clean water his lifelong career.

Seventeen years ago, the ring waterway of Caoyang in Putuo District, Shanghai, was a renowned polluted waterway with black water and blue algae reproduction. It took less than a year for

Zhang and his PhD instructor to find the source of pollutant and carry out targeted interventions. After countless practical research and purification experiments, the ring waterway was transformed into a green recreational park.

*AI managing water treatment*

As the general leader of a demonstration project for water treatment, Zhang designed an AI supervision system. "We use advanced technologies such as big data, AI, block chain, and the Internet of Things to create this intelligent watershed monitoring system," said Zhang. *See page 2*

# Carbon Monoxide Becoming New Source of Protein

By Staff Reporters

After years of research, China has made a major breakthrough in protein synthesis from carbon monoxide (CO), and completed the construction of a production line with a capacity of 10,000 tons of protein, according to a joint research released on October 30.

The Feed Research Institute of the Chinese Academy of Agricultural Sciences (CAAS) has worked with Beijing Shougang LanzaTech New Energy Science & Technology Co. Ltd. to develop artificial synthesis technology to produce single-cell protein that could be fed to animals.

The natural protein synthesis is a long and complex process with low transformation efficiency. Artificial protein synthesis technology can be a game changer, and therefore has long been regarded as a revolutionary frontier of science and technology, said the leading sci-

entist of the project, Dr. Xue Min from the Feed Research Institute of CAAS.

The new protein synthesis technology is essentially a fermentation technology that uses bacteria called clostridium ethanolicum to produce protein from CO and nitrogen sources (ammonia), all by-products of industrial processes, said Chao Wei, senior vice president of Shougang Lanza.

Chao said, "The optimized fermentation process can achieve both rapid conversion in 22 seconds (from the input of CO synthesis gas to the production of ethanol and bacterial protein mash) and efficient production of ethanol. This new technology consists of more than 100 independent intellectual property rights."

The Feed Research Institute has carefully analyzed the clostridium ethanolicum protein and conducted experiments. The study found that its protein content

is twice that of soybean pulp. And it was certified for feed ingredients by the Ministry of Agriculture and Rural Affairs.

According to Xue, China's annual consumption of feed is more than 200 million tons, ranking first in the world. But, high-quality protein source has been in short supply and largely reliant on imports.

It is estimated that China can produce at least 1.2 trillion cubic meters of CO-rich industrial exhaust gas every year. If this gas is used for efficient and clean utilization via biological fermentation technology, the annual output of clostridium ethanolicum protein can reach 10 million tons. Shougang Lanza has achieved three years' stable production in the pilot test, said Chao.

Yin Xiaofeng, director of the Feed Research Institute said that this technology could help reduce China's reliance on imported soybeans and achieve carbon neutrality.

## World Alliance of Universities on Carbon Neutrality Launched

By Staff Reporters

Initiated by China's Southeast University (SEU) and the University of Birmingham in the United Kingdom, the World Alliance of Universities on Carbon Neutrality was launched on October 27 in Nanjing, capital of Jiangsu Province.

This is the first global alliance of universities on talent cultivation and scientific research cooperation, in terms of carbon neutrality technologies.

Members of the alliance include Chinese universities like Dalian University of Technology and global universities such as South Ural State University of Russia.

The initiative to establish such an alliance aims to deepen cooperation between universities globally on joint scientific research and high-end talent cultivation in the field of carbon neutrality, and actively strengthen international cooperation concerning response to climate change, said Zhang Guangjun, president of SEU and academician of the Chinese Academy of Engineering. *See page 4*

## WEEKLY REVIEW

### Shenzhou-13 Taikonauts Complete First Extravehicular Mission

Taikonauts Zhai Zhigang and Wang Yaping have completed their extravehicular activities (EVAs) and returned to the space station core module Tianhe, the China Manned Space Agency said on November 8. It also marks the first EVAs in Chinese space history involving a female taikonaut.

### Top 10 Scientific Issues in 2021 Unveiled

The top 10 scientific issues of human society development in 2021 were released at the third World Science and Technology Development Forum. Focusing on the UN 2030 Agenda for Sustainable Development, the top 10 scientific issues are mainly related to ecology, medical treatment and information.

### First Satellite Launched for UN's 2030 Agenda

The Earth science satellite, called Guangmu, was launched by a Long March-6 carrier rocket at 10:19 a.m. on November 5 (Beijing Time) and entered the planned orbit. It is the world's first satellite dedicated to servicing the UN 2030 Agenda for Sustainable Development.

### PBOC Rolls Out Supporting Tool for Carbon Reduction

The People's Bank of China (PBOC), the nation's central bank, said on November 8 that it has rolled out a supporting tool for carbon reduction to facilitate the country's goal of carbon neutrality.



