







TWAS Fifteenth General Conference 1–4 November 2021

Advancing frontier science, technology and innovation for the SDGs in developing countries

hosted by the King Abdullah University of Science and Technology (KAUST)

with the support of, and in collaboration with, the Islamic Development Bank (IsDB)

Programme

Online event

MONDAY, 1 NOVEMBER 2021

Virtual venue: Auditorium

14:00-16:20	TWAS Twenty-ninth General Meeting
	Closed session for TWAS Fellows, Young Affiliates and Alumni
16:20-16:30	Break
16:30-17:25	Opening Ceremony and Presentation of Recognitions
	Chair: Prof. Mohamed HASSAN, TWAS President
	Master of Ceremony: Ms. Raffaella DE LIA, TWAS Editor and Public Information Officer
	Opening Addresses:
	Prof. Mohamed HASSAN, President of the World Academy of Science for the advancement of science in developing countries (TWAS)
	Her Excellency Audrey AZOULAY, UNESCO Director-General
	Prof. Tony CHAN, President of the King Abdullah University of Science and Technology (KAUST), Saudi Arabia
	His Excellency Dr. Munir Eldesouki, Assistant Minister at the Ministry of Communications and Information Technology (MCIT) of Saudi Arabia & Acting President of the King Abdul-Aziz City for Science and Technology (KACST)
	Her Excellency Anja KARLICZEK, Federal Minister of Education and Research, Germany
	His Excellency Dr. Muhammad Sulaiman AL JASSER, Chairman of the Islamic Development Bank (IsDB) Group, Saudi Arabia
	Her Excellency Marina SERENI, Vice-Minister of Foreign Affairs and International Cooperation, Italy
	Dr. Kerstin JONSSON CISSÉ, Head of Unit for Research Cooperation of the Swedish International Development Cooperation Agency (Sida)
	Dr. Ylann SCHEMM, Director of the Elsevier Foundation, Chair of the Research4Life Executive Council, The Netherlands
17:25-17:50	Presentation of Awards, Medals and Certificates By Prof. Luiz DAVIDOVICH, TWAS Secretary-General
	Master of Ceremony: Ms. Raffaella DE LIA, TWAS Editor and Public Information Officer

2020 TWAS-Lenovo Science Award:

Prof. Mariangela HUNGRIA of Brazil and Prof. LI Jiayang of China (shared award)

2021 TWAS Medals:

Dr. Hayat SINDI of Saudi Arabia Prof. Roseanne DIAB of South Africa Prof. Mandyam SRINIVASAN of Australia

2020 TWAS Awards

Agricultural Sciences: Prof. Esteban Gabriel JOBBÁGY of Argentina Biology: Prof. Baharvand HOSSAIN of the Islamic Republic of Iran

Chemistry: Prof. TANG Zhiyong of China

Earth, Astronomy and Space Sciences: Prof. CAO Junji of China Engineering Sciences: Prof. Ahmad Fauzi ISMAIL of Malaysia and Prof. Noemí Elisabet ZARITZKY of Argentina (shared award)

Mathematics: Prof. Dipendra PRASAD of India and Prof. TANG Zizhou of China (shared

award)

Medical Sciences: Prof. Robert Peter MILLAR of South Africa and Prof. Alejandro Fabian SCHINDER of Argentina (shared award)

Physics: Prof. CHEN Xianhui of China

Social Sciences: Prof. Ayodele Samuel JEGEDE of Nigeria and Prof. JUAN Chi-Hung of

Taiwan, China (shared award)

TWAS-Siwei Cheng Award in Economic Sciences

2020: Prof. YANG Cuihong of China

TWAS-CAS Young Scientist Award for Frontier Science

2020: Dr. Aiith PARAMESWARAN of India

2021: Dr. Laura PÉREZ of Chile

TWAS-named Awards:

TWAS-C.N.R. Rao Award

2019: Prof. Evelyne Isaack MBEDE of Tanzania

2020: Prof. Raoelina ANDRIAMBOLOLONA of Madagascar

TWAS-Mohammad A. Hamdan Award

2020: Prof. Abdon ATANGANA of South Africa

TWAS-Atta-ur Rahman Award

2019: Dr. Achyut ADHIKARI of Nepal

2020: Dr. Basant GIRI of Nepal

2021: Dr. Zubair Hasan of Bangladesh

TWAS-Samira Omar Innovation for Sustainability Award 2019: Prof. Etotépé Aïkpémi SOGBOHOSSOU of Benin

