

# An Approach to U.S.-China Collaboration in Science

by Dr. Xing Jijun

*This is the edited transcript of the speech presented by Dr. Xing Jijun to the Schiller Institute conference in New York, “Mankind as a Galactic Species: The Necessary Alternative to War,” on October 5, 2019. Subheads have been added. Dr. Xing is Counselor and Head of the Science and Technology Section of the Consulate General of the People’s Republic of China in New York.*

Good afternoon, everyone. Thank you Dennis for your introduction, and also thank you Richard and to your colleagues for inviting me here, today. It’s really my great pleasure to be speaking to my colleagues and other members of the Schiller Institute. I hesitate, in such a public presentation, having to follow such impressive speakers as Dr. LaRouche and Madame LaRouche, who have addressed a great many things. I feel a bit humble in talking about the future, and about the future of technologies. But, I will try my best.



Schiller Institute

*Dr. Xing Jijun*

Richard assigned me a topic, “An Approach to U.S.-China Cooperation in Science.” A big topic. I think it should be approached as a question, because the logic has now changed. For the past 40 years, people have seen cooperation as good—we should work together, we should learn from each other, and we should try to do things that benefit both China and the U.S.A., and also the whole world. But today, some people try to find an alternative, people talk a lot about war, about trade war, or other wars. Even if we don’t like it, we do have to confront it, we have to face it.

Today, to provide an approach for future coopera-

tion between China and the U.S.A., I would like to mention two key words. The first one is “innovation,” and the second one, we come back to, is “cooperation.”

### **Innovation—For the Benefit of the Millions**

The new China has just celebrated its 70th National Day anniversary. It took us quite a long time to follow the trends of technology and modern society, because we had, in China, suffered so many setbacks in the last 200 or more years. Fortunately, in the last 70 years, and especially in the last 40 years, we have come to understand that we should open up more to the world, to the new knowledge, to new technologies, and innovative ways to develop ourselves. We do have such an understanding of innovation right now; we try our best.

Personally, I began to understand the word “innovation,” starting about 20 years ago, since 1997. When people talked about “innovation,” I didn’t really know what that meant. I thought it was just a kind of research or the acquiring of knowledge through education. But gradually, I learned that “innovation” really has a broader meaning. It is based on knowledge, on technologies, but not only that.

Innovation means creating value for society through innovation. You have to use your knowledge and your technology to provide products and services to the people. You’re working for the betterment of society. Otherwise, you may have much knowledge in your head, in your mind, or you may have a new technology, but, if you don’t produce good products for your people, then you have no value. For instance, in China, we have 1.4 billion people. We need to have enough food for all of us! It is only through innovation that we can solve such problems.

Over the last 40 years, we in China have tried to provide enough food to feed our people. At the same time, we are trying to discover what is happening in the galaxy, on the Moon, on Mars. So, even though we still have a lot of difficulties producing enough food, we still think the future is bright.

What is innovation really? There are three stages, or phases to innovation. The first phase is a technology “push.” For instance, we find with electricity—if we have bright lights, we can have a conference here even in the evening, that’s a “technology push.”

Later, we know that people when they have more knowledge and more material things, then they will have a bigger dream or a better dream. So, then we will hear, “I want to go further. I want to fly. I want not only



Cc/N509FZ

*A flyby during the 70th Anniversary celebration in Beijing of the founding of the People’s Republic of China on Oct. 1, 2019.*

to ride a bicycle; I want to drive a car!” That’s the second stage of innovation, the design “pull.” There’s the “technology push,” and then there’s the “design pull.”

Then, because we want to travel farther and faster, we have railroads. For instance, when I was a student, it took me almost eight hours to travel home, on a train going less than 60 km/hour. But now, we have 350 km/hour train, a much faster train. So that’s our desire: we want to travel fast, we want to travel far, so we have created high-speed trains.

### **Upward Access for Everybody**

But now, the world is changing greatly and changing fast, so the “technology push” and “design pull” is not enough! People mention a lot of things that we have to face in the future. Currently, we have emerging diseases that we never have had before. For instance, in 2003, in China we had SARS (Severe Acute Respiratory Syndrome) suddenly. We have climate issues, even if we have different opinions about their cause, we know that something is happening. We have energy problems and other challenges. Now we realize that people—whether in New York, or in New Jersey, or in California, or in China—we all face the same problems. The only difference is that in China, we suffer some of the problems more seriously than you do in the West, but we do have similar problems.