Baihe River is located in the Sichuan Basin, southwest China. (PHOTO: CFP)

S&T DAILY WECHAT ACCOUNT  
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## China Strengthens Sci-tech Support to Address Climate Change

By LI Linxu

Scientific and technological innovation plays a fundamental role in identifying, analyzing, and responding to issues related to climate change, and is set to perform a crucial role in promoting the green and low-carbon transition, according to the white paper released by the State Council Information Office on October 27.

The white paper, titled "Responding to Climate Change: China's Policies and Actions," details the country's progress in mitigating climate change and sharing its experience and approaches with the international community.

As a responsible country, China is committed to building a global climate governance system that is fair, rational, cooperative and beneficial to all, and makes its due contribution to tackling

climate change using its greatest strengths and most effective solutions.

In 2020, China announced new targets for Nationally Determined Contributions, aiming to peak carbon dioxide emissions before 2030 and achieve carbon neutrality before 2060.

To reach these goals, science and technology innovation is essential. The country has continuously leveraged the supporting and guiding role of scientific and technological innovation to promote the transfer and application of environment technologies.

The development of new economy, new technologies and new business models, the innovation of institutions and policies, as well as the reform in various fields, have great potential in cutting carbon dioxide emission, said Ye Min, vice minister of ecology and environment, adding that fully tapping these

potentials is an important driver for high-quality development.

Last month, China has successively issued "Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy," and "Action Plan for Carbon Dioxide Peaking Before 2030," both emphasizing green and low-carbon science and technology innovation.

Besides these guiding documents, China has issued a series of climate change-related special plans for technological innovation, technology promotion lists, and green industry catalogs.

The government is committed to basic scientific research on climate change, and promotes the research, development and application of low-carbon technologies.

Under the national key research

and development (R&D) plan, more than 10 major climate change-related research and development projects have been carried out, and the application of 143 technologies in the field of greenhouse gas reduction and utilization has been promoted, according to the white paper.

Meanwhile, the government has encouraged enterprises to take the lead in green technology R&D, supported the transfer and application of green technology achievements, and established a comprehensive national-level green technology trading market.

In addition, China has established a carbon capture, utilization, and storage entrepreneurial technology innovation strategic alliance, along with a special committee and other institutions, to promote technical progress and the application of scientific and technological achievements in the field.



Nanjing Yangtze River Bridge is a famous bridge that spans across the Yangtze River in Jiangsu province. (PHOTO: VCG)

## Yangtze River Delta Region Gains New Growth Impetus

By CHEN Chunyu

The Yangtze River Delta region, which consists of Shanghai city, Zhejiang, Jiangsu and Anhui provinces, has reaped fruitful benefits from its integrated development during the past three years. The region's share of national GDP has increased from 24.1 percent in 2018 to 24.5 percent during the first three quarters of 2021, Cong Liang, vice chairman of the National Development and Reform Commission said in a press conference on November 4.

Wu Qing, vice mayor of Shanghai said that the National Eastern Tech-Transfer Center has set up 19 sub-centers in the Yangtze River Delta region, and the trade in technology has become increasingly active. Technology-trading contracts numbering 14,000 were concluded within the region, with a turnover of more than 54 billion RMB.

The sci-tech resource-sharing service platform, co-built by regional partners in Shanghai currently has 22 major scientific apparatus, 315 national-level research bases and over 200,000 sci-tech experts. The platform has effectively improved the allocation efficiency of sci-tech resources in the region and reduced the R&D costs of enterprises, especially the small and medium-sized enterprises, said Wu.

Shanghai will strengthen the construction of a sci-tech innovation community in the Yangtze River Delta region. It will enhance the role of the multi-level capital market in allocating

innovation factors, improve the integrated service network, and support more sci-tech enterprises in the region to be listed on the Science and Technology Innovation Board, said Wu.

In the past few years, Jiangsu has practiced the idea of green development and restored the ecology in the region by shifting the growth model and adjusting the economic structure, said Fan Jinlong, vice governor of the province.

Liu Hui, vice governor of Anhui said the province will further promote cooperation with key innovation platforms, and jointly set up clusters of major scientific equipment and network for international sci-tech cooperation.

According to Liu, Anhui will promote investment in emerging industries, and strengthen the connections with advantageous industries in the Yangtze River Delta region and central China, jointly building a number of world-class innovative industrial clusters.

Chen Jinbiao, vice governor of Zhejiang, said the province will speed up the construction of national demonstration zone alliance to transfer sci-tech, promote the building of Hangzhou West Science and Technology Innovation Corridor to be a source of innovation, and collaboratively build world-class advanced manufacturing industrial clusters and strategic emerging industrial clusters.

The digital economy is the traditional advantage of Zhejiang. The transformation into digital and intelligent development will be accelerated, Chen said.

## Tackling Climate Change Together

Picture taken on Nov. 3 shows delegates sitting in the Action Zone as they attend the 26th United Nations Conference of Parties (COP26) in Glasgow.

The conference, delayed a year due to the COVID-19 pandemic, is the first international climate summit after the five-year review cycle under the Paris Agreement inked in 2015.

