

## INSIGHTS

World Sci-tech Development  
Benefiting from China's Contribution

## Voice of the World

Edited by QI Liming

China was the biggest contributor to research in major science journals and replaced the U.S. in top position for the first time in 2022, according to data from Nature Index recorded since 2014.

**Quantity on par with quality**

The quantity of Chinese research has risen rapidly since 2010, and some may wonder whether the explosion in the quantity of research was accompanied by improving quality.

According to The Conversation, while a country's scientific prowess is somewhat difficult to quantify, the amount of money spent on scientific research, the number of scholarly papers published and the quality of those papers are good indicators.

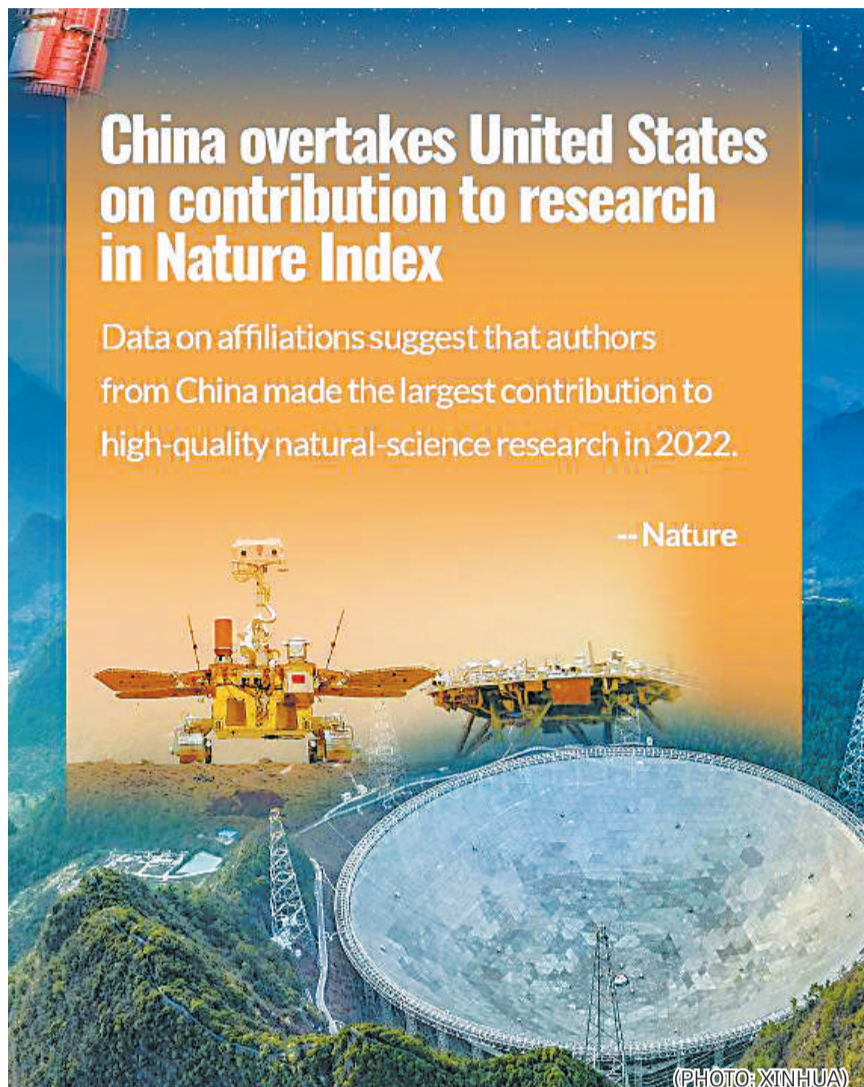
Taken together, these measures suggest that China is now no longer an imitator nor producer of only low-quality science. China is now a scientific power on par with the U.S. and Europe, both in quantity and in quality.