So now and in the future, the third phase of innovation is “facing and solving global challenges.” Global



Cc/Dailuo

*Connecting over 500 cities across China is a network of high-speed rail, with bullet trains that can reach a top speed of 350 km/hr (217 mph).*

challenges then become the number-one driver, they become a very important power for innovation. So, I think that is why we hear from Dr. LaRouche, and the Ambassador from Russia that we must try to solve global challenges, now and in the future—not by war, but by some necessary and possible alternatives, by innovation and cooperation.

So, personally, I think the best alternative is to use our minds, to be hardworking, and to learn from other people, as I have tried to do. Of course, we all are the same. We hope, we want to learn, we want to work together with others, and we hope that there will be an upward access for everybody to knowledge, to technologies, to innovation, allowing each person to be hardworking, and to be always learning. That's my understanding of the three phases of innovation.

If we see innovation as a chain—like we talk about supply chains, we talk about knowledge chains—innovation can also be a chain. It can be a chain of knowledge, education, research, development, demonstration, market commercialization, industrialization, and the creation of products and value. A lot of things. So it's not only research, not only scientific development; it's really a broad spectrum of innovation and its spin-offs.

America is a great innovative country. It's really an example for the world to learn from, especially for China. In China, we make our targets, and we create our vision. China also wants to be innovative. Why not?

However, we still see the great gap between us and the

modern, advanced countries, especially the U.S.A. So, we have our targets, we are hoping that by 2020 we will be an innovative country. Right now, we are not. There is a deficit of innovation in different countries. China is yearly going upwards in innovation, but this year we are only in 14th place; so there are 13 countries ahead of us. It's a long way to go. We are trying to learn from other countries, especially the U.S.A. And I also think next year we could be one of the innovative countries; then we will be working even harder—what will happen in the year 2035? It's a long way to go. I will have already retired, and the young people will have to follow up!

### **China Is a Major Market for the U.S.A.**

Even by 2035, we don't think that we will surpass the U.S.A. or other advanced countries, but we do think that we could be in the top ten or top five by the year 2035. And if we look further ahead, to the year 2050—we will have had 30 years—we ask, is it possible that we could be at the top? At the top means to be among some countries at the top. Of course, the U.S.A. has already been on the top for 100 years! So, by that time, by the year 2050, we could be *together* at the top, to make more contributions to the whole world.

I know it sounds very ambitious. We know we have a lot of hard work to do. However, it's not the way some people talk about it—that China is trying to take over the leadership of this-and-that, or whatever. It's not that way. We know ourselves. We know that 20 or 30 years ago, we did not have access to the modern knowledge system. So, we have a long way to go. We know that we have a lot of things that we should probably stick with, but there are some things we will change. One thing that we will never change is that we have made ourselves open, we want to learn from the outside world. That will never change.

So believe me, believe us, that is our vision: only by learning from others can you make yourself happy, make yourself stronger. Even if you know that you will not become so big—being stronger doesn't mean that when I'm stronger, I will do something or other. No, only when we are *all* stronger, can we confront global challenges together. This is the third phase of innovation, which I mentioned: the real power behind innovation is the demand of the “global challenge.” Were we still very, very weak, as 70 years ago, as 40 years ago, even as 10 years ago, we would not be able to join hands together with the people outside of China for all mankind, to overcome all the challenges. That's my view of

the first key word, innovation.

Now, to our discussion of cooperation. Innovation is not only the creation of knowledge, scientific research, and mathematical discoveries. Those things are very, very important. Without the discoveries about nature, without basic knowledge and research, we cannot go further. The Moon or Mars will still be far away from us unless we learn to understand the physical world. If we have knowledge, the education to know those things, then we can become more innovative.

Thinking about innovation, or knowledge chains, or fields of research and technological development, we also working on the future applications of tomorrow's technology. We can have a big spectrum in which we can work together in both knowledge chains and in the applications of that knowledge. We already work together for a lot of things. We mentioned technology and also innovation. For any product or service, you have to have a market. China is one of the largest markets—of course, smaller than U.S. market, but we are one of the large markets. If you forget this market, or we have to close this market, where are you going to sell your high-technology products or services? That's the question, and we can think about that.

Therefore this means that we do have a lot of potential to work together, to cooperate in science, in research, in innovation. But, frankly speaking, we do face challenges, especially nowadays.

### Could the U.S.A. Spend More on R&D?

You know, every day, I read the newspaper, I watch TV. It's not always good news for everyone. Especially here in New York, every day you have fake news, right? Every day. I don't know which one is the true one and which one is the fake one, but we can wait and see. But as I have mentioned, if you have the fake news, at least you should be able to identify whether it's fake or not fake, by examination, because you have eyes, you can find out.