China has set a good example by taking the lead in updating its Nationally Determined Contribution, which outlined the country's goals of peaking carbon emissions by 2030 and achieving carbon neutrality before 2060.

(PHOTO: VCG)



## Major Chinese Cities Set to Drive Innovation with Talents

By ZHONG Jianli

China has put forward its innovation-driven development strategy, and talented personnel are seen as central to technological advancement. Major Chinese cities have adopted different measures to grow the domestic and foreign talent pool to drive sci-tech innovation.

**Beijing: To be country's hub of talents and innovation**

Beijing is home to nearly 100 universities, more than 1,000 research institutes and more than 20,000 high-tech enterprises. Aiming to develop the capital into an international hub of sci-tech innovation, Beijing adopted a strategy of talent-led development.

In 2020, Beijing topped the list of global cities for scientific research published by the *Nature*, a leading international scientific journal. The number of highly cited scientists in Beijing reached 253, surpassing the Silicon Valley in the U.S. for the first time.

To maintain and develop its advantage in sci-tech innovation, Beijing has identified Zhongguancun Science City, Huairou Science City, Future Science City and the Beijing Economic and Tech-

nological Development Area as the main battleground for innovation in such areas as artificial intelligence, quantum information, integrated circuits and key new materials.

The city has also carried out reform to facilitate the entry and exit of international talents. For example, it has innovated a new policy where foreign talents could apply for Chinese "green card" abroad. Thanks to the policy, 26 foreign talents have been granted permanent residence in China. It has also improved the process for overseas experts to work in Beijing by shortening the approval duration to 10 working days.

**Shanghai: Developing more opportunities for foreign talents**

On September 29, the 2021 "Gathering Global Talents" Innovation and Entrepreneurship Summit was launched in Shanghai, with 2,944 employers releasing 14,122 positions for high-level talents around the globe.

This is just one of the activities that Shanghai held to seek for domestic and international talents. To encourage innovation, Shanghai promotes the building of low-cost, convenient, and open maker-spaces. World-renowned incubators, represented by WeWork, have settled in

Shanghai.

It has also set up the venture capital fund and angel investment fund to provide financial support for sci-tech innovation enterprises. The Shanghai Intellectual Property Exchange has been established to improve the environment for intellectual property protection.

The city announces that it will make more attractive policies for overseas experts, which include work permits and quasi-citizen services for foreign experts in start-up enterprises and young foreign talent in STEM fields. The city will support the Pudong New Area in gradually lifting restrictions on overseas experts in some professional fields and establishing a system for recognizing international professional qualifications.

**Guangdong: To set up high-level R&D institutes**

Building high-level research and development institutes and introducing high-level experts are important measures for cities in Guangdong province to accumulate high-end innovation resources.

In recent years, 10 provincial laboratories have been built in Guangdong. To date, it has 30 state key labs, 430 provincial key labs, 21 high-level innovation re-

search institutes, and 20 Guangdong-Hong Kong-Macao joint labs.

This August, a notice about the application for the high-end talent exchange program in 2021 and 2022 was released, in which differentiated topics were set up for retired experts, overseas top-tier teachers, and young foreign researchers. This aims to further promote the exchange of international talents to Guangdong.

Moreover, the province continues to put forward new measures to facilitate foreigners working and living there. For example, Shenzhen has set up a comprehensive service platform to provide a one-stop service for foreigners. And those high-end and on-demand foreign experts working in nine mainland cities of the Guangdong-Hong Kong-Macao Greater Bay Area will enjoy a preferential policy for individual income tax.

Horace Loh, a world-renowned pharmacologist, said that "China has introduced many policies for foreign experts, and there are different projects for different ages. China's policies for overseas experts have reached an unprecedented level, and the most telling evidence is their increasing number coming to work in China."

## Blending Sci-tech and Culture Brings New Growth Point

By CHEN Chunyu

The integration of culture, science and technology gives birth to new industrial forms, new products and new modes of operation, which has become an important engine for high-quality development of the cultural industry.

In recent years, Jiangsu province has achieved remarkable progress in promoting this integration. This September, the Ministry of Science and Technology released a list of national demonstration bases for integrating culture with science and technology, in which five bases from Jiangsu are included.

Nanjing, the capital city of the province, is a state-level demonstration base for the integration of culture, science and technology, which consists of five branches in the fields of cultural and creative design, mobile games, media, future network technology and digital education.

China Culture and Technology Integration Exhibition Achievement Fair, the first special event focusing on digitalization of the cultural industry in the country, was held in Nanjing on October 21. Since its launch in 2018, it has served more than 3,000 market entities of various types, made business transactions worth 30 billion RMB, and received more than 50,000 visitors from the industry.

Data released by the Nanjing Bureau of Statistics this October, showed that in the first half of 2021, the business income of Nanjing's cultural enterprises reached 161 billion RMB, a 29.2 percent increase over the same period in 2020, achieving an average growth of

13.9 percent over the past two years.

