



**13th General Conference and 26th General Meeting**  
18-21 November 2015 • Austrian Academy of Sciences (ÖAW), Vienna, Austria



## Final Conference Programme

as of 21 November 2015

### All Conference days

Registration and information desk, wardrobe, submission of presentations: *Austrian Academy of Sciences: Club Room*

**Registration:** 17 November: 12:00-17:00; 18 November: 09:00-18:30; 19 November: 07:30-19:30; 20 November: 08:00-19:30  
21 November: 08:30-19:00

**TWAS office:** *Austrian Academy of Sciences: Room "Museum"*

### Tuesday, 17 November

*Location: Federal Ministry for Europe, Integration and Foreign Affairs – Dark shade: closed sessions (for members only)*

14:00-15:30	<b>TWAS Prizes Committee Meeting</b>	<i>Press Centre</i>
15:30-16:00	<i>Refreshments</i>	
16:00-17:45	<b>TWAS Elections Committee Meeting</b>	<i>Press Centre</i>
17:45-18:45	<b>TWAS Nominations and Selections Committee Meeting</b>	<i>Press Centre</i>
19:30	<i>Dinner</i>	

### Wednesday, 18 November

*Location: Federal Ministry for Europe, Integration and Foreign Affairs – Dark shade: closed sessions (for members only)*

08:00-09:45	<b>Joint Meeting TWAS Policy Development and Future Action Committee and TWAS Fundraising Advisory Committee</b>	<i>Press Centre</i>
09:45-10:00	<i>Refreshments</i>	
10:00-12:00	<b>TWAS 35th Council Meeting</b>	<i>Press Centre</i>

*Location: Austrian Academy of Sciences – Dark shade: closed sessions (for members only)*

12:15-13:15	<i>Lunch</i>	<i>Main Hall</i>
13:15-14:15	<b>Regional Meetings of TWAS Members, Young Affiliates and Vice Presidents (parallel sessions)</b>	
	<ul style="list-style-type: none"> <li>• Arab Region <i>Alte Burse</i></li> <li>• Central and South Asia <i>Festive Hall</i></li> <li>• Latin America and the Caribbean <i>Meeting Room</i></li> <li>• Sub-Saharan Africa <i>Hall "Johannes"</i></li> <li>• East and South-East Asia and the Pacific <i>Theatre Hall</i></li> </ul>	
14:15-15:15	<b>TWAS Regional Offices Annual Meeting</b> <i>Hall "Johannes"</i>	
15:15-15:30	<i>Refreshments</i>	<i>Main Hall</i>
15:30-16:00	<i>Participants and guests to be seated for Opening Ceremony</i>	<i>Festive Hall</i>

<b>16:00-17:30</b>	<b>Opening Ceremony and Presentation of Prizes, Medals and Certificates</b>	<i>Festive Hall</i>
	<p>Opening Addresses  Chair: Bai Chunli  Introductions: Anton Zeilinger</p> <ul style="list-style-type: none"> <li>• President of Austrian Academy of Sciences, Anton Zeilinger</li> <li>• President, TWAS, Chunli Bai</li> <li>• Representative of the Italian Government, Ambassador Giorgio Marrapodi, Embassy of Italy, Vienna</li> <li>• Assistant-Director-General Natural Sciences, of UNESCO, Flavia Schlegel</li> <li>• Vice-Chancellor and Federal Minister of Science, Research and Economy, Reinhold Mitterlehner</li> <li>• Federal President of Austria, Heinz Fischer</li> </ul> <p>Presentations of Prizes and Medals</p> <ul style="list-style-type: none"> <li>• Abdus Salam Medal to • Jacob Palis</li> <li>• TWAS-Lenovo Science Prize • Artur Avila</li> <li>• TWAS Medals to • Hans J.A. van Ginkel • Anton Zeilinger</li> <li>• TWAS 2014 prizes to <ul style="list-style-type: none"> <li>• Zhang Fusuo, <i>Agricultural Sciences</i></li> <li>• Marcelo Rubinstein, <i>Biology</i></li> <li>• Xie Yi, <i>Chemistry</i></li> <li>• Chung Sun-Lin, <i>Earth Sciences</i></li> <li>• Viswanathan Kumaran and • Lu Chih-Yuan, <i>Engineering Sciences</i></li> <li>• Yuan Ya-xiang, <i>Mathematics</i></li> <li>• Chang Tse Wen and • Irene Oi Lin Ng, <i>Medical Sciences</i></li> <li>• Daniel De Florian, <i>Physics</i></li> </ul> </li> <li>• TWAS Celso Furtado Prize to • Rajah Rasiah</li> <li>• C.N.R. Rao Prize • Bishal Nath Upreti</li> <li>• Atta-ur-Rahman Prize • Mirabbos Hojamberdiev</li> </ul>	
<b>17:30-18:00</b>	<b>Keynote Lecture <sup>1</sup></b> Chair: Francisco Barrantes <i>The Grootboom dilemma – sustainable development and overcoming poverty</i> Albert Louis Sachs	<i>Festive Hall</i>
<i>19:00-19:30</i>	<i>Pre-dinner drinks and welcoming remarks</i> Chair: Bai Chunli Introductions: Edward Lempinen	<i>Aula der Wissenschaften, Pillared Hall</i>
	<ul style="list-style-type: none"> <li>• Claire Lyngå, Research Advisor, Unit for Research Cooperation, Swedish International Development Cooperation Agency, Sida</li> <li>• Ylann Schemm, Program Director, Elsevier Foundation, The Netherlands</li> <li>• Georg Kapsch, President, Federation of Austrian Industries</li> </ul>	
<i>19:30</i>	<i>Dinner</i>	<i>Aula der Wissenschaften, Jesuit Hall</i>

