

TWAS Sixteenth General Conference 21–24 November 2022

Basic Sciences for Evidence-Based Decision-Making and Sustainable Development in the Global South

The United Nations General Assembly proclaimed 2022 the International Year of Basic Sciences for Sustainable Development on 2 December 2021, as recommended by UNESCO General Conference resolution of 25 November 2019

hosted by Zhejiang University, Hangzhou, China

Programme

Online event

Hangzhou, China Standard Time (GMT +8)

MONDAY, 21 NOVEMBER 2022

Hangzhou, China Standard Time (GMT +8)

19.00-19.05	Congratulatory message by H.E. XI Jinping, President of the People's Republic of China Presentation of TWAS gift to host country: <ul style="list-style-type: none">• On behalf of H.E. XI Jinping, President of the People's Republic of China, accepted by H.E. WAN Gang, Vice Chairman of the 13th National Committee of the Chinese People's Political Consultative Conference (CPPCC), President of the China Association for Science and Technology (CAST)• presented by Prof. HOU Jianguo, President of the Chinese Academy of Sciences (CAS) and TWAS Vice President-elect for East and South-East Asia
19:05-19:45	Opening Ceremony and Presentation of Recognitions Chair: Prof. Mohamed HASSAN, President of The World Academy of Science for the advancement of science in developing countries (TWAS) <i>Master of Ceremony: Mr. Giovanni ORTOLANI, TWAS Public Information Officer</i> Opening Addresses: Prof. Mohamed HASSAN, TWAS President Her Excellency Audrey AZOULAY, UNESCO Director-General His Excellency Prof. HUAI Jinpeng, Minister of Education, China Dr. ZHANG Yuzhuo, Secretary of the Leading Party Members Group, and Vice-President and Chief Executive Secretary of the Secretariat of the China Association for Science and Technology Prof. REN Shaobo, Chair of the University Council, Zhejiang University His Excellency, Edmondo CIRIELLI, Deputy-Minister of Foreign Affairs and International Cooperation, Italy Her Excellency Bettina STARK-WATZINGER, Federal Minister of Education and Research, Germany His Excellency. Massimiliano FEDRIGA, President of the Autonomous Region of Friuli-Venezia Giulia, Italy Ms. Ylann SCHEMM, Director of the Elsevier Foundation, the Netherlands
19:45–20:15	Presentation of Medals, Awards and Certificates

Prof. Mohamed HASSAN, TWAS President, presents:

TWAS-Abdus Salam Medal, TWAS Medals and TWAS-Lenovo Science Award

2022 TWAS Abdus Salam Medal: BAI Chunli of China

2022 TWAS Medals:

George Fu GAO of China

Rajaâ CHERKAOUI EL MOURSLI of Morocco

Bruce ALBERTS of the United States of America

CHEONG Sok Ching of Malaysia

2022 TWAS-Lenovo Science Award: FU Bojie of China

Prof. Luiz DAVIDOVICH, TWAS Secretary-General, presents:

TWAS Awards, TWAS Siwei Cheng Award, TWAS-CAS Award and Awards named after TWAS Fellow

2022 TWAS Awards

2022 TWAS Award in Agricultural Sciences: XIE Daoxin of China

2022 TWAS Award in Biology: CHEN Ruey-Hwa of Taiwan, China

2022 TWAS Award in Chemistry, shared between: Engin Umut AKKAYA of Türkiye and CHEN Chunying of China

2022 TWAS Award in Earth, Astronomy and Space Sciences, shared between: IP Wing-Huen of Taiwan, China, and Laurent Raymond LOINARD of Mexico