Besides Nanjing, other cities in Jiangsu also have their own strengths.

Wuxi focuses on the digital film industry chain, integrating film shooting, project approval, financing, film trading, digital filming, and pressing ahead with Chinese movies into the 4.0 era, in which a fully integrated, high-tech production system prevails.

Changzhou has built a development pattern of integrating the digital and real economies, featuring the booming development of a high-end modern service industry.

Suzhou innovates carrier platforms, and introduced a cultural industry cluster featuring creative design, digital media and cultural tourism, as well as a high-tech industry cluster represented by electronic information.

In 2019, the Ministry of Science and Technology, the Publicity Department of the CPC Central Committee and other departments, jointly issued a guideline to promote the deep integration of culture, science and technology.

By 2025, an innovation system of integrating culture with science and technology covering key fields will be basically formed. Nearly 100 national demonstration bases with distinctive features, standardized management and well-equipped supporting facilities will be established. Meanwhile, about 200 industry-leading enterprises with well-known brands and strong competitiveness will be built, making the integration an engine for culture's high quality development.

## Using AI to Treat Polluted Water

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According to him, the AI-based system can use fewer sensors to trace back source of emissions exceeding the standard level within 30 minutes, and predict possible pollutant diffusion with an accuracy of over 85 percent.

Besides supporting human management and scientific decision making on

river management, this system also has great potential in cultivating environmental protection industries and expanding the scope of environmental protection services.

As a new tool for water management, the system also provides practical solutions to overall environmental supervision, which can significantly improve the efficiency of environmental manage-

ment.

**Global protection for clean water**

A recent UN report on global clean water and sanitation suggests that almost two billion people are using water resources contaminated with sewage. And by 2050, it is projected that at least one in four people will be suffering from a shortage of water.

To ensure universal access to safe

drinking water for all, effective water treatment needs to be adopted. More international cooperation is also needed to encourage water efficiency and support treatment technologies in developing countries.

Zhang told S&T Daily, as soon as the river basin supervision system is complete, they intend to build a smart system for atmospheric environmental monitoring. By all accounts the era of an AI managed water environment has definitely arrived.

# Multi - approaches: Tackling Climate Change and Energy Issues

## Voice of the world

Edited by QI Liming

Chinese President Xi Jinping called on the international community to take concrete actions to address climate change and energy issues on October 31, while addressing the 16th G20 Leaders' Summit via video link in Beijing.

Xi urged for the full and effective implementation of the *United Nations (UN) Framework Convention on Climate Change* and the *Paris Agreement*, upholding the role of the UN as the main channel, following the principle of common but differentiated responsibilities, abiding by international law, and being action-oriented.

Public opinion across the world is

paying close attention to China's commitments and the new decisions that the country has made to address climate change and energy issues.

### Resetting the Belt and Road Initiative

On October 18 - 19, the second Belt and Road Energy Ministerial Conference, themed "Join Hands towards a Greener and More Inclusive Energy Future," was held in Qingdao, Shandong province. The Belt and Road Energy Partnership was stressed at the conference.

Against the backdrop of a climate-change crisis, energy supply in Belt and Road Initiative (BRI) countries should become more green and inclusive.

Journalist Ralph Jennings said on the Voice of America, that green energy is the new focus of China's one-of-a-kind BRI, aiming to build a series of in-



The aerial views of Montenegro's highway built by China. (PHOTO: VCG)

frastructure projects from Asia to Europe. The new contents of BRI will focus on greener projects, instead of pollution-generating coal-fired plants, he

said.

"China's policy shift towards a more green BRI reflects China's own commitment to reach net zero carbon emissions by 2060 and its efforts to implement a green transition within China's domestic economy," said Rajiv Biswas, Asia-Pacific chief economist with the market research firm IHS Markit.

Biswas said that furthermore, China's policy shift also reflects the increasing priority being given towards renewable energy and sustainable development policies by most of China's BRI partner countries. Moreover, BRI helps lift the economies of developing countries from Kazakhstan to more modern ones, such as Portugal.

### Increasing commitments to reduce emissions

Sébastien Treyer, the executive director of a Paris think tank Institute for Sustainable Development and International Relations (IDDRI), said that the first big expectation for China is to increase commitments to reduce emissions and honour previous commitments to reduce emissions.

"We expect China to play a positive role in international assistance. For example, at the G20 Summit, when the Paris Club (the Paris Club is a group of officials from major creditor countries whose role is to find coordinated and sustainable solutions to the payment difficulties experienced by debtor countries) addressed the issue of reducing the debt of poor countries, the Chinese government accepted the possibility of

reducing the debt of poor countries," Treyer said, this is a very positive signal, which brings new possibilities to the meeting.

Praising China's decision to cut off credit for overseas coal-power development at the UN General Assembly in September, Treyer said this was a crucial step. He also pointed out that in the long run, China has huge potential for developing renewable energy.

