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2023 Pujiang Innovation Forum Bulletin III

**"Her Power" Enables Multi-disciplinary Cross-integration and Open
Innovation**

Editor's Note: The Women Scientists Summit of the Pujiang Innovation Forum 2023, with the theme of "Exploring Boundlessness, Linking to the Future", invited female elites from home and abroad in the realm of science and technology to conduct in-depth discussions on the development philosophy of "gender equality, unbounded disciplines, no restrictions on geographies, and unhindered application" from three dimensions including disciplinary interlinking, regional interlinking, and industry interlinking. This bulletin summarizes views of guests at the Women Scientists Summit for your reference.

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"Her Power" Enables Multi-disciplinary Cross-integration and Open Innovation

On the stage of exploring the unknown and pursuing technological progress, women are becoming increasingly active and their achievements are highly remarkable. Currently, over 33% of the world's women scientists and engineers are women. There are more than 40 million women scientists and engineers in China, accounting for 45.8%. As the social awareness and recognition of women scientists and engineers continues to rise, "Her Wisdom" and "Her Power" have yielded unusually brilliant results in the process of building China into a world leader in science and technology, and won "Her Glory" for promoting the development of global scientific and technological innovation. **The guests attending the Summit agreed that in order to solve the problems of common development, more than ever, human beings require scientific and technological innovation, international cooperation and openness and sharing, and need women to participate in interdisciplinary, cross-regional and cross-sectoral exchanges and cooperation, to promote scientific and technological innovation, joint development of platforms, and the sharing of resources and achievements, and to demonstrate women's extraordinary creativity and influence on the world stage of science and technology.**

I. Disciplinary interlinking: Break through disciplinary boundaries through multi-disciplinary cross-integration

First, multi-disciplinary cross-integration is conducive to achieving innovative breakthroughs. Human scientific development has long gone beyond the stage of do-it-alone and entered the era of cooperation and interlinking. Multi-disciplinary cross-integration is more likely to nurture major scientific discoveries and breakthroughs in technological innovation. **Yuan Junying, Academician of the National Academy of Sciences (USA) and Director of Interdisciplinary Research Center of Biology and Chemistry of Shanghai Institute of Organic Chemistry at the Chinese Academy of Sciences,** pointed out that the specialty of biochemistry she initially select is interdisciplinary; and that in her research, she discovered the molecular mechanisms of two major cell death mechanisms (apoptosis and necroptosis), achieving "Zero to One" breakthroughs, and thereby promoting clinical trials for multiple major diseases worldwide.

Second, multi-disciplinary cross-integration requires the full cooperation among government, industry, and academia. **Ms. Laís Forti Thomaz, Secretary of International Relations, Federal University of Goiás, Brazil,** pointed out that public policy is a catalyst that can effectively promote innovation and improve industrial effectiveness; and that policy regulation is a powerful means of innovation and development in the low-carbon field. In recent years, Brazil has been playing an important role in transitioning energy, establishing mechanisms, and reducing emissions. The Paris Agreement is a milestone event of international cooperation. The world today faces many challenges, and cooperation and coordination among multiple parties are very important. Only with the participation of the government,

academia, industry and other parties can the goal of sustainable development be achieved.

Third, women scientists can accomplish greater things in promoting multi-disciplinary cross-integration. As a vital part of scientific and technological human resources, women scientists are important strategic resources for scientific and technological innovation in the new era. They have a unique perspective and resilience. **We should attach great importance to the power of women scientists. Huang Xiaowei, Secretary of the Leading Party Members' Group of the All-China Women's Federation and Vice-President and First Member of the Secretariat of the All-China Women's Federation,** proposed that in order to solve the problems of common development, human beings require scientific and technological innovation and the strength of women more than ever. She hoped that women scientists and engineers of all countries would actively carry out multidisciplinary and collaborative research on major global issues such as climate change, energy security, and life and health, for the purpose of promoting scientific and technological innovation.