2022 TWAS Award in Engineering Sciences: Mohamed-Slim ALOUINI of Saudi Arabia

2022 TWAS Award in Mathematics: Helena NUSSENZVEIG LOPES of Brazil

2022 TWAS Award in Medical sciences, shared between: Hugo LUJÁN of Argentina and SONG Erwei of China

2022 TWAS Award in Physics: María Teresa DOVA of Argentina

2022 TWAS Award in Social Sciences, shared between: Irasema ALCÁNTARA-AYALA of Mexico and LIU Junguo of China

2022 TWAS-Siwei Cheng Award in Economic Sciences: Menale KASSIE of Kenya

2022 TWAS-CAS Young Scientist Award for Frontier Science in Earth Sciences: SUN Yele of China

	<p>Awards named after TWAS Fellow</p> <p>2022 TWAS-Mohammad A. Hamdan Award: Khalil EZZINBI of Morocco 2022 TWAS-Atta-ur-Rahman Award: Anushka Upamali RAJAPAKSHA of Sri Lanka 2022 TWAS-Samira Omar Innovation for Sustainability Award: Sarobidy RAKOTONARIVO of Madagascar 2022 TWAS-Fayzah M. Al-Kharafi Award, <u>shared</u> between: Sayera BANU of Bangladesh <u>and</u> Nadia HAIDER of the Syrian Arab Republic 2022 TWAS-Abdool Karim Award: Damalie NAKANJAKO of Uganda</p> <p>Prof. Mohamed HASSAN, TWAS President, presents: <u>TYAN Executive Committee recognition</u></p> <p><i>Master of Ceremony: Ms. Cristina SERRA, Editorial Assistant, TWAS Public Information Office</i></p>
<p>20.15–21.00</p> <p>Hybrid session (In presence at Zhejiang University, and online)</p>	<p>Keynote Lecture 1: Building our Sustainable Future through Science and Computing</p> <p>Dr. Solomon ASSEFA, Vice-President, IBM Research</p> <p>Chair: Prof. Winston SOBOYEJO, President ad interim, Worcester Polytechnic Institute, USA</p> <p><i>Facilitator: Ms. Giulia GENNARI, TWAS Associate Programme Officer</i> <i>Rapporteur: Dr. Rolando GITTENS, TWAS Young Affiliate (Panama)</i></p> <p>Q&A</p>
<p>21.00–21.45</p> <p>Hybrid session (In presence at Zhejiang University, and online)</p>	<p>Keynote Lecture 2: Circadian Rhythms, Gene Expression and Cell-Type Specificity of the Adult Fly Brain</p> <p>Prof. Michael ROSBASH, Nobel Laureate, Professor of Biology and Peter Gruber Professor of Neuroscience, Brandeis University, USA</p> <p>Chair: Prof. YANG Wei, TWAS Treasurer</p> <p><i>Facilitator: Prof. Romain MURENZI, TWAS Executive Director</i> <i>Rapporteur: Dr. Munkhtsetseg TSEDNEE, TWAS Young Affiliate (Mongolia)</i></p> <p>Q&A</p>

21:45–23.40

TWAS Thirtieth General Meeting

Closed session for TWAS Fellows, Young Affiliates and Alumni

TUESDAY, 22 NOVEMBER 2022

Hangzhou, China Standard Time (GMT +8)

<p>19.00–20.05</p>	<p>Ministerial Session:</p> <p>Basic Sciences for Evidence-Based Decision-Making and Sustainable Development in the Global South</p> <p>Co-Chairs:</p> <p>Dr. Shamila NAIR-BEDOUELLE, UNESCO Assistant Director-General for Natural Sciences, and Prof. HOU Jianguo, President of the Chinese Academy of Sciences (CAS)</p> <p><i>Facilitator: Prof. Romain MURENZI, TWAS Executive Director</i></p> <p><i>Rapporteurs: Prof. Etotépé SOGBOHOSSOU, Benin, and Ms. Sena GALAZZI, Associate Programme Manager of the Organization for Women in Science for the Developing World (OWSD)</i></p> <p>Presentations by:</p> <p>(In alphabetical order)</p> <p>PART 1</p> <p>His Excellency Paulo ALVIM, Minister of Science, Technology and Innovation, Brazil</p> <p>His Excellency Moussa BALDE, Minister of Higher Education, Research and Innovation, Senegal</p> <p>His Excellency Adham BIN BABA, Minister of Science, Technology and Innovation represented by Dr. Haji Aminuddin BIN HASSIM, Secretary-General of the Ministry of Science, Technology and Innovation, Malaysia</p> <p><i>Attending the Q&A session: Dr. Nagulendran Kangayatkarasu, Deputy Secretary-General</i></p> <p>Her Excellency Maia do Rosário BRAGANÇA, Minister of Higher Education, Science, Technology and Innovation, Angola</p> <p><i>Attending the Q&A session: Prof Antonio Alcochete, National Director for Science, Technology and Innovation</i></p> <p>PART 2</p> <p>His Excellency Dr. Munir M. Eldesouki, President, King Abdulaziz City for Science and Technology, Saudi Arabia</p> <p>His Excellency Emmanuel "Blade" NZIMANDE, Minister of Higher Education, Science and Innovation, South Africa. <i>Statement delivered by Dr Dumisani Mthembu, Director for Multilateral Cooperation, Department of Science and Innovation</i></p> <p>His Excellency Nicola TODARO MARESCOTTI, Minister Plenipotentiary, on behalf of Her Excellency Anna Maria BERNINI, Minister of University and Research</p>
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20.05–22.15

Symposium 1:

Basic Sciences: Challenges and Sustainable Development

Conveners:

Prof. Merieme CHADID, Chair of United Nations Scientific Board, UNESCO
International Basic Sciences Programme (IBSP)

and

Prof. Luiz DAVIDOVICH, TWAS Secretary-General

Facilitator: Dr. Max PAOLI, TWAS Programme Coordinator

Rapporteur: Dr. Sabrina ELIAS, TWAS Young Affiliate (Bangladesh)

PART 1

Introduction by Prof. CHADID

Presentations:

Prof. HOU Jianguo, President of Chinese Academy of Sciences, China on “Chemistry to Empower a Sustainable World”

Prof. Agnes BINAGWAHO, Vice-Chancellor, University of Global Health Equity, Rwanda, on “Improving Health Science Education to Advance Global Health Research in LMICS”

Prof. Jagannatha K. RAO, Director, Institute for Scientific Research and Technology Services, Panama, on “Basic Sciences and Sustainable Goals: Challenges and Excitements”

PART 2

Introduction by Prof. DAVIDOVICH

Presentations:

Prof. Ingrid DAUBECHIES, James B. Duke Distinguished Professor of Mathematics and Electrical and Computer Engineering, USA, on "Challenges and Sustainable Development: Mathematics"

Prof. LU Gaoqing (Max), President and Vice-Chancellor, University of Surrey, UK, on "Sustainability Leadership in a World Class University"

Prof. Anthony CLAYTON, Professor of Caribbean Sustainable Development, University of the West Indies, Jamaica, on "Evidence-Based Decision-Making and Sustainable Development in Developing Countries"

Q&A with speakers of Part 1 and Part 2

Closing remarks by Conveners

22.15-22.20	Break
22.20–23:40	<p>Symposium 2: A journey through TWAS Fellowships Programme: Success stories</p> <p>Convener: Prof. Romain MURENZI, TWAS Executive Director <i>Facilitator: Ms. Payal PATEL, TWAS Associate Programme Officer</i></p> <p>Introduction by Prof. Romain MURENZI, TWAS Executive Director</p> <p>Presentations by TWAS Fellowship Programme Partners:</p> <p>Dr. Anuradha MADHUKAR, International S&T Affairs Directorate (ISTAD), Council of Scientific and Industrial Research, India</p> <p>Prof. ZHANG Yaping, Vice-President of the Chinese Academy of Sciences, and Prof. CAO Jinghua, Executive Director, Alliance of International Science Organizations (ANSO) Secretariat of China</p> <p>Dr. Sanjay Kumar MISHRA and Dr. Deo Praksh CHATURVEDI, Department of Biotechnology, Ministry of Science and Technology, India</p> <p>Prof. Maria Zaira TURCHI, Director of Institutional Cooperation, National Council for Scientific and Technological Development (CNPq), Brazil</p> <p><i>Attending the Q&A session: Prof. Lelio FELLOWS FILHO, Head, International Affairs Unit, CNPq, Brazil</i></p> <p>Prof. M. Iqbal CHOUDHARY, International Center for Chemical and Biological Sciences, Pakistan</p> <p>Presentation by TWAS Graduates</p> <p>Dr. Seyram Elom ACHORIBO, Radiological and Medical Sciences Research Institute, Atomic Energy Commission, Ghana</p> <p>Dr. Olubunmi ATOLANI, University of Ilorin, Nigeria</p> <p>Q&A</p>

WEDNESDAY, 23 NOVEMBER 2022

Hangzhou, China Standard Time (GMT +8)

19.00–19.40	TWAS-Lenovo Science Award Lecture Co-Chairs: Prof. Mohamed HASSAN, TWAS President and Dr. Zhiqiang (George) HE, Senior Vice-President of Lenovo, and President of Lenovo Capital and Incubator Group, China TWAS-Lenovo Science Award Lecture Human and Environment Interactions for Sustainable Development Prof. FU Bojie, Distinguished Professor of Geography and Landscape Ecology, Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences and Faculty of Geographical Science, Beijing Normal University China Q&A <i>Facilitator: Dr. Tonya BLOWERS, OWSD Programme Coordinator</i>
19.40-19:45	Break
19.45–22.00	Medal Lectures Chair: Prof. Bishal Nath UPRETI, TWAS Council Member for East and South-East Asia <i>Facilitator: Dr. Tonya BLOWERS, OWSD Programme Coordinator</i>
	Medal Lecture 1: COVID-19 and STEM Prof. George Fu GAO, Vice-President, National Natural Science Foundation of China, and Director and Professor, Key Laboratory of Pathogen Microbiology and Immunology, Institute of Microbiology, Chinese Academy of Sciences, China Q&A