According to Caroline Wagner, Chair in International Affairs of Ohio State University, to quantify China's scientific strength, investigations carried out by her team found that Chinese research was surprisingly novel and creative.

"The Chinese research [appears] to be as innovative as other top performing countries," said Wagner.

**Fearing shadows under "China threat"**

Since scientific capability is intricately tied to both military and economic power, many in the U.S., from politicians to policy experts, have expressed



concern that China's scientific rise is a threat to the U.S., and the government should continue to take steps to slow China's growth. As an example, *CHIPS and Science Act of 2022* came into force.

However, a number of scholars see these fears and policy responses as rooted in a nationalistic view that doesn't wholly map onto the global endeavor of science.

As Wagner said, academic research

in the modern world is in large part driven by the exchange of ideas and information. The results are published in publicly available journals. Science is also becoming increasingly international and collaborative, with researchers around the world depending on each other to push their fields forward.

Recent collaborative research on cancer, COVID-19 and agriculture are just a few of many examples. "My own

work has also shown that when researchers from China and the U.S. collaborate, they produce higher quality science than either one alone." Wagner added.

As Collaboratory website says, the strict ban on China will cost dearly in the cause of sci-tech, and sci-tech needs collaboration beyond boundaries. The world is a small place, and we need to work together to make it better.

**Collaboration with genuine attitude**

According to Ingrid d'Hooghe, Dutch Senior Research Fellow and Coordinator at Clingendael China Centre, cutting scientific links with China on a large scale will seriously damage progress in technology and innovation, which will further restrict the understanding of developments in China.

"China is a key economic, political and scientific player that the Netherlands cannot ignore," she added. Decoupling is therefore the worst of all options for scientific cooperation.

China is a scientific powerhouse and a leading player in many fields, such as biotechnology, 5G and 6G, nano-materials and electric batteries. In addition, the Chinese government is the second largest investor in scientific research worldwide after the United States, and over 11 million students graduate from Chinese universities each year.

As a result, China has a large reservoir of students and researchers in natural science, of which there is a shortage worldwide.

So do not let the so called "security concerns" block the way forward, and as Waterloo professor Tamer Ozsu said, it's hard to comprehend what national security risk there might be in computer assisted studies that diagnose eye diseases in children.

## No Place for Coercion and Bullying

## Comment

Edited by TANG Zhexiao

The Group of Seven (G7) criticized China of "economic coercion" in a communique of the G7 summit held in Hiroshima, Japan, on May 19-21, planning to take steps to use punitive trade practices for political goals.

The group, which is made up of the U.S., UK, France, Germany, Italy, Japan and Canada, said its approaches are not designed to harm China nor thwart its economic progress and development. However, the U.S. is already doing this with its ban on exports of chips and chip technology to China, which Japan and the Netherlands have joined. The G7 is making clear such efforts would not only continue, but be ramped up, despite Beijing's protestations, according to BBC.

The U.S. often accuses other countries of using great power status, coercive policies and economic coercion to pressure other countries into submission and engage in coercive diplomacy. The fact is, the U.S. is the very origin of coercive diplomacy, Foreign Ministry Spokesperson Wang Wenbin said in a regular press conference on May 19.

It has resorted to all kinds of political, economic, sci-tech and other measures as tools for coercive diplomacy to curb and bludgeon countries around the world for selfish interest.

In recent years, the U.S. has targeted its coercive measures on the semiconductor industry.

By enacting the *CHIPS and Science Act of 2022*, the U.S. government forbids semiconductor companies that receive federal financial aid from making substantive expansion in China, and forces its allies into imposing export restrictions on China, while seeking to split up the global chips industrial and supply chains.

According to the *America's Coercive Diplomacy and Its Harm* released recently, the U.S. uses state power to suppress China's high-tech enterprises and even

intimidates countries into not cooperating with Chinese 5G suppliers.