### Shifting China's stance on climate change

According to opinions from Carbon Brief (a UK-based website specializing in the science and policy of climate change), there are three main reasons for the recent significant change in China's climate policy.

First, Chinese society has become more aware of climate change.

Second, China is becoming a high-income country, with per-capita GDP exceeding 10,000 USD for the first time in 2019.

At the same time, renewable energy has developed rapidly in China, which has significantly reduced the cost of renewable energy promotion and use worldwide.

Third, Sino-American and Sino-European relations have also become the catalyst for the shifting of the nation's climate policy.

China has made a solemn commitment on the international community to tackle climate change. Thus, the decade ahead will be a crucial period to take action.

# How E-commerce Booming the Economy: Double 11 Inspiration

By YU Haoyuan

Since the outbreak of the COVID-19 pandemic, the global digital economy has made rapid growth. When one of the world's largest shopping events Double 11 comes around (China's Single's Day sale that takes place annually online on November 11), it generates a flurry of e-commerce activities as merchants scramble to maximize sales. The event could also be seen as a yardstick of consumer sentiment in the pandemic era.

### Double 11 sales hit a new high

Some experts and media predicted that this year's Double 11 sales would likely surpass that of last year as consumers choose online shopping as their major buying channel due to the effects of COVID-19.

AlixPartner, an American consulting company, conducted a survey on Double 11 sales with more than 2,000 consumers from across China on October 28. The report shows that about 39 percent of people surveyed plan to spend more money than last year.

Notably, the survey also points out that livestreaming is the preferred shopping channel, with only 19 percent of

consumers not planning to do their shopping via live-streaming during the promotion period. Most Chinese consumers expressed their willingness to buy goods via livestreaming, with the "most popular reasons for this being the good discounts on offer (38 percent)" and the "instant and easily accessible information available through livestreaming (37 percent)."

### China's online sales, especially Double 11 sales, continue to grow year by year

The East Asia Forum, an online research platform, gave out its answer in an article titled *What is Driving China's E-commerce Growth*, there were three reasons driving the economic rise.

First, China has the largest online buyer and seller population, and its population of online consumers has reached 782 million. For example, both Alibaba and Jingdong (JD.com), China's two largest e-commerce platforms, have millions of users in the country.

Second, China has constantly improved its online sales platform. Its e-commerce market is "not only large but diverse," with multiple choices for a wide selection of brands. Although cit-

ies like Beijing, Shanghai, and Guangzhou contribute more to the e-commerce market, smaller cities are the main drivers of growth.

Third, China's e-commerce is well supported by mobile payments. In China, more than 90 percent of e-commerce sales are done through mobile devices, as compared to 43 percent in the U.S. More broadly, China has 932 million mobile Internet users representing 99.2 percent of the mobile Internet.

Also, the government sees e-commerce as a key driver of economic growth. Many of these factors have been nurtured and supported by the government at various stages of development.

As one of the most effective ways to improve sales on platforms, livestreaming, together with short videos, social networking and other innovative methods is benefiting the economy.

Li Jiaqi, one of China's top live-streamers, who mostly sells cosmetics online, said on Weibo (China's Twitter), "We used to get about 20 million people watching our show per day, and today (October 20) it's 250 million people joining the presale (of Double 11)."

With Li's livestream, the brands he sells make huge economic gains. According to Verdict (a news website which covers topics surrounding global technology, business and innovation) on October 20, L'Oréal reported an estimated gross merchandise value (GMV) of 726 million RMB (114 million USD), resulting directly from Li's live broadcast. Shiseido and Estée Lauder's GMV reportedly reached 508 million RMB (79 million USD) and 368 million RMB (58 million USD) respectively.

### China's livestreaming experience worth sharing

Luke Gowland, an analyst at GlobalData and e-commerce specialist, said there is enough evidence from China's e-commerce methods to be replicated elsewhere.

"I don't think there's any doubt that with the success of livestream e-commerce in China, brands in the West will start to experiment more with celebrity live-streaming, adapting it for the Western consumer. Influencer marketing is now a mainstream form of online marketing, and celebrity live-streaming seems like a natural next step," said Gowland.

## Opinion

# American Universities, Scientists Longing for Inclusiveness and Openness

Edited by QI Liming

Lately, in the new Times Higher Education annual Reputation Ranking, Tsinghua University was named the 10th most prestigious university in the world, and China also saw Peking University at 15, five universities in the top 100 and other five new universities ranked altogether, making a record 17 in the top 200.

The rankings are helping attract more and more American universities and scientists to consider Sino-American bilateral cultural exchanges and educational cooperation as opposed to visa restrictions and racial bias towards Chinese scientists.

### Big progress in China's higher education gets the world's attention

Although the reputation of China's universities has been steadily rising for some time, this is the first time it has been at the elite end of the global higher education market.