II. Regional interlinking: Promote global scientific and technological cooperation through open innovation

The first is to rely on international Big Science programs to break through regional boundaries and promote global joint innovation. Wang Pinxian, Academician of Chinese Academy of Sciences and Professor of the School of Ocean and Earth Sciences of Tongji University, pointed out that in order to "build China into a strong

maritime country", we must build globally oriented research bases focusing on deep sea. Ocean drilling is an "Olympic" arena for international deep-sea research, with a history of 54 years and the participation of 22 countries. It has gathered the world's highest level of marine technology. It is not only the technological "aircraft carrier" leading contemporary international deep-sea exploration, but also the most important stage for international deep-sea competition. **Wang Fengping, Vice Dean of the School of Oceanography of Shanghai Jiao Tong University, a female scientist who participated in IODP,** proposed that international cooperation is the core magic weapon of ocean drilling. In order to make breakthroughs and move forward in ocean drilling, scientific cooperation without borders must be put in place and fully implemented, so that in terms of ocean drilling, China can become a core leader of and major contributor to international ocean drilling.

The second is to promote international scientific and technological cooperation at a higher level through an open innovation ecosystem. Liu Dongmei, Secretary of the CPC Committee of the Chinese Academy of Science and Technology for Development, pointed out that building an open innovation ecosystem is an essential requirement of fostering a new development pattern and promoting high-quality development, and an inevitable choice for China to work with other countries to solve the problems of common development. China has made a series of reforms and arrangements focusing on making China a global leader in science and technology and promoting high-standard opening up, laying a good policy foundation for

creating an open and globally-competitive innovation ecosystem. In the future, China should create an open and globally-competitive innovation ecosystem from four aspects: international appeal to innovators of all kinds, cross-border mobility of innovation factors, role in global scientific and technological innovation networks, and contribution to global innovation governance.

The third is to create a more enabling internationalized development environment for female scientific and technological talents. Currently, many outstanding female scientific and technological talents have gained experience and become more competent in major scientific and technological tasks and talent programs. We should create a more enabling development environment for female scientific and technological talents. **Zhang Biyong, Member of the Party Group of the Ministry of Science and Technology of the People's Republic of China and President of Science and Technology Daily**, pointed out that we should continue to improve the institutional arrangements that can energize the creativity of women scientists; and that we should effectively reduce the burden on women scientists and engineers. **Liu Dongmei** proposed that we should appreciate the important role of women in international scientific and technological cooperation, so that more women can participate in global scientific research and innovation undertakings, and make positive contributions to enhancing global scientific research and innovation capabilities.

III. Industry interlinking: Upgrade industries through technological innovation

The first is to leverage incubation services, develop in-depth linking with cutting-edge innovation sources, and promote technological innovation. Zhang Yulei, Member of the CPC Group and Deputy Director of the Beijing Municipal Science & Technology Commission and the Administrative Commission of Zhongguancun Science Park, pointed out that the development of incubators in Beijing has realized a "co-frequency resonance" with the successive waves of entrepreneurship in Zhongguancun, promoting each other, and making important contributions to cutting-edge technological innovation, the cultivation of high-end, precision and sophisticated industries, and the construction and development of the Zhongguancun Demonstration Zone. In the future, we should build a professional technical service platform, focus on meeting industrial requirements, and deeply integrate and provide high-quality industrial chain and supply chain services.

The second is to upgrade products through technological innovation, and to refashion industrial chains through product innovation. China's innovative pharmaceutical industry has progressed from following others to keeping pace in international competition. In the future, innovative pharmaceutical companies should actively explore various new targets, new mechanisms, and new technologies, while making in-depth layout in key areas. Zhao Chunling, Executive Deputy Chief Designer of Long-range Wide-body Aircrafts of the Commercial Aircraft Corporation of China Ltd., pointed out that the development of large aircraft is a reflection of comprehensive national strength, as well as an expression of overall high-end manufacturing capabilities. The development of large aircraft projects will also further

accelerate and drive the development of related industries, and further play an important role in driving and enhancing China's core scientific and technological innovation capabilities, comprehensive high-end manufacturing capabilities, and overall national strength.

The third is to cultivate more women entrepreneurs. With their traits of perseverance, rigor, and refinement, women scientists and engineers have made outstanding contributions in various fields such as basic theory, applied technology, and engineering practice. **We should improve services for women innovators and entrepreneurs.** Zhang Yulei pointed out that at present, there are more and more women entrepreneurs in cutting-edge fields such as artificial intelligence, quantum information, and biomedicine. For this reason, incubators should also attach great importance to serving women entrepreneurs.

Compiled by: Qu Jie, Wang Liwei