Apart from putting more than 1,000 Chinese companies including ZTE, Huawei and DJI on various sanctions lists, the country uses national security as an excuse to clamp down on Chinese social media apps such as TikTok and WeChat.

In targeting Chinese tech companies and apps, the U.S. is behaving like a bully, said Debra Ruh, CEO and Founder of Ruh Global IMPACT.

Not even U.S. allies have been spared from such ruthless coercion. Companies such as Toshiba from Japan, Siemens from Germany and Alstom from France, are all its victims.

To maintain U.S. dominance in the semiconductor industry, it "extorts" confidential data from many chip companies worldwide. In September 2021, the U.S. Department of Commerce issued a notice requiring companies in the semiconductor supply chain to provide relevant information "voluntarily" within 45 days, including 26 core items of data such as inventory, production capacity, supply cycle and customer information.

Senior U.S. officials have even intimidated countries such as Cyprus, demanding that they can not cooperate with Chinese 5G suppliers, or the consequences would be serious.

The G7 makes high-sounding claims about "promoting a peaceful, stable and prosperous world," but what it does is hindering international peace, undermining regional stability and curbing other countries' development.

China condemns coercion and bullying and it has always taken a clear-cut stand against hegemony, unilateralism and coercive diplomacy, said Chinese Foreign Ministry.

The G7 should adapt to the prevailing trend of openness and inclusiveness in today's world and stop carrying out coercive diplomacy or building small, exclusive circles. Those who engage in coercion, sanctions, bullying, suppressing other countries and bringing chaos to the world, will eventually only harm themselves.

## Opinion

## AI Development Needs Global Cooperation

Edited by GONG Qian

The European Parliament recently passed a draft of the *Artificial Intelligence Act* after months of negotiations. Once formally approved this June, it will be the first piece AI legislation.

Proposed by the European Commission in April 2021, the *AI Act* focuses primarily on strengthening rules around data quality, transparency, human oversight and accountability.

It also aims to address ethical questions and implementation challenges in various sectors ranging from healthcare and education to finance and energy, according to the World Economic Forum.

Indeed, with the emerging of more powerful AI systems such as ChatGPT, the public has been increasingly raising concerns over legal and ethical issues brought by AI.

Apart from the EU, other govern-

ments and international regulators have already taken actions, including enacting laws and regulations, to deal with the existing problems and potential risks posed by AI.

For example, the U.S. National Institute of Standards and Technology (NIST) released the *Artificial Intelligence Risk Management Framework* to manage and mitigate the risks of designing, developing, deploying, and using AI products and services in January this year. The framework offers noteworthy contributions on the pathway toward governable and accountable AI systems and it will help AI stakeholders implement best practices for managing the opportunities, responsibilities, and challenges of AI technologies, said the U.S. *National Law Review*.

In April, the Cyberspace Administration of China (CAC) unveiled draft measures for managing generative artificial intelligence services. Providers

will be responsible for the legitimacy of data used to train generative AI products, and measures should be taken to prevent discrimination when designing algorithms and training data, said CAC. The measures are expected to come into effect sometime this year.

As case law and regulatory law are struggling to keep up with technology, policymakers, lawmakers and AI stakeholders also have realized that it is essential to strengthen international cooperation on AI regulations.

"No country can 'go it alone' in AI," said Brookings Institute, a think-tank based in Washington D.C. Enhanced cooperation is needed to tap the potential of AI solutions to address global challenges, it added.

The leaders of the ChatGPT developer OpenAI, Sam Altman, Greg Brockman and Ilya Sutskever, released an article called *Governance of Superintelligence* on May 22. They said superintel-

ligence will be more powerful than other technologies, humanity has had to contend with in the past and it will require special treatment and coordination. Therefore, it is needed to establish an equivalent to the International Atomic Energy Agency.

They proposed that any effort above a certain capability threshold will need to be subject to an international authority that can inspect systems, require audits and test for compliance with safety standards.