"China's breakthrough into the top 10 and its results across the table show that its excellence in higher education is increasingly coming to the notice of the wider world," said Phil Baty, chief knowledge officer at Times Higher Education.

Chinese universities actively promote academic exchanges and attract foreign talents while American universi-

ties worried that visa restrictions on Chinese students endanger American innovation, according to the summary of the following opinions. Besides, scientists' fears of racial bias surge amid current Sino-American relations.

### American universities calling for a relaxation of visa restrictions

Some universities and institutes in



Tsinghua University (PHOTO: VCG)

the U.S. believe America's science and technology strength could be undermined by toughened U.S. visa requirements that are restricting the flow of academic talent from China.

More than 500 Chinese students

banded together after their visas were rejected this year. Last year, more than 1,000 Chinese nationals had their visas revoked over similar concerns, according to data provided by U.S. State Department.

Christo Wilson, an associate professor of computer science at Northeastern University in Boston, said that one of his doctoral students is from China and has been stuck outside the U.S. ever since 2020. "It takes a long period of training and a high level of very specific expertise to run some of these labor-intensive experiments," said Wilson, explaining why he couldn't delegate this Chinese student's tasks to other doctoral students.

Randy Katz, vice chancellor for research at the University of California, Berkeley, criticized the current approach as self-defeating. "Focusing on institutional affiliation to determine whether someone is a national threat is not a surgical strike but more like carpet bombing," said Katz.

### Voices for inclusive and open getting loud

The U.S. government's search for spies in laboratories and businesses has stoked fear among scientists of Chinese descent and damaged collaborations with researchers in China, according to a survey of nearly 2,000 scientists.

More scientists of Chinese descent than others said they feel it is harder to obtain research funding because of their race or ethnicity, and feel they face professional challenges for similar reasons.

Andrea Liu, a physicist at the University of Pennsylvania, is disappointed by the large disparities recorded by the survey in the attitudes of Chinese versus non-Chinese scientists.

"It is difficult for me to see how anyone who is following the news on 'the China Initiative' could fully support all the investigations," she said, "We still have quite a bit of work to do to educate our non-Chinese colleagues on what has been happening."

Meanwhile, calls from scientific groups to end "the China Initiative" as it was conceived have grown louder. In September, 177 faculty members from Stanford University in California sent a letter to U.S. President Joe Biden's attorney general, Merrick Garland, asking that "the China Initiative" be stopped.

Faculty members from other top universities backed that call. The American Physical Society (APS) wrote to Biden's science adviser, Eric Lander, and Garland, asking that the government should change its approach, including renaming the initiative.

## Hard Technology Worldwide On Display at the 4th CIE

Participating countries **127**

Participating enterprises Nearly **3000**

New products, technologies and services

- 51 new products, technologies and services made their debuts;
- 31 new products, technologies and services debuted in Asia.

Ethos Adaptive Radiotherapy

- AI Full Cycle treatment;
- Personalized precision radiotherapy;
- Contactless therapy.

PerkinElmer provides an Innovative Vaccine R&D Solution

One-stop innovative platform for vaccine R&D, which can significantly accelerate clinical testing of both new and traditional vaccines.

Exhibitions of Danfoss

A "mini green city" providing advanced solutions to entities including regional energy, ports and ships urban transportation, construction machinery, urban water, etc.

More than 80% of the world's top 500 companies and leading enterprises returned to the CIE this year, regarding China as the most important consumer market.

## Chinese and Western Philosophy: Using Differences to Make a Difference

By Staff Reporters

Professor Roger T. Ames is a Canadian-born philosopher and Humanities Chair Professor at Peking University, who has made an outstanding contribution to the research and promotion of Chinese culture and philosophy, as well as Chinese and Western comparative philosophy.

Last month, Ames received the Chinese Government Friendship Award, the highest award for foreign experts who have made significant contributions to Chinese society.

### When a westerner meets traditional Chinese philosophy

Fifty years ago, 19-year-old Roger arrived at the Chinese University of Hong Kong as an exchange student.

Speaking of his first contact with his life career, he still remembers the English version of *The Four Books* his roommate sent to him. This was the first time Ames came to know about Confucius, and he was captivated immediately. When he recalled how it related to his life choice, he said, "This was the moment when I made the decision to study Chinese philosophy for the rest of my life."

In terms of his motivation to erase the Westerners' misunderstanding about Chinese culture, Ames remembered back to 1978 when he was accompanying his wife to see a doctor in Canada, and the doctor casually asked him about his research. When the doctor heard that Ames' research area was Chinese philosophy, he laughed until he had tears in his eyes. This motivated Ames



Professor Roger T. Ames. (COURTESY PHOTO)

to change the prejudice rooted in the traditions of Western philosophy.

In his opinion, foreigners learning Chinese philosophy tend to use the Western thinking method to understand. However, from the very beginning, he studied both Chinese and Western philosophy without making either dominant in his research, which helped him understand what both sides are saying as a base for mutual understanding. This has helped him become a philosophy bridge between China and the West.

