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## The Global Nature of Science, Technology and Innovation: An interview with Ambassador Qin Gang, China’s Ambassador to the U.S.

Ambassador Qin Gang is the 11th Ambassador Extraordinary and Plenipotentiary of the People’s Republic of China to the United States since July 2021. Previously, he served as China’s Vice Minister of Foreign Affairs. Since 2005, Ambassador Qin served as MFA spokesperson as well as Deputy Director General (later as Director General) of MFA Information Department, before becoming Chief of Protocol of MFA in 2014. He also served multiple times at the Chinese Embassy in the United Kingdom throughout his diplomatic career.

Ambassador Qin spoke with Kim Montgomery, Director of International Affairs and Science Diplomacy and Executive Editor of *Science & Diplomacy*, on China’s science diplomacy initiatives. This is the seventh interview as part of the Ambassador Interview Series.

**Kimberly Montgomery (interviewer):** *Since China and the United States established diplomatic relations in 1979, the U.S.-China Agreement on Cooperation in Science and Technology, renewed every year since, has led to robust collaboration in science and technology. You arrived in Washington, DC as Ambassador at a pivotal time, given the tensions between the countries. What are China’s priorities for the bilateral relationship and what role do you see for science, technology, and innovation?*

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**Ambassador Qin:** Since the establishment of diplomatic ties more than forty years ago, China-U.S. relations have made historic progress, despite some twists and turns and the many differences in our social systems, histories, cultures, and approaches to development. We are ready to work with the United States to respect each other, peacefully coexist, and pursue cooperation.

Scientific and technological exchanges and cooperation have played an important role in the development of China-U.S. relations and are still an important part of our bilateral relationship. Even before we officially established diplomatic relations, U.S. President Carter's science advisor visited China. In 1979, after diplomatic relations were established, Mr. Deng Xiaoping and President Carter signed the China-U.S. Agreement on Cooperation in Science and Technology, the first formal cooperation agreement between the two governments. Over the past forty years, more than thirty protocols and agreements in a wide range of areas including health, climate change, ecological protection, and nuclear safety have been signed under the framework of the Agreement.

When China and the United States work together to address global issues as the ones I just mentioned, and jointly manage the uncertainties of emerging technologies, we can deliver greater benefits to our two peoples and better prepare humanity for an uncertain future. Limitations on that collaboration, including restrictions on Chinese scientists and students, are in the interest of neither side.

**Montgomery:** *You have more than thirty years of diplomatic experience, having served as Vice Minister of Foreign Affairs, Director-General of Protocol, and multiple posts related to European affairs, among other positions. What role has science, technology, and innovation played in your diplomatic career?*

**Ambassador Qin:** Throughout my diplomatic career, exchanges and cooperation in science and technology have been an important part of state-to-state relations, in line with President Xi's vision of building a community with a shared future for mankind.

When I was posted in the UK, along with learning why the first Industrial Revolution took place there and how the country had produced renowned scientists from Isaac Newton to Michael Faraday, I worked hard to promote scientific and technological cooperation between China and the UK. Under the framework of the UK-China Research and Innovation Partnership Fund (the UK's Newton Fund), China and the UK have jointly funded more than two hundred Chinese and British research institutions to carry out hundreds of cooperative projects.

**Montgomery:** *One key aspect of science diplomacy is the use of scientific knowledge and expertise to inform diplomatic objectives. China has a rich history with centuries of integrating science into its foreign relations. How is science integrated into China's present-day diplomatic activities? How is that influenced by historical endeavors?*

**Ambassador Qin:** With a civilization more than 5,000 years old, China has produced world-renowned scientific and technological achievements, including the four great inventions of gunpowder, paper making, printing, and the compass. Traditional Chinese culture values harmony, with evidence easily found in the science of ancient China. For instance, Mozi, an eminent scholar of the Spring and Autumn Period (770–476 BC), denounced unjust wars and advocated for “universal love,” while also researching techniques for the defense of cities. With a tabletop simulation of those techniques, he was able to persuade the king of Chu (a state) not to attack Song (another state).

The goal of China's diplomacy today is to work towards world peace and promote global development. We value the role of science and technology in diplomacy. For example, China is ready to carry out international space cooperation with other countries on the basis of mutual respect, openness, inclusiveness, equality, and mutual benefit. We will continue to intensify international cooperation in the expansion of space station functions, space science and its applications, and the joint flight of Chinese and foreign astronauts. We have invited all United Nations member states to submit cooperative pilot projects to board the Chinese space station to provide a new model of international cooperation for future space explorations. So far, nine projects from seventeen countries have been selected, and we will soon announce the second round of opportunities.

**Montgomery:** *Fifty years ago, U.S. President Nixon's National Security Advisor Henry Kissinger made a secret visit to Beijing, which laid the foundation for President Nixon's 1972 visit to China. During that and subsequent trips, science was one of the areas noted for future cooperation. Earlier this year, you had the opportunity to meet with Dr. Kissinger. Did you discuss how science engagements can help improve relations between countries? Did he provide any insights on present and future U.S.–China relations?*

**Ambassador Qin:** Dr. Kissinger is a senior statesman and strategic thinker. He is also a trailblazer in China-U.S. relations, supporting their development and making historic contributions. He is deeply respected by both the Chinese and the American people.

Dr. Kissinger believes that a conflict between China and the United States can have no winner. The two sides should strive to build a candid bilateral relationship, avoid mutual threats and conflicts, and work together to improve bilateral relations and coexist peacefully. I strongly agree with Dr. Kissinger on this point.

When we met in September, he expressed his concerns about the risks and negative impacts of the rapid development of artificial intelligence and other emerging technologies. He supports China and the United States participating in dialogue and cooperation regarding the ethical regulatory management of those technologies.

