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China set to improve systems for scientific and technological innovation and create an open innovation ecosystem

As a new round of technological revolutions and industrial transformations picks up steam, China is embarking on a new journey to build a modern socialist country in all respects. It needs to pursue new opportunities in international science and technology cooperation. As General Secretary Xi Jinping pointed out in his report to the 20th National Congress of the Communist Party of China (CPC), “We will expand science and technology exchanges and cooperation with other countries, cultivate an internationalized environment for research, and create an open and globally-competitive innovation ecosystem.”

China has always been committed to the development of science and technology with all countries. The WLA Forum is a platform to pursue this vision but also has significant international influence in the field. It gathers the best and brightest minds in the world to exchange ideas and inspire humanity. The scientists represented by the forum use cutting-edge research to discuss and solve challenges facing global and human development. Their research will benefit all and provide new solutions to the building of a global community of shared future.

(Source: www.gmw.cn)

5th WLA Forum opens in Shanghai



The opening ceremony of the 5th WLA Forum
(Photo credit: Xinhua News Agency)

On November 6, 2022, the 5th WLA Forum opened in Shanghai under the theme “Science Forward: Create a Bright Future”.

This year’s forum tracked the latest developments in basic science and aimed to solve the common challenges mankind faces. It sought to drive new exchange and breakthroughs in science and technolo-

gy, build new consensus on cooperation, build a new science ecosystem, fuel more innovations, and create a new vision for the future.

CAST President Wan Gang calls on international science and technology community to work together to build a global community of shared future

Wan Gang, President of the China Association for Science and Technology (CAST), attended the opening ceremony of the 5th WLA Forum and delivered a speech. He expressed hope for the global science community to accelerate integrated innovation of basic science, advance inclusive governance of science and technology, and promote open cooperation. He urged China's scientists to uphold the common values of humanity and use science to benefit humanity, actively participate in global

science and technology governance, and build a governance framework based on extensive participation of all countries, international agreements, and mutual trust. He also highlighted CAST's role in building bridges of friendly exchange and cooperation between China and the world, helping Chinese scientists integrate into the global innovation network, and bringing the international science and technology community together to build a global community of a shared future.



CAST President Wan Gang speaking at the opening ceremony

Executive Vice President of CAST Zhang Yuzhuo commends WLA Forum's mission to promote basic science, advocate international cooperation, and support youth development



Executive Vice President of CAST Zhang Yuzhuo presiding over the opening ceremony (Photo credit: people.com.cn)

Zhang Yuzhuo, Executive Vice President of CAST, presided over the opening ceremony of the 5th WLA Forum. He highlighted the importance China's leadership has placed on international science and technology exchange and cooperation. President Xi Jinping himself sent a congratulatory letter to the 2nd WLA Forum and delivered a speech via video link to the 3rd WLA Forum. On both occasions, he expressed his expectations for deepening openness, trust, and cooperation in the international science community, which provided guidance and direction for the WLA Forum. Zhang Yuzhuo commended the forum's mission to promote basic science, advocate international cooperation, and support youth development as the Forum has become the world's most prominent forum to discuss new and emerging issues.

(Source: Xinhua News

Agency/CAST)

About the WLA Forum

The WLA Forum, initiated by the World Laureates Association (WLA) in 2018, is the highest-profile science gathering in the world. Each year, world laureates, members of the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE), outstanding young scientists, and experts from all sectors convene in Shanghai to exchange insights on challenges and opportunities for technological advancement and critical global issues facing mankind. The WLA Forum has proved a valuable platform for communication. It provides space for scientists from all over the world to accelerate integration and innovation of basic science, strengthen inclusive governance of science and technology, and promote open cooperation on a global scale.

(Source: WLA Forum official website)



Photo credit: Official website of the WLA Forum

Two scientists awarded the Inaugural WLA Prize

Two scientists received the Inaugural WLA Prize at the award ceremony of the 5th WLA Forum. The 2022 WLA Prize in Computer Science or Mathematics was awarded to Michael I. Jordan, Professor of the Department of Electrical Engineering and Computer Sciences & Department of Statistics at UC Berkeley. The 2022 WLA Prize in Life Science or Medicine was awarded to Dirk Gorlich, a scientific member and director at Max Planck Institute for Multidisciplinary Sciences in Germany. The monetary award for each prize is 10 million RMB.