2020: Dr. Badabaté DIWEDIGA of Togo 2021: Prof. Nigist ASFAW of Ethiopia

	TWAS-Fayzah M. Al-Kharafi Award 2019: Dr. Antonethe CASTANEDA MENA of Guatemala 2020: Prof. Meththika Suharshini VITHANAGE of Sri Lanka 2021: Prof. Huda Omer Salem BASALEEM of Yemen TWAS-Abdool Karim Award 2019: Dr. Fathiya Mbarak KHAMIS of Kenya
	2020: Dr. Faith Hope Amongin OSIER of Kenya 2021: Dr. Djeneba Dabitao of Mali
17:50-17:55	
11:20-11:22	Presentation of gift to host country
17:55-18:00	Break
18:00-18:45	High-level keynote lecture: Steps Towards Life: Chemistry!
	Prof. Jean-Marie LEHN, Nobel Laureate, Institute of Supramolecular Science and Engineering (ISIS) of the University of Strasbourg, Institute for Advanced Study (USIAS), France
	Chair: Prof. Luiz DAVIDOVICH, TWAS Secretary-General
	Facilitator: Prof. Romain MURENZI, TWAS Executive Director Rapporteur: Dr. Franco Martín CABRERIZO, TWAS Young Affiliate (Argentina)
	Q&A

TUESDAY, 2 NOVEMBER

Virtual venue: Auditorium

Jeddah, Saudi Arabia time (GMT +3)

14:00-15:45

Ministerial Session: "Financing frontier science, technology and innovation for the SDGs"

Co-Chairs:

Dr. Shamila NAIR-BEDOUELLE, UNESCO Assistant Director-General for Natural Sciences

His Excellency Dr. Munir M. Eldesouki, Assistant Minister at the Ministry of Communications and Information Technology (MCIT) of Saudi Arabia & Acting President of the King Abdul-Aziz City for Science and Technology (KACST)

Facilitator: Prof. Romain MURENZI, TWAS Executive Director

Rapporteur: Ms. Sena GALAZZI, TWAS Associate Programme Officer (Italy)

PART 1

Chair: Dr. Shamila NAIR-BEDOUELLE

Speeches

UNESCO Assistant Director-General for Natural Sciences Dr. Shamila NAIR-BEDOUELLE, on behalf of UNESCO Director-General

His Excellency Dr. HUAI Jinpeng, Minister of Education of China

His Excellency Prof. Khaled Atef ABDEL GHAFFAR, Minister of Higher Education and Scientific Research of Egypt

Attending the Q&A session: Dr. Yasser Refaat ABDEL-FATTAH, Deputy Minister of Higher Education for Scientific Research

Prof. Eric LANDER, USA President's Science Advisor and Director of the White House Office of Science and Technology Policy

Attending the Q&A session: Prof. Alondra NELSON, Deputy Director for Science and Society in the White House Office of Science and Technology Policy

His Excellency Dr. Bonginkosi Emmanuel "Blade" NZIMANDE, Minister of Higher Education, Science and Technology of South Africa

Attending the Q&A session Dr. Philemon MJWARA, Director-General of the Department of Science and Innovation, Government of South Africa

Dr. Nyan GADSBY-DOLLY, Honourable Minister of Education of Trinidad and Tobago Q&A

PART 2

Chair: His Excellency Dr. Munir Eldesouki

Speeches

His Excellency Dr. Munir M. Eldesouki, Assistant Minister at the Ministry of Communications and Information Technology (MCIT) of Saudi Arabia & Acting President of the King Abdul-Aziz City for Science and Technology (KACST)

Dr. Marcelo MORALES, Secretary of State for Research and Scientific Training of Brazil, on behalf of His Excellency Marcos PONTES, Minister of Science, Technology and Innovation

Prof. Rémi QUIRION, Chief Science Advisor of Québec, Canada

Minister Plenipotentiary Marco GIUNGI of Italy, on behalf of Her Excellency Maria Cristina MESSA, Minister of University and Research

Her Excellency Dr. Valentine UWAMARIYA, Minister of Education of Rwanda

His Excellency Prof. Ibrokhim Y. ABDURAKHMONOV, Minister of Innovative Development of Uzbekistan