"If Western philosophy repels the traditions of other philosophies, then it as a subject doesn't fulfill its academic responsibilities," said Ames.

### A bridge to facilitate mutual understanding

As a renowned expert in compar-

ative philosophy, Ames has devoted his whole life to promoting the internationalization of Chinese philosophy, especially Confucianism, and facilitating equality of dialogue between Chinese and Western philosophy. He has brought Confucianism out of Chinatown.

To achieve that goal, Ames has written a series of well-known books, such as *Thinking Through Confucius and Living Chinese Philosophy*. In addition, he has also translated many Chinese classics, including *The Analects of Confucius: A Philosophical Translation*, *Sun Tzu: The Art of Warfare*, and *Dao De Jing: A Philosophical Translation*.

In the process of academic research, Ames places high value on deepening mutual understanding and appreciating the positive role in cultural differ-

ences. He attaches great importance to language as a core communication tool in his classes and encourages students to express their thoughts in English.

"Making the Chinese tradition voice [be heard] in its own words and be understood by the West," is the way he sees his work. Ames believes that Chinese students will become an essential bridge of cultural exchanges between China and the West in the future.

As Chinese philosophy goes global, Ames said that his role is being reshaped. "You could say I'm a translator, putting Chinese ideas, Chinese culture into new words," he said.

### "Family" Concept Valued

"Family is where one is inspired to give everything. My teacher, Professor Din Cheuk Lau and I have always felt like father and son. There is some distance between teachers and students in foreign countries, while in China, the relationship between teachers and students is more like family."

To some extent, the entire Chinese society is functioning as a family. "In Confucian philosophy, more fundamental than anything else is family," said Ames.

To take a community with a shared future for mankind as an example, he underlined the Chinese approach to an inclusive, shared global governance rooted in Chinese culture and philosophy.

When it comes to his connection with Peking University, he quipped, "I'm a walking advertisement for Peking University," adding that Peking University is like his second home.

(Source: Peking University)

## Voyage to the Red East

By Youssef Khalil

The borders between countries, in its classic meaning, no longer exist. Societies are open to each other, and information is being spread more extensively than it was ever before. Communication between humans on urbanized continents is becoming smoother and faster day after day.

I was one of the individuals who crossed cultural and linguistic boundaries, and I was one of those who took upon themselves seeking a deep understanding and consideration of the wonderful Chinese culture in all known areas of life. I went through this voyage when I was 68 years old, with full love and awareness supported by an intellectual, creative, and academic stature, 13 years ago.

Today, with eight decades of life experience and knowledge, I can confidently tell that two of my best life choices were: coming to China and living in China. I never felt I am thousands of miles apart from my home country. I learned a lot, and did not stop learning from the life's school of China. Today, I have a wider cultural understanding and a broader scientific knowledge than ever before. I even learned a lot more since I started writing a book entitled *The Red East: Voyage to China*.

In China, I learned that the universal values are the basis of the relationship between the inhabitants of the globe, the first of which is tolerance. Here in China, I learned that open-mindedness is more of a moral and philosophical value than a political one. Tolerance is nothing but the fruit of the conscious mind and cosmic awareness. It is embodied by those working in the fields of education, culture and media, and I was one of them. This field includes a wide audience who are eager to learn about other cultures.

Chinese culture is the spiritual supply that Chinese nation adopts in the progress journey throughout its very long history.

Foreign guests in China must be deeply absorbed in the origins of this culture and spread it, and we should expend all our energies to reach the highest ranks in representing these roles and presenting them to the world.

As a foreigner with Chinese heart, I learned:

- The Chinese leaders always set moral examples to people.
- Spreading love for the other people and nations as a dynamic relationship exists in exchange of virtue between people.
- When you treat people with love and respect, people will treat in the same manners.
- Virtue must be given over life, and sometimes, people sacrifice their lives in order to achieve virtue.
- The material role comes to raise the moral

values of the people to the society. When the society is more financially stable, it is easier to develop it and to set higher standards and values for its people.

I believe that Chinese glory will remain forever and spread my knowledge about China by:

- Teaching Arabic language and culture with several universities in Guangzhou and Chongqing.
- Giving presentations about China and Chinese culture to international students and educating Chinese scholars about the culture or Arab countries.
- Taking part in all academic and educational activities held by the local community where I live.
- Organize Arabic corners and discussion/conversation groups in cooperation with Arabic departments in several universities.
- Writing articles about Chinese culture in newspapers, allowing people in my country to know more about China.

I consider Chinese culture as one of the most prestigious cultures, because it is based on ethical principles and is an authoritative reference for wisdom and respect for the virtues that protect humans. It provides the ability to communicate with others and live with them in safety and peace, and to exchange knowledge in a way that serves all people, far from differences in color, nationality and belief.

Learning how to smile to others gives them comfort and safety, explores all their abilities, and connects with them as friends for a better life. This is what I learned from Chinese people.