## Thursday, 19 November

*Location: Austrian Academy of Sciences – Dark shade: closed sessions (for members only)*

<b>08:00-12.30</b>	<b>TWAS 26th General Meeting</b>	<i>Festive Hall</i>
<i>09:45 -10:15</i>	<i>Refreshments</i>	<i>Main Hall</i>
	<i>(cont.)</i>	
<i>12:30-14:15</i>	<i>Lunch</i>	<i>Main Hall</i>
<b>14:15-15:00</b>	<b>TWAS-Lenovo Science Prize Lecture</b> Chair: Mohamed H.A. Hassan <i>On the work of Artur Avila</i> Presented by Welington Celso de Melo	<i>Festive Hall</i>

<sup>1</sup> *Lecture sponsored by the Tang Prize Foundation*

15:00-18:00	<b>Symposium 1: Ministerial session on sustainable development</b> <i>Co-Chairs: Harald Mahrer, State Secretary, Austrian Federal Ministry of Science, Research and Economy, and Bai Chunli, President, TWAS</i>	<i>Festive Hall</i>
15:00-15:15	Harald Mahrer, State Secretary, Federal Ministry of Science, Research and Economy, Austria	
15:15-15:30	Naledi Pandor, Minister of Science and Technology, South Africa	
15:30-15:45	Vaughan Turekian, Science and Technology Adviser to the Secretary of State, USA	
15:45-16:00	Jin-Pei Cheng, former Vice Minister, Ministry of Science and Technology, China (representing Gang Wan, Minister)	
16:00-16:30	<i>Refreshments</i>	<i>Main Hall</i>
16:30-16:45	Wanderley de Souza, (representing Celso Pansera, Minister of State, Ministry of Science, Technology and Innovation), Brazil	
16:45-17:00	Igor Cesar, Ambassador of the Republic of Rwanda to Germany	
17:00-18:00	<i>Discussions</i>	
18:00-18:20	<b>Abdus Salam Medal Lecture</b> Chair: C.N.R. Rao <i>Learning with Abdus Salam</i> Jacob Palis	<i>Festive Hall</i>
18:45	<i>Dinner</i>	<i>Main Hall</i>

## Friday, 20 November

*Location: Austrian Academy of Sciences*

08:15-10:20	<b>Symposium 2: Science and technology in Austria</b> Convener: Anton Zeilinger	<i>Festive Hall</i>
08:15-08:30	Brief Introduction by Convener	
08:30-09:00	Keynote: <i>Universal education as key to global sustainable development</i> – Wolfgang Lutz	
09:00-09:20	<i>Sustainability transition: Pathways to food and nutrition secure world agriculture</i> – Michael Hauser	
09:20-09:40	<i>How to be a global player in the middle ages: Byzantium between west and east</i> – Claudia Rapp	
09:40-10:00	<i>The discreet charm of quantum matter near absolute zero temperature</i> – Francesca Ferlino	
10:00-10:20	<i>RAF biology: From bench to bedside and back</i> – Manuela Baccarini	
10:20-11:00	<i>Refreshments</i>	<i>Main Hall</i>
11:00-13:00	<b>Symposium 3: Imaging for the advancement of science</b> Convener: Satyajit Mayor	<i>Festive Hall</i>
11:00-11:05	Brief Introduction by Convener	
11:05-11:35	<i>A new horizon in structural biology using electron cryomicroscopy (cryoEM)</i> – Richard Henderson	
11:35-12:05	<i>The challenge of doing structural biology in situ</i> – Wolfgang Baumeister	
12:05-12:35	<i>Advanced scanning probe microscopies - The eyes and tools of nanotechnology</i> – Harald Fuchs	
12:35-13:00	<i>Imaging at the nanoscale reveals "life at the cell's edge"</i> – Satyajit Mayor	
13:00-14:00	<i>Lunch</i>	<i>Main Hall</i>
14:00-17:00	<b>Lectures by Awardees of TWAS 2014 Prizes (parallel sessions)</b>	
	<ul style="list-style-type: none"> <li>Biological and Earth Sciences Chair: Ana Belen Elgoyhen</li> </ul>	<i>Festive Hall</i>
	<ul style="list-style-type: none"> <li>Physical Sciences Chair: Ajay Sood</li> </ul>	<i>Meeting Room</i>
14:00-14:30	Agricultural Sciences <i>Nutrient management for food security and sustainability</i> Zhang Fusuo	Chemistry <i>Ultrathin semiconductors: Chemistry, challenges and opportunities in energy conversion</i> Xie Yi
14:30-15:00	Biology	Engineering Sciences