(Source: <https://www.wlaforum.org/>)

thepaper.cn/newsDetail_forward_20625933)



Two scientists honored with the Inaugural WLA Prize at the award ceremony.

Chinese Scientist Yang Wei announces the release of *Recommendations for Conduct in International Research Collaborations* at the 5th WLA Forum



Yang Wei, a member of the Chinese Academy of Sciences, former President of Zhejiang University, and former President of the National Natural Science Foundation of China, speaks at the opening ceremony. (Photo credit: WLA PRIZE official website)

At the opening ceremony of the 5th WLA Forum, Yang Wei, a member of the Chinese Academy of Sciences, announced the release of *Recommendations for Conduct in International Research Collaborations* on behalf of China's science community. *Recommendations* expresses the commitment of Chinese scientists to uphold research integrity. The following is the full text of the *Recommendations*.

Recommendations for Conduct in International Research Collaborations

Preamble

Cross-boundary research collaborations are vital to advancing science and technology worldwide for the good of humankind and the planet. The value and benefits of such collaborations do critically depend on researchers adhering to principles and code of conduct despite sometimes national, socio-

economical, cultural and disciplinary differences are inevitable. On the foundation of:

Recognizing the ever-increasing world-wide impact borne by collaborative research conducted between researchers in China and their international peers, and that mutual trust among all involved must be fostered;

Affirming the widely-accepted code of conduct and guidance put forth by international scientific community, such as but not limited to the UNESCO Recommendation on Science and Scientific Researchers (2018), International Science Council Statutes and Rules of Procedure (2021), and the San Francisco Declaration on Research Assessment (2013);

Supporting the guiding principles on research integrity, such as Singapore Statement on Research Integrity (2010), Montreal State-

ment on Research Integrity in Cross-Boundary Research Collaborations (2013), Amsterdam Agenda (2017), Hong Kong Principles (2019), Budapest Declaration (2019), and Cape Town Statement (2022);

Acknowledging the UNESCO Recommendation on Open Science (2021) tasked by 193 Member States, which also aims to accelerate progress towards the Sustainable Development Goals adopted by the United Nations in 2015;

Also acknowledging that research and researchers in China should follow pertinent laws, regulations and conduct codes cast by the Chinese government and the scientific community, such as “Opinions on Further Strengthening the Scientific Research Integrity” (2018), “Strengthening Governance over Ethics in Science and Technology” (2022), and “Five Prohibitions in Academic Publishing” (2015);

We call for the rallying around research excellence, academic freedom, integrity, ethics, equity in gender, inclusiveness, respect of intellectual property, and promotion of open science as core values for all Chinese researchers and their research conducts including international collaborations. The following recommendations are aimed at individual researchers and their communities and intend to explain those core values in more details and address key implications relevant to international collaborative research.

Research Excellence

Research excellence is the holy-grail of research collaborations. For scholarly outputs to stand on a solid ground and stand the test of time, research engagement should strive to be **truthful, evidence based, and objective.**

To achieve research excellence, collaborating partners should follow

the general guidelines of “**quality over quantity**” and “**principle supercedes opportunism**”.

Records on research design, materials and methods, progress and results should be duly logged and expertly maintained. **Rigors** in analyses, experiments, simulations and presentations should be pursued whenever and wherever.

Each partner of the collaboration should try one’s very best to uphold the shared **responsibility** of true scholarship and deliver the required milestones of collaboration agreements.

Academic Freedom

Academic freedom is at the heart of researches in any form. Linked with academic responsibility, they are both essential to the advancement of human knowledge for the benefits of all. Academic freedom is the freedom to engage in scientific inquiry, to pursue and apply knowl-

edge, and to communicate openly. We share the call of International Council for Science for freedom of movement, freedom of association, freedom of expression and communication, and freedom of access to data and information

Truth-seeking is a top priority in research endeavors, regardless of expectations or arrangements, economic gains or loss, and pre-set goals and targets.