Q&A

Closing of Session by Co-Chairs

15:45-17:10

TWAS-Lenovo Science Award Lectures

Introduction by Co-Chairs:

Prof. Mohamed HASSAN, TWAS President

Dr. George HE, Senior Vice President, Lenovo Group, China

Facilitator: Dr. Max PAOLI, TWAS Programme Coordinator

Rapporteur: Dr. Hudaa NEETOO, TWAS Young Affiliate (Mauritius)

16:00-16:35	Understanding molecular mechanisms underlying high-yield superior-quality traits and breeding elite varieties of rice Prof. liguang LL Institute of Constice and Developmental Biology, Chinese Academy of
	Prof. Jiayang LI, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, China
	Q&A
16:35-17:10	Plant-growth promoting micro-organisms for agricultural sustainability and environmental
	responsibility Prof. Mariangela HUNGRIA, Brazilian Agricultural Research Corporation (Embrapa), Brazil
	Q&A
17:10-17:15	Break
17:15-18:40	Symposium 1: "Advancing frontier science, technology and innovation for the SDGs in developing countries"
	Convener: Prof. Ismail SERAGELDIN, Emeritus Librarian of Alexandria, Founding Director of the Library of Alexandria, Egypt
	Facilitator: Dr. Max PAOLI, TWAS Programme Coordinator
	Rapporteur: Dr. Ramia AL-BAKAIN, TWAS Young Affiliate (Jordan)
	Topics and speakers:
	Transforming energy systems to achieve sustainability Prof. Marcia McNUTT, President, National Academy of Sciences, USA
	Attending the Q&A session: Dr. Vaughan TUREKIAN, Executive Director of Policy and Global Affairs Division, The National Academy of Sciences, Engineering and Medicine, USA
	Amazon Green Deal: an urgent need for an innovative bioeconomy of standing forests in the Amazon
	Prof. Carlos NOBRE, Institute of Advanced Studies, University of São Paulo, Brazil
	Advancing frontier science, technology and innovation for SDGs in developing countries Dr. Ismahane ELOUAFI, Chief Scientist, Food and Agricultural Organization of the United Nations (FAO)
	The economic case for a sustainable recovery from COVID-19: co-developing the future vision based on the SDGs and the climate agreement Prof. Phoebe KOUNDOURI, Director of ReSEES Research Laboratory, Athens University of Economics and Business, Greece
	Q&A

WEDNESDAY, 3 NOVEMBER

Virtual venue: Auditorium

Jeddah, Saudi Arabia time (GMT +3)

14:00-15:50

Symposium 2: "The world facing COVID-19"

Convener: Prof. George Fu GAO, Director-General, Chinese Center for Disease Control and Prevention, and Director of the Chinese Academy of Sciences, Key Laboratory of Pathogen Microbiology and Immunology, China

Facilitator: Dr. Peter McGRATH, InterAcademy Partnership (IAP) Coordinator

Rapporteur: Dr. Mariamawit Yonathan YESHAK, TWAS Young Affiliate (Ethiopia)

Topics and speakers:

The world facing COVID-19: the African perspective

Prof. Salim ABDOOL KARIM, Director, Centre for the AIDS Programme of Research in South Africa (CAPRISA), South Africa, and CAPRISA Professor of Global Health, Columbia University, USA

SARS-CoV-2 pandemic and its implication for Bangladesh

Prof. Firdausi QADRI, Senior Scientist and Head, Mucosal Immunology & Vaccinology Unit, Infectious Diseases Division, International Centre for Diarrhoeal Diseases, Bangladesh

Tackling the pandemic: Towards a healthier, safer and fairer world

Prof. Peter SINGER, Special Advisor to the Director General, World Health Organization (WHO)

Anti-spike antibodies and neutralising antibody activity in people living with HIV vaccinated with COVID-19 mRNA-1273 vaccine: a prospective cohort study

Dr. Lara MANGANARO, Principal Investigator, National Institute of Molecular Genetics (INGM) "Romeo and Enrica Invernizzi", Italy

Protein subunit vaccine (ZF2001) against COVID-19: from bench to bedside

Dr. Lianpan DAI, Principal Investigator, Institute of Microbiology, Chinese Academy of Sciences, China

The COVID-19 pandemic: lessons from Brazil

Prof. Cesar VICTORA, Emeritus Professor of Epidemiology, International Center for Equity in Health, Federal University of Pelotas, Brazil