	<i>Molecular and functional genetics of food intake and body weight regulation</i> Marcelo Rubinstein	<i>Transition to turbulence in a soft-walled microchannel</i> Viswanathan Kumaran
15:00-15:30	Earth Sciences <i>Asian continental growth in the Phanerozoic: Zircon Hafnium isotopic constraints</i> Chung Sun-Lin	Engineering Sciences <i>Semiconductor science and technology: A driver and an enabler for the modern information era through the Internet of Things</i> Lu Chih-Yuan
15:30-16:00	Medical Sciences <i>The development of anti-IgE therapy for the treatment of severe asthma and allergy</i> Chang Tse Wen	Mathematics <i>Recent advances in trust region algorithms</i> Yuan Ya-xiang
16:00-16:30	Medical Sciences <i>Hepatocellular carcinoma: Molecular pathogenesis, cell signalling, and cancer stem cells</i> Irene Oi Lin Ng	Physics <i>Precision Higgs physics at the LHC</i> Daniel de Florian
16:30-17:00	C.N.R. Rao Prize Chair: Wendimagedn Mammo Deneke <i>Geology of the Nepal Himalaya: Present knowledge of the Mountain-in-Making</i> Bishal Nath Upreti	TWAS-Celso Furtado Prize Chair: Elisa Reis <i>Understanding the relationship between technology and economic development</i> Rajah Rasiah
17:00–17:30	<i>Refreshments</i>	<i>Main Hall</i>
17:30-18:50	<b>Induction of new TWAS Members and Young Affiliates</b>	<i>Festive Hall</i>
18:50-19:00	<b>Screening of film about TWAS-CAS Centres of Excellence</b>	<i>Festive Hall</i>
19:00	<i>Dinner</i>	<i>Main Hall</i>