Honesty should be the only language when a researcher reports his/her findings, and communicates with his/her colleagues.

Novelty is a major value of research work and should be sufficiently presented in scientific writings and internal records. Researchers should be **critical** and conduct research in an evidence-based manner. **Inter-disciplinary** researches should be encouraged whenever possible.

Research Integrity

Academic responsibility is the duty to pursue and apply science with integrity, for the good of humanity, in the spirit of stewardship for the environment, and with respect for human rights. Researchers should maintain **responsible** and **accountable** behavior and practice; should respect truth, evidence, life and nature.

Research integrity forms the bedrock for research, and every researcher should be proactively and diligently aware of and have zero-tolerance to misconducts in any form. Types of academic misconducts typically include, but not limited to, the following manifestations: plagiarism, fabrications, falsifications, ghost writing, multiple submissions, improper authorship, conflict of interests, lobbying, dictatorship, ignorance, ghost citations, ghost reviews, non-repeatable data, ethical violations, and paper mills.

Many campaigns against research misconduct have been launched in China and elsewhere. In China, regulations and guidelines have been increasingly set and implemented by the government and various scientific societies, which also include measures to encourage whistleblowing in the assessment of academic accomplishments, to prohibit multiple submissions, to conduct similarity checks of dissertations, grant proposals and publications, to pursue nationwide research conduct training programs for new researchers, and to enforce disciplinary punishments against misconducts in high-profile retractions following rigorous and careful investigations and due diligence.

Care should be taken with all research conducts, with sufficient attention paid to the details. Researchers should obey confidentiality and neutrality in peer-review processes and

discussions, and actively avoid any kinds of interest conflict. All published works should aim to be **reproducible**, with all pertinent supporting data readily accessible. Misleading peers and the general public goes intrinsically against the very basis of scientific pursuit.

Research Ethics

Research ethics should be meticulously and proactively observed and reinforced. We believe scientific freedom can only be fully embraced by the society when it is based on rigorous ethical principles that also continue to evolve with time and phases of societal development.

For international collaborative research, systematic/institutional and periodic reviews and monitors on research ethics should be exercised. As a norm, such research should comply with the ethical regulations of the country (or countries) where research activities take

place, as well as obtaining ethical approval in all countries involved. For international collaborations which might trigger ethical risks, the partners of international collaboration should obey the laws, regulations, and acceptable practices of relevant countries.

Equity in Gender

Equity is a long-standing theme in advancing humanity and among many others, **Gender Equity** is a key topic. Gender equity should be consistently emphasized, including in situations such as job opportunities and career advancement, research organization, grant and award applications, work credits and scientific communications. Gender imbalance should be minimized whenever possible. Science community should strive to achieve a systematic and substantial raise of female representations in leaderships, organizers, academicians, talents and award recipients. Persistent and

proactive effort should be made to raise the status of female scientists in international collaborations and global academic representations.

Inclusiveness

Diversity and inclusiveness are fundamental drivers to enrich research collaborations and maximize benefit. Researchers should welcome and embrace the diversity of knowledge, practices, workflows, languages, research topics and outputs that support the dynamic needs and epistemic pluralism of the global scientific community. Being inclusive of different cultures, customs, religions, sexual orientations, socio-economic well-beings and so on is a prerequisite for a more harmonious and productive scientific environment.

We resonate to the following statement by UNESCO “ensuring equity among researchers from developed and developing countries, enabling fair and recip-

rocal sharing of scientific inputs and outputs and equal access to scientific knowledge to both producers and consumers of knowledge regardless of location, nationality, race, age, gender, income, socio-economic circumstances, career stage, discipline, language, religion, disability, ethnicity or migratory status, or any other grounds.”

The **mobility and flexibility** of researchers, as well as the research specifics they are engaging in, should be fully respected in research collaborations. We plea for all possible measures to help free up movements and collaboration of researchers. We shall exhaust our means to help displaced and/or disconnected scientists during war, conflict, and various kinds of disaster, to uphold their rights to peaceful scientific research and uncompromised access to scientific data. We should allow and facilitate employment mobility of scientific researchers among

the public and private sectors and in higher education, as well as outside of research and development.