**Montgomery:** *Diplomatic initiatives can help to foster international scientific collaboration and strengthen scientific capabilities worldwide. These efforts are instrumental in addressing global challenges such as climate change. Can you elaborate on China's diplomatic priorities in working with the United States and the international community to find science-based solutions to these shared problems?*

**Ambassador Qin:** Confronted with the pandemic, China has shared information and experience and strengthened international cooperation in the joint R&D for vaccines, treatments, and testing. China has provided more than 1.8 billion doses of vaccines to more than one hundred countries and international organizations, and the total number of vaccines we provide for the world this year will reach two billion doses. China has partnered with thirty countries in the Initiative for Belt and Road Partnership on COVID-19 Vaccines Cooperation to promote the fair international distribution of vaccines. We hope that China and the United States will strengthen their scientific and technological cooperation to help the world overcome the pandemic as soon as possible.

Climate change is a common challenge to mankind, and all countries need to work together to address it. As the world's largest developing country, China has adopted a host of strategies and actions on climate despite economic and social difficulties. These efforts have paid off. President Xi Jinping recently announced that China is striving to reach peak CO2 emissions before 2030 and carbon neutrality before 2060.

There is much room for China-U.S. cooperation regarding climate change. In both countries, fossil fuels account for more than 80% of energy consumption. Both are also transitioning to renewable energy faster than any other countries in the world, and are looking for advancements in clean energy technologies. The U.S.-China Clean Energy Research Center (CERC), a typical example of bilateral research cooperation, has produced many mutually beneficial achievements in the

past decade. The project has been suspended, but we hope to find a new model of cooperation regarding clean energy.

**Montgomery:** *In the past few decades, China has significantly increased its international scientific collaborations, including a focus on South-South collaboration with S&T programs in Africa, South Asia, and Latin America. How are these international scientific engagements advancing China's diplomatic objectives in general and in the Global South specifically?*

**Ambassador Qin:** South-South cooperation is an essential means for less-developed countries to help each other and develop together. China is always prepared to work with other developing countries on scientific and technological exchanges.

I would like to highlight three measures that we have carried out. First, we share with these countries mature and applicable technologies, putting them to local use to boost those countries' economic development. Second, we have established joint laboratories with them, conducting joint research in agriculture, radio and television, clean energy, and more. Third, we hold training classes on applicable technologies and carry out exchanges among young scientists. With the implementation of the Belt and Road Science, Technology and Innovation Cooperation Action Plan, we have supported over 8,300 young foreign scientists to work in China. We have established thirty-three joint laboratories and five technology transfer platforms with less-developed countries, as well as science parks with eight of them.

One exciting example is China's cooperation with the Comoros, an island country in East Africa, to fight malaria. Mohéli, the Comoros' smallest island, had suffered from malaria for years. When the Comoros sought to cooperate with China to fight the disease, the medical professionals of our two countries agreed to use Artequick, a Chinese-developed artemisinin-piperaquine tablet. Within five years (2008–2013), the annual incidence of malaria in Mohéli dropped by 95% and the death rate fell to 0%. The research on using artemisinin to fight malaria was initiated by a Chinese female scientist, Dr. Tu Youyou, in 1969, who shared the 2015 Nobel Prize in Physiology or Medicine with two other scientists.

**Montgomery:** *You served as the head of the information office of the Chinese Foreign Ministry. What advice would you give to scientists who want to communicate their research and findings more effectively to the diplomatic community and the public?*

**Ambassador Qin:** We have much to learn from the popularization of science in the United States. For example, *Science* magazine, published by the AAAS, does an outstanding job. In addition to scientific research papers, each issue of the magazine includes short stories on current affairs regarding scientific areas such as quantum mechanics, black holes, and artificial intelligence.

My impression is that when scientists communicate scientific information to the public, the difficulty of the concepts and complexity of the data create some barriers. For example, it is difficult for the public to understand the concepts of 1.5 °C and 2 °C of global average temperature rise, as described in the Sixth Assessment Report of the IPCC. These abstract concepts should be illustrated through real-life scenarios. For instance, scientists could explain that if the temperature rise exceeds 1.5 °C, some natural disasters which used to happen once in a century will likely occur every year. This explanation will make the temperature rise easier to understand and could help increase support for action.

**Montgomery:** *China is a vast and diverse country. When travel is more feasible, what destination highlights would you recommend people to see when visiting China, particularly if they are interested in science and technology?*

**Ambassador Qin:** China is a vast country, with immense geographic and cultural diversity and time-honored historical traditions.

If you are interested in the Chinese scientific achievements of the past, I would recommend the ancient observatory in Beijing and the Dujiangyan irrigation project in Chengdu, Sichuan Province. Dujiangyan was built in 272 BC. I have been there myself, and have seen how it is able to control the river and use the floodwater for irrigation. It is amazing that the 2,000-year-old project is still running today. If you are interested in something modern, the “Sky Eye” (Five-Hundred-Meter Aperture Spherical Radio Telescope, FAST, one of the largest in the world) in Guizhou, the Jiuquan Satellite Launch Center in Inner Mongolia and the remote sensing satellite ground station in Hainan can give you a good idea of China’s scientific achievements in current times.

Of course, I would also recommend metropolises such as Beijing, Shanghai, and Shenzhen, which are home to many well-known universities, research institutions, and high-tech enterprises.

As Chinese ambassador to the U.S., I warmly and sincerely welcome you and the American people to visit my country. With its long history and a vibrant future, and the perfect blend of art and science, China will not let you down. **SD**

## **Disclaimer**

*This interview has been edited for length and clarity.*