"We are quickly approaching a brave new world by creating a novel intelligence that we can neither predict nor understand ... But one thing is clear: no one party can control the behavior of an emergent AI megasystem. Global cooperation is required. A failure to investigate the problem and put effective guardrails in place could have catastrophic consequences for all of us," said the *Wall Street Journal*.

## Hi! Tech

## Eco-friendly Plastic Alternatives from the Ocean

By QI Liming

Seaweed is rich in a variety of polysaccharide substances, which can be extended into a film after forming a gel. It therefore has the potential to make plastic wrap because of the good flexibility. A research team at Ocean University of China has developed a new eco-friendly seaweed-based plastic wrap using seaweed as its raw material.

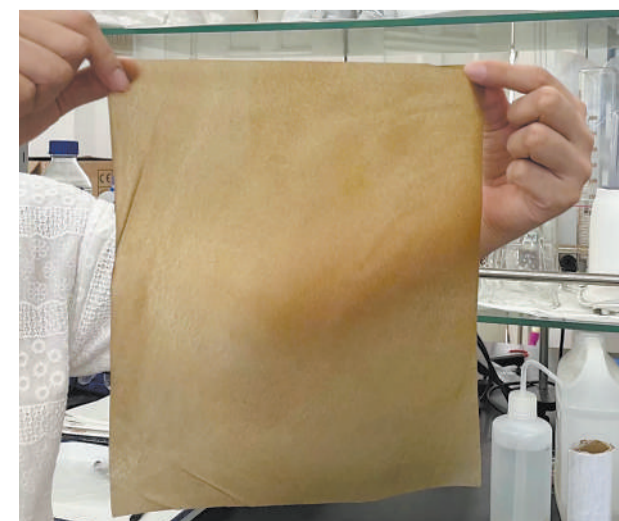
Seaweed-based plastic wrap can be cooked together with the wrapped food or eaten directly. If accidentally disposed of in nature, as long as it is exposed to enough water for more than two hours, it will decompose into organic matter, then become part of the soil.

Compared with the traditional disposable plastic wrap, edible whole biode-

gradable seaweed-based food wrap has the advantage of high safety, no plasticizer, no carcinogens, and achieves 100 percent biodegradation within six to 12 months.

There are more than 20,000 species of algae, and almost all marine plants can be classified as algae. Therefore, seaweed has great potential for development. Besides plastic wrap and mulch, seaweed can also be made into tableware.

Plastic alternatives made from seaweed have shown promising market prospects. Currently, many companies around the world are promoting plastic alternatives made from seaweed, such as straws, tableware and packaging, and continue to expand the production scale of algae biomaterials.



A new eco-friendly seaweed-based plastic wrap that can achieve 100 percent biodegradation within six to 12 months. (PHOTO: Ocean University of China)

## The United States' Biggest Threat Is Itself

## Research Box

President Biden left for Japan on May 17 for a meeting of the leaders of seven major industrial democracies who get together each year to try to keep the world economy stable.

But as it turns out, the major potential threat to global economic stabili-

ty this year is the United States.

When Biden lands in Hiroshima for the annual Group of 7 summit meeting on May 18, the United States will be two weeks from a possible default that would jolt not only its own economy but those of the other countries at the table.

After generations of counting on the United States as the most important stabilizing force in world affairs, allies in recent years have increasingly

come to expect a certain level of dysfunction instead.

Extended government shutdowns, banking crises, debt ceiling fights and even political violence would once have been unthinkable but have prompted foreign leaders to factor American unpredictability into their calculations.

"I think our biggest threat is us," said Jane Harman, a former Democratic

representative from California who later served as the president of the Woodrow Wilson International Center for Scholars. "Our leadership in the world is being eroded by our internal dysfunction. The markets are still betting against our defaulting, and that's a decent bet."

--Peter Baker, For Biden, Crisis at Home Complicates Diplomacy Abroad, *The New York Times*, 18-05-23