Respect of Intellectual Property

All laws, regulations, and relevant rules, domestic or international, concerning the reservation and protection of **Intellectual Property (IP)**, should be observed in research activities. Noting the significant value of science as a common good, researchers should take ownership and responsibility for their writings in all publications, funding applications, reports and other representations of their research. Lists of authors should include all those and only those who meet **applicable authorship** criteria. Researchers should **acknowledge** in publications the names and roles of those who made substantial contributions to the research but do not otherwise meet the authorship criteria, including writers,

funders, sponsors, and so on.

The writing of scientific records should be **complete** with **clarity** and contain all necessary data so others can try to reproduce the reported conclusions. Those publications should be made **accessible** to the global public under the FAIR (Findable, Accessible, Inter-operable and Reusable) principles.

As a global public good, science should belong to humanity in common and benefit humanity as a whole. Toward this end, scientific knowledge should be openly available and its **collective benefits** be universally shared. The practice of science should be inclusive, sustainable and equitable.

Promotion of Open Science

It is duly noted that more open, transparent, collaborative and inclusive scientific practices, in conjunction with more

accessible and verifiable scientific knowledge subjected to scrutiny and critique, creates a more efficient system and positive feedback loop which improve the quality, reproducibility and impact of science, and in turn improve the reliability of the evidence-based decision-making and policy-making processes and ultimately, increase public trust in science. We endorse the UNESCO Recommendation on Open Science.

Openness and inclusiveness of scientific research should be enforced in global science and blue-sky research driven by the common good of the scientific community. The resulting published data, whenever possible, should be **shared**.

Digital divides and ideology divides between stakeholders should be overcome to the best extent possible, irrespective of whether they are caused by differences in technology level, devel-

opment stage, or political alliance. Scientists will be better supported in their scientific pursuit with a more friendly and collaborative environment. **Transparency** in research progress supported by adequate data documentation is welcomed.

Actions

Based on the values and conduct codes elucidated above, we call for prompt **Actions** in the following concrete and complementary areas:

·As inspired by the International Year of Basic Sciences for Sustainable Development, IYBSSD 2022, of the United Nations, we call our colleagues in China and international collaborators to align and Go for the Height of Basic Science by conducting and promoting research aiming to address fundamental questions and basic humanity needs to “ensure a balanced, sustainable and inclusive development of the planet”;

·Publish high-quality

and impactful work, and always say no to “Paper Mills” and other forms of misconduct;

·Take initiative to Raise the Profile of Female Researchers in International Collaboration and Respect for Diversified Civilizations, such as enforcing the balance of representation of female researchers and diversified civilizations whenever possible;

·Move quickly to help displaced and disconnected scientists;

·Implement the Global Pursuit for the Common Good of Intellectual Knowledge during international collaborations and Global Campaign for IP Protections;

·Support open science

with special attention paid to “global south” and collaborations that can be win-win.

Concluding Remarks

Research collaboration is to serve society and increasingly, it has also become an indispensable part in order to achieve the Sustainable Development Goals, adopted by all United Nations member states for a peaceful, prosperous, inclusive and sustainable future of the world. **Sustainability** is an ever-engaging principle for scientific research, “Go Green” and environment protection go hand in hand with harmonious co-existence of nature and human. We must realize that we share only one earth and the resources are limited.

Involvement and partnership provide fundamental support for international collaboration in scientific research. They also provide the will and network in scientific collaborations. The underlying principles of open science, such as equity and fairness, collective benefits and global well-being should be observed, and readily defended with all efforts. The ethics for the conducts of international collaboration should be combined with the concept of synergistic development among nations/regions, cultures, and between human and nature. We root for the common good of the global scientific community.

CAST is the largest non-governmental organization of scientific and technological professionals in the world. Through its 211 member societies and local branches all over the country, CAST maintains close ties with millions of Chinese scientists, engineers, and other professionals working in fields of science and technology.

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