I consider China a source of inspiration in all aspects of life, including science, culture, art, creativity, wisdom, invention, and the amazing scientific progress. We are looking for witnessing the glory of China under the wise leadership of President Xi Jinping, who launched the Belt and Road Initiative and who realized that the Chinese dream would make the new world happier, more peaceful and prosperous.

China and the great people of China will always have a very high status in the eyes of its friends.

(Professor Youssef Khalil is an inventor and university professor with over 60 years of experience in the field of education and Arabic Language and Culture in China and other countries.)



Mr. Youssef Khalil. (COURTESY PHOTO)

## Traditional Eastern Wisdom

## The Father of Pi

By BI Weizi

There is an asteroid in the vast night sky and a crater on the dark side of the moon, both of which are named



A picture of Pi. (PHOTO: VCG)

after an ancient Chinese scientist. His name was Zu Chongzhi (429-500), an outstanding mathematician, astronomer and inventor in the era of the Northern and Southern Dynasties in China.

Born into a family that had studied astronomy and calendars for generations, Zu had a keen interest in mathematics and astronomy from childhood.

As a young man Zu collected and read a large number of mathematical documents of his predecessors and studied them thoroughly and systematically, insisting on doing personal examination and verification of each calculation step. He was not bound by the achievements of his predecessors, but corrected their mistakes and added his own notes and findings to their work, which made him

a great promoter of ancient mathematics in China in the following three aspects.

### The calculation of pi

More than a millennia and a half ago, Zu brought to the world many of its first inventions and discoveries. His lasting legacy, however, would be a feat that was not to be surpassed for 800 years; the calculation of pi to seven decimal places, somewhere between 3.1415926 and 3.1415927. It was the most advanced achievement worldwide at that time. Pi is the ratio of the circumference of any circle to the diameter of that circle.

### The calculation of the volume of a sphere

Zu also managed to put forward the formula for computation of the volume of a sphere as  $\pi D^3/6$  where D is diame-

ter. It was not until eleven hundred years later that the Italian mathematician Bonaventura Cavalieri proposed an axiom of similar significance.

### Zhui Shu

*Zhui Shu (Methods for Interpolation)* by Zu and his son, Zu Gengzhi, which contains formulae for the volume of a sphere and cubic equations, was adopted as the textbook for mathematics in the Tang Dynasty (618-907), but unfortunately this valuable text has been lost.

These achievements of Zu Chongzhi in mathematics made it possible for the Chinese not only to catch up with the Greek, but also to even be a thousand years ahead of them in some aspects of mathematics during this period.

## First One-stop Service Center for Foreigners Working in Hunan Pilot Free Trade Zone

By BI Weizi

On October 29, 2021, the first one-stop service center for foreigners working in China (Hunan) Pilot Free Trade Zone was launched in Changsha Area.

By integrating the business windows of three departments, namely Customs, Science and Technology, and Public Security, the center has realized the first "one-window" processing of health certificates, international travel, work permit and residence permit required by foreigner coming to China.

The establishment of a one-stop services center for foreigner provides high-quality, convenient and efficient "one-stop" services for foreign talent who come to Changsha Area of Hunan Pilot Free Trade Zone in search of innovation and entrepreneurship.

	Before "One-stop expat service center"	After "One-stop expat service center"
Time	≈30 working days	≈ 10 working days
Locations	Go to 3 different offices and travel 40 kilometers	One office
Procedures	≥ 6	≤ 2
Experience	A waste of time and energy	Much more convenient

A comparative graph showing the advantages of One-stop Service Center for Foreigners Working in the China (Hunan) Pilot Free Trade Zone. (Graph by BI Weizi)

(Source: Hunan Provincial Science and Technology Department)

## World Alliance of Universities on Carbon Neutrality Launched

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According to Zhang, the alliance also aims to accelerate the talent nurturing system and sci-tech innovation system of universities, by making full use of solid basic research and interdisciplinary fusion in universities.

The alliance's secretariat is set up in SEU. Through the SEU-Yangtze River Delta Carbon Neutrality Development Institute, SEU will spare no effort to offer great service and promote the high-quality development of the alliance, said Zhang.

Xiao Rui, dean of the School of Energy and Environment at SEU, said that the alliance plans to hold diverse activities such as international academic conferences on carbon neutrality, joint cultivation of high-end talent and an exhibi-

tion on the transformation of sci-tech achievements.

As the other initiator of the alliance, the University of Birmingham also showed its commitment. David Eastwood, president of the University of Birmingham, said that, together with other members, the university will provide sustainable energy solutions to achieve the development goals of the alliance through scientific research cooperation and innovation, and jointly cope with the challenge of global climate change.

Ma Xin, vice governor of Jiangsu Province, addressed the meeting and expressed his hope that the alliance could develop into a crucial platform for global scientific research cooperation, talent nurturing and policy making consultation in the field of carbon neutrality.