

Starting with Basic Research, CAS and Leopoldina Vow to Promote Science for Future

Under the theme “Science for Future: All Starts with Basic Research”, the Chinese Academy of Sciences (CAS) and the German National Academy of Sciences Leopoldina (Leopoldina) held their first joint conference early September in Beijing to address common future challenges. On September 9, CAS President BAI Chunli and Leopoldina President Jörg Hacker officially signed and announced *The Beijing Declaration on Basic Science** (*Declaration*) on behalf of the two sides.

Humankind is facing with a series of serious challenges with global implications, says the *Declaration*. Problems including climate change, resource shortages and unbalanced development are putting increasing economic, environmental and social pressures on our societies. The key to solving these problems lies in strengthening basic research and promoting scientific progress. Science has to move forward to provide the basis for the sustainable development of human civilization and to assume greater responsibility for the provision of knowledge.

Looking at the future, the two academies are to actively advocate science advancement and strengthen their cooperation in promoting science development and enhancing basic research. The two jointly propose deepening the understanding of science and basic research and their role in society, promoting collaborative and responsible scientific research, and creating an inspiring environment for science advancement.

To meet these goals, the two academies pledge to actively play the role of bridges between science and society. With their activities, they will promote the value and significance of science and basic research in the public. Under the theme “Science for Future”, they



will organize a series of activities to exchange views on scientific issues of social relevance and common concern, to further academic exchange and to promote the growth of young scientists. They will further strengthen the mutual trust, consensus and cooperation between the two academies and establish a knowledge-based, robust fundament for further scientific development in the international community.

CAS is the linchpin of China’s drive to explore and harness high technology and the natural sciences for the benefit of China and the world. Comprising a comprehensive research and development network, CAS brings together scientists and engineers from China and around the world to address both theoretical and applied issues using world-class scientific and management approaches.

The Leopoldina originated in 1652 as a classical scholarly society and now has thrived in almost all branches of science. It represents the German scientific community internationally, and provides policymakers and the public with science-based advice.

* For full text please refer to page 70.



Beijing Declaration

Face the future - Explore the unknown

Chinese Academy of Sciences and the German National Academy of Sciences Leopoldina stand united in their endeavor to promote the scientific spirit and to increase scientific excellence. The oldest academy in the West and the strongest academy in the East make the following declaration on the role and value of basic research and scientific advancement.

Humankind is facing a broad range of serious challenges which are of global nature and effect. Examples are climate change, resource shortage or an uneven development, which put ever-increasing economic, environmental and social pressures on our societies. Strengthening basic research and promoting scientific progress are the key to dealing with these challenges. Science must move forward to help provide a basis for a sustainable development of human civilization and to take on even more responsibility for providing knowledge and understanding.

The purpose of science advancement is to carry the torch of humanity, to inspire wisdom and to lay the foundations for innovation. The method of science advancement is to relentlessly pursue truth and excellence and to build a trustful and interactive relationship between science and society. To reach this purpose, the increased participation of young scientists, stable and long-term investments in basic research and the establishment of a fruitful culture of innovation are essential.

Facing the future, Chinese Academy of Sciences and the German National Academy of Sciences Leopoldina will actively advocate and strengthen their cooperation for promoting scientific development and strengthening basic research.

Together, they call for:

1. Deepening the Understanding of Science and Basic Research and Their Role in Society

- The useful hides in the useless. Science aims at understanding the basic laws of nature. Scientific research constantly expands the depth and extensiveness of human knowledge. Basic research is driven by curiosity and is not guided by the concept of “usefulness”. The free and independent exploration and the open communication of ideas are crucial for basic sciences and should thus be advanced.

- Basic science is at the heart of innovation. In its constant endeavor to explore the boundaries of our knowledge, basic research emancipates the mind and breaks the shackles of traditional concepts and existing knowledge systems. Scientific development creates new hypotheses, new theories and new methods. It is basic science that is the driver of true innovation.

- Science is an integral part of society. Science is the central source of modern technology and industry and a pillar of our modern civilization. The scientific spirit, which in its pursuit of truth and excellence constantly challenges and questions existing knowledge, has become one of the most decisive factors in the progress of our societies in the social, economic and technological spheres. At the same time, science does not stand outside society, but is an integral part of it. Therefore, the natural sciences should join forces with the social sciences and the humanities in order to ensure that its developments are for the benefit of society.

2. Promoting Collaborative and Responsible Scientific Research

● Science for the future is integrative. Scientific activities rely on the close collaboration of multiple disciplines to cope with large-scale, complex and dynamic systems. Keeping in mind the major challenges facing humankind, scientific research should be inclusive, strengthening the interaction, integration and even convergence of disciplines in order to contribute to the sustainable development of our civilization.

● Science for the future is open and inclusive. Science should be an open endeavor, regardless of national, racial and gender differences. With the clear vision of a common future for all of humankind and facing issues of global concern, we should share the benefits of the progress of science. To reach this goal, we have to break down barriers, support research cooperation across disciplines, institutions and national boundaries, allow the free and independent interaction of scientific schools and cultures and foster long-term, stable, reliable and trustful collaboration.

● Science for the future is responsible. Science is a part of society and the scientific community must take on its share of social responsibility. In the face of major challenges, science should be committed to contributing to a sustainable development of human civilization and to furthering social progress. Moral and ethical norms must be strictly adhered to in all scientific research activities, and threats to human security and the violation of law must be resolutely resisted.

3. Creating an Inspiring Environment for Science Advancement

● Increase input in basic research and ensure the material foundation for scientific advancement. Science needs stable and long-term support in all its fields, and governments, private enterprises and social organizations alike should provide this. Funding for (1) building, extending and maintaining scientific infrastructure, for (2) basic research projects and for (3) nurturing young talents should be increased in order to establish a solid foundation for scientific exploration and discovery which will be the source for the growth of human knowledge and the progress of human civilization.

● Strengthen science education and attract promising young talents to ensure the future of science. Education in

science, technology, engineering and mathematics (STEM) should be strengthened to lay a solid basis for the young generation's interest in science and basic research. In scientific research projects, an adequate proportion of funding should be dedicated to the support of young scientists. Young scientists should be given more academic autonomy at an early age and high-level exchange platforms for young scientists should be created in order to encourage young scientists to rapidly grow and become the core force in scientific research.

● Foster a favorable environment for basic research in science and society. The scientific literacy of the public should be strengthened, e.g. by fostering science education and cultivating lifelong learning. The value and significance of basic research for the development of our societies should be highlighted in order to increase public respect for basic science. Within the academic world, governance systems based on transparent, fair and impartial peer review processes and a stable and reliable academic environment, where cooperation and competition are in balance, should be fostered. This will help to attract the best scientists, to maintain and develop academic diversity and to provide young scientists with stimulating conditions where inspiration and imagination flourish.

Pledge from Both Academies

Chinese Academy of Sciences and the German National Academy of Sciences Leopoldina pledge to promote the development of science and basic research in the following ways:

● They will actively play the role of bridges between science and society. With their activities, they will promote the value and significance of science and basic research in the public.

● Under the theme "Science for Future", they will organize a series of activities to exchange views on scientific issues of social relevance and common concern, to further academic exchange and to promote the growth of young scientists.

● They will further strengthen the mutual trust, consensus and cooperation between the two academies and establish a knowledge-based, robust fundament for further scientific development in the international community.

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Date: September 9th, 2019

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Date: September 9th, 2019