But the terrible thing is if there is some false logic introduced, then the world changes even for the worse. Now, something we have done before—everyone said it was good—we worked together to go to the Moon,



NASA/Bill Ingalls

*In space suits, Hazzaa Ali Almansoori of the UAE (left), and Expedition 59 and 60 crewmembers Alexey Ovchinin of Roscosmos (center) and Nick Hague of NASA (right), relax outside the Soyuz MS-12 spacecraft after the latter two spent 203 days in space aboard the ISS, landing in a remote area near Zhezkazgan, Kazakhstan, Oct. 3, 2019.*

with Russia, with India, with China, and we try to find the good things. But now, anything involving working together with China is not as good as it was before. Such logic is terrible.

For instance, my first assignment here was the year 2016, just three years ago. When I talk about Chinese achievements with people they think it's good! Because when China is doing well, then we can all work well together. But now, the logic has been changed, so that if China is doing well, then that will be seen as a threat. What kind of a threat? Everything is mentioned as a threat, a threat—I think that's very bad logic. If someone is working hard, it doesn't mean that someone is trying to take you over! So you have different choices.

You know, we, in China, hope we can catch up—and we hope someone behind us will then go even further! That's what scientists and the people pursue. For instance, if Richard is a good researcher and I'm trying to learn, and then I reach his level, I then really hope he reaches the next level—so, then I have the example to follow. So, for the person who is up front, there are several approaches or alternatives. If you go further, that's good. So we hope the advanced countries, especially the U.S.A., can lead the innovation, can lead in the correct way.

We don't like the situation: you do not want to go further, but just turn back and say, "You have to stop." That's not what we want to see. Instead, we hope to see, "C'mon! C'mon!" China has a big market, I can sell you technology, I do have the new technology here in



my pocket!” As it was before. So, I do hope the U.S.A.—especially the government—can spend more on an R&D budget, and your education budget. But I just hope positively that you will still lead the way! Then, we know there’s a direction to go.

The most difficult thing is if you have no one ahead of you, then you could be lost. So, like during the last Schiller Institute conference on the 50th anniversary of the Apollo Moon landing in July, I mentioned 5G: People think China is now leading in this sector. But for 6G, who will be the leader? Personally, I think the U.S.A. should, because for the 5G, we are here, so for the 6G you can go there. Maybe for the 7G, Europe will go further! That’s normal competition.

### Let’s Cooperate on Fusion Energy!

I hear now they say, “Competition is not a four-letter word.” Right? Yes, they say that. But, cooperation is a better word! Right? I don’t know the exact meaning, or the story behind this phrase, but I’m sure, personally, that cooperation is a better word! [applause] Thank you.

Back to my topic: In what areas could we cooperate more in this serious situation, when some people want decoupling, or want to stop us? I have talked about a big spectrum of innovation. First we have basic research in knowledge—discoveries, the work of the scientists. That has no boundaries; everybody knows science has no boundaries. That’s an area where we should have *more* cooperation, and not this not-cooperation-friendly situation. For the mid-section of technology applications, there are many more complicated questions. If someone doesn’t want to work with you, you have no way to proceed. It’s not unlike marriage: If one person wants to keep the marriage, it’s not a good marriage; it is only good if the two people want to live together.

So this middle part of science is more difficult. For example, even nowadays, just now the previous speaker mentioned the space program, where the U.S.A., Russia, and some other countries all work together, even including China in the past. But then suddenly, about 10 years ago, the U.S. Congress passed the Wolf Amendment to ban cooperation with China. Never mind, we can try to have our own programs. But these programs are still open to the outside world. So that part is very difficult.

But we have a third part in science, which is an upward part, which is for future technologies, future applications of new technologies, like exploration of other parts of our galaxy: Go to the Moon, go to Mars,



ITER  
*The cryoplant provides cooling fluids to ITER, the world’s largest magnetic confinement plasma physics experiment, in France.*

find new resources like the fusion technologies. If we have limited energy—as people have already mentioned, with oil or gas, or something else—it could be that one day we will have no more of those resources. So, what should we do? Fusion is one of the choices. And also, it’s not very far off—maybe 20 or 30 years, fusion could become a major energy source. For those things, we should work together.

China now is one of the members of ITER (International Thermonuclear Experimental Reactor); ITER is the international fusion program. We do think this part of the spectrum is also an area where we can still keep good cooperation. If some people see this as a threat instead, let us take action together to solve a problem for humankind, for the future. It is not a threat to anyone: It’s a protection, it’s a system for the development of the whole world. We should join hands globally to do this.

So, my last words are that, even in this very special situation, we still can find great potentials, we still can find a lot of areas where we can work together. For those areas, at least, the Chinese scientists are always open: we want to learn, work together, as we had usually done before.

Thank you so much for inviting me here to speak to you. [applause] And also, I wish the conference a great success. Thank you.