Q&A

15.50-15:55	Break
15:55-17:40	Medal Lectures
	Introduction by Chair: Prof. Sabah ALMOMIN, TWAS Vice-President, Arab Region
	Facilitator: Dr. Tonya BLOWERS, Programme Coordinator of the Organization for Women in Science for the Developing World (OWSD)
	Rapporteur: Dr. Roland GITTENS, TWAS Young Affiliate (Panama)
	Medal Lecture 1
	Achievements in Biotechnology for Improved World Health Dr. Hayat SINDI, Senior Advisor to the President of the Islamic Development Bank for Science, Technology and Innovation, Jeddah, Saudi Arabia Q&A
	Medal Lecture 2
	The Role of Gender Responsive Organizations in Global Science Prof. Roseanne DIAB, Emeritus Professor, University of KwaZulu-Natal, Durban, South Africa, Special Advisor for GenderInSITE, at TWAS, Trieste, Italy Q&A
	Medal Lecture 3
	Small Brains, Smart minds: From Bees and Birds to UAVs Prof. Mandyam SRINIVASAN, Emeritus Professor at the Queensland Brain Institute, The University of Queensland, Australia
	Q&A

Virtual venue: Young Scientists Poster Gallery

17:40-19:40	Virtual poster session through a highly interactive platform
	The poster gallery will remain open until the end of the Conference

THURSDAY, 4 NOVEMBER

Virtual venue: Auditorium

16:20-16:30

Break

Jeddah, Saudi Arabia time (GMT +3)		
14:00-16:20	Symposium 3: "Digital Inclusion: Challenges and opportunities for connecting the unconnected in the post-COVID era"	
	Convener: Prof. Mohamed-Slim ALOUINI, Distinguished Professor of Electrical and Computer Engineering, KAUST, Saudi Arabia	
	Facilitator: Prof. Romain MURENZI, TWAS Executive Director	
	Rapporteur: Dr. Sasitorn SRISAWADI, TWAS Young Affiliate (Thailand)	
	Topics and speakers:	
	Towards closing the connectivity divide Prof. Mohamed-Slim ALOUINI, Distinguished Professor of Electrical and Computer Engineering, KAUST, Saudi Arabia	
	From the above and the bottom Dr. Fadel DIGHAM, Sector Head of National Projects, National Telecom Regulatory Authority, Egypt Q&A	
	On the role of high-altitude platform station (HAPS) systems for access equality Prof. Güneş KARABULUT KURT, Department of Electrical Engineering, Polytechnique Montréal, Canada Q&A	
	Digital inclusion: the urgent need to ensure inclusive, equal access and use of ICTs Dr. Sylvia POLL AHRENS, Head of the Digital Society Division, Digital Networks and Society Department, International Telecommunication Union (ITU) Q&A	
	Wrestling with Internet alligators Dr. Vinton G. CERF, Vice-President and Chief Internet Evangelist, Google, USA Q&A	
15:40-16:20	Panel Discussion	
	Chair: Prof. Mohamed-Slim ALOUINI	

16:30-17:15	Induction of TWAS Members elected in 2019, 2020 and 2021 Introduction of Young Affiliates and Refugee Scientists appointed in 2019, 2020, 2021 Introduction by: Prof. Mohamed HASSAN, TWAS President
17:15-17:20	Break
17:20-18:00	Closing Ceremony
	Master of Ceremony: Ms. Raffaella DE LIA, TWAS Editor and Public Information Officer
	Presentation of Conference Declaration
	Prof. Luiz DAVIDOVICH, TWAS Secretary-General
	Closing speeches:
	His Excellency Dr. Munir M. Eldesouki, Assistant Minister at the Ministry of Communications and Information Technology (MCIT) of Saudi Arabia & Acting President of the King Abdul-Aziz City for Science and Technology (KACST)
	Dr. Hayat SINDI, Chief Adviser for Science, Technology and Innovation to the President of the Islamic Development Bank, Saudi Arabia
	Master of Ceremony: Ms. Ramla ALSHIBANI, KAUST Office of the President
	Prof. Takashi GOJOBORI, Acting Director, Computational Bioscience Research Center, KAUST, Saudi Arabia
	Prof. Mohamed HASSAN, TWAS President
	Prof. Tony CHAN, KAUST President