	<p>Medal Lecture 2: ATLAS Experiment: Results and perspectives</p> <p>Prof. Rajaâ CHERKAOUI EL MOURSLI, Resident Member, Hassan II Academy of Science and Technology, Faculty of Science, Mohammed V University of Morocco</p> <p>Q&A</p>
	<p>Medal Lecture 3: Identification of Genetic Vulnerabilities and the Development of Novel Therapeutics For Oral Squamous Cell Carcinoma</p> <p>Prof. CHEONG Sok Ching, Deputy Chief Scientific Officer, Cancer Research Malaysia</p> <p>Q&A</p>
	<p>Medal Lecture 4: Science Education for Evidence-based Decision-Making: Research Needed!</p> <p>Prof. Bruce ALBERTS, Chancellor’s Leadership Chair for Science and Education, Emeritus, Department of Biophysics and Biochemistry, University of California, USA</p> <p>Q&A</p>

THURSDAY, 24 NOVEMBER 2022

Hangzhou, China Standard Time (GMT +8)

<p>15.00–16.00</p> <p>Hybrid session (In presence at Zhejiang University, and online)</p>	<p>TWAS-Abdus Salam Medal Lecture:</p> <p>Opening Up and Sharing of Mega-Science Facilities for the Benefit of Major Breakthroughs in Basic Science</p> <p>Prof. BAI Chunli, Immediate Past President of TWAS; President of the Alliance of International Science Organizations; and Honorary President of Presidium of the Academic Divisions, Chinese Academy of Sciences</p> <p>Chair: Prof. Mohamed HASSAN, TWAS President</p> <p><i>Facilitator: Dr. Peter McGRATH, Coordinator of the InterAcademy Partnership</i></p> <p><i>Rapporteur: Dr. Nihad ADNAN, TWAS Young Affiliate (Bangladesh)</i></p> <p>Q&A</p>
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<p>16.00–18.10 Hybrid session (In presence at Zhejiang University, and online)</p>	<p>Symposium 3: Basic Science for the Sustainable Development Goals in China</p> <p>Convener: Prof. YANG Wei, TWAS Treasurer, China</p> <p><i>Facilitator: Dr. Max PAOLI, TWAS Programme Coordinator</i> <i>Rapporteur: Dr. Pablo Alberto BOLAÑOS-VILLEGAS, TWAS Young Affiliate (Costa Rica)</i></p> <p>Prof. HUANG Hefeng, Institute of Reproduction and Development, Fudan University, China on “Early-life Health and the Burden of Adult Chronic Diseases”</p> <p>Prof. ZHU Meifang, State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Donghua University, China on “Functional and Intelligent Fiber Materials for Sustainable Development”</p> <p>Prof. LIU Ming, Fudan University, China on “Integrated Circuit for Information and Intelligent Era”</p> <p>Prof. ZHANG Tao, Vice-President, Chinese Academy of Sciences on “Single-Atom Catalysis: Progress, Opportunity and Challenge”</p> <p>Prof. DUAN Shumin, Dean of Zhejiang University, Faculty of Medicine and Pharmacy on “A Brain Circuit Encoding A General Aggressive State”</p> <p>Prof. PAN Jianwei, Executive Vice-President, University of Science and Technology, China on “Quantum Science and Technology for Next-generation Communications and Computations”</p>
<p>18.10–20.00</p>	<p>Break</p>
<p>20.00–20.20 Online session</p>	<p>Induction Ceremony of TWAS Fellows elected in 2022, and Introduction of Young Affiliates and Refugee Scientists appointed in 2022</p> <p>Chair: Prof. Mohamed HASSAN, TWAS President</p> <p><i>Facilitator: Prof. Romain MURENZI, TWAS Executive Director</i></p>

<p>20.20–21.00</p> <p>Hybrid session</p> <p>(In presence at Zhejiang University, and online)</p>	<p>Closing Ceremony</p> <p>Chair: Prof. HE Lianzhen, Vice President of Zhejiang University</p> <p><i>Master of Ceremony: Ms. Raffaella De Lia, TWAS Editor</i></p> <p><u>Presentation of Conference Declaration</u></p> <p>Prof. Luiz DAVIDOVICH, TWAS Secretary-General</p> <p><u>Closing speeches:</u></p> <p>Prof. HOU Jianguo, President, Chinese Academy of Sciences</p> <p>Prof. HE Lianzhen, Vice President of Zhejiang University</p> <p>Prof. Mohamed HASSAN, TWAS President</p> <p>Message from Prof. Quarraisha ABDOOL KARIM, TWAS newly elected President (2023–2026)</p>
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