## Saturday, 21 November

Location: Austrian Academy of Sciences

08:30-10:30	<b>Symposium 4: Science for food security</b> <sup>2</sup> Convener: Moctar Toure				Festive Hall
08:30-08:35	Welcoming remarks by Convener				
08:35-09:00	<i>Food security: an information provider's perspective</i> – Michiel Kolman				
09:00-09:25	<i>Agriculture and food security: the challenges for science and policy</i> – Hans R. Herren				
09:25-09:50	<i>Food and nutritional security: technology and innovation opportunities and options</i> – Moctar Toure				
09:50-10:00	<i>A new paradigm for food security in the drylands</i> – M. Ajmal Khan				
10:00-10:25	<i>Vulnerability to food safety and nutrition security in Caribbean Community Countries (CARICOM): The case of Trinidad and Tobago</i> – Neela Badrie				
10:25-10:30	Discussions				
10:30-11:00	Refreshments				Main Hall
11:00-12:30	<b>Medal Lectures</b> Chair: Habib Firouzabadi				Festive Hall
11:00-11:45	<i>Quantum teleportation, entanglement, and Einstein's question "What is light?"</i> – Anton Zeilinger				
11:45-12:30	<i>Next generation cities: Towards sustainable urban futures</i> – Hans J.A. van Ginkel				
12:30-13:45	Lunch				Main Hall
13:45-14:30	<b>Invited Lectures on Social Sciences</b> Chair: Ratna Ghosh <i>The interdisciplinary nature of sustainable development</i> Ratna Ghosh <i>Priorities for implementing sustainable development goals</i> Lu Yonglong <i>Sustainable development goals and the value of science</i> Elisa Reis				Festive Hall
14:30-15:00	<b>Atta-ur-Rahman Prize Lecture</b> Chair: Romain Murenzi <i>Growth of visible-light-active photocatalytic inorganic crystals for energy conversion and environmental remediation</i> Mirabbos Hojamberdiev				Festive Hall
15:00-17:30	<b>Presentations by Young Affiliates and ÖAW's Young Academy members (parallel sessions)</b>				
	• Medical Sciences Chair: Vincent Titanji <i>Hall "Johannes"</i>	• Cell and Molecular Biology Chair: Imtiaz Ahmad <i>Theatre Hall</i>	• Physics and Mathematics Chair: Durmus Demir <i>Festive Hall</i>	• Chemistry and Earth Sciences Chair: Bina Siddiqui <i>Meeting Room</i>	
15:00-15:15	<i>Antihyperglycemic profile of a new bisindole alkaloid, erinidine, isolated from Hunteria umbellata seed extract</i> Adejuwon A. Adeneye	<i>Molecular mechanisms of drug resistance in cancer</i> Yusuf Baran	<i>Design and assembly of one-dimensional nanostructured materials for solar energy conversion</i> Nageh Allam	<i>Nitrotriacetic acid functionalized Adansonia digitata bio-adsorbent: A suitable adsorbent for waste water treatment in Africa</i> Adewale Adewuyi	
15:15-15:30	<i>Endocannabinoid signaling and synaptic function: New mechanism and synaptic rules</i> Andres E. Chavez Navarrete	<i>Drinking water as a source of transmission of antimicrobial resistant Salmonella spp. in Tamale Metropolis, Ghana</i> Frederick Adzitey	<i>A novel method for determining specific surface area and its application in characterizing lithium rechargeable batteries</i> Ahmed A.A. Al-Tabbakh	<i>Role of plant growth regulators in drought tolerance of vegetables: Pea (Pisum sativum L.)</i> Nudrat Aisha Akram	

<sup>2</sup> Symposium sponsored by the Elsevier Foundation

15:30-15:45	<i>Development of new liver X receptor modulators: a brass ring for drug discovery</i> Bahaa El-Dien El-Gendy	<i>Structural biology and medicinal chemistry strategies to the discovery of new bioactive compounds: Applications in infectious diseases</i> Rafael V. Carvalho Guido	<i>On the formation of stars and stellar clusters</i> Roberto Galván-Madrid	<i>Efficient thermoelectric 'waste heat to electrical energy' conversion in lead-free tin telluride</i> Kanishka Biswas
15:45-16:00	<i>The early immunologic events during vector-borne transmitted diseases</i> Flávia Ribeiro-Gomes	<i>Updates, challenges and opportunities of slime mold research in the Philippines</i> Thomas Edison Dela Cruz	<i>Direct and inverse problems with integral transmitting condition for mixed type equations with fractional derivatives</i> Erkinjon Karimov	<i>Elaborate ligand-based pharmacophore modeling coupled QSAR analyses unveiled new mTOR Inhibitors from the NCI, drug, and natural-product databases</i> Mohammad Khanfar
16:00-16:30	<i>Refreshments</i>			<i>Main Hall</i>
16:30-16:45	<i>Effectiveness of pregabalin usage among patients with uremic pruritus: A quasi longitudinal study</i> Tahir Mehmood Khan	<i>Mechanisms mediating methylmercury-induced neurotoxicity</i> Marcelo Farina	<i>A hitchhiker's guide to CR geometry</i> Bernhard Lamel	<i>Development of new chemotypes with potential antimalarial and anticancer activities</i> Henok Kinfe
16:45-17:00	<i>Pharmacogenomics: the unbiased, systematic and comprehensive search for therapeutic biomarkers in cancer</i> Sebastian Nijman	<i>Molecular causes of maternal age-related aneuploidy and infertility</i> Kikue Tachibana-Konwalski	<i>Optimizing the properties of photonic crystal fiber for THz wave guidance</i> S.M. Abdur Razzak	<i>Deeply supercooled liquid water</i> Thomas Lörting
17:00-17:15		<i>The need and challenges in biobanking and genomics for health research in sub-Saharan Africa</i> Alice Matimba	<i>Graphene: A potential candidate for next generation electronics</i> Samia Subrina	<i>A homogenous catalytic approach to biomass conversion to bio-fuels</i> Banothile Makhubela
17:15-17:30				<i>Carbon (IV) oxide corrosion of carbon steels and its inhibition by some imidazoline derivatives</i> Peter C. Okafor
17:30	<b>Closing Ceremony</b>			<i>Festive Hall</i>

*Location: City Hall of Vienna*

19:30	<i>Dinner</i>	<i>Festsaal</i>
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