



*TWAS 11th General Conference &  
20th General Meeting  
Durban, South Africa, 20-23 October 2009*

*Detailed Programme*  
(as of 13 October 2009)

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**Sunday, 18 October, 2009**

*Dark Shade: Closed sessions (for committee members only)*

**Venue: International Convention Centre (ICC)**

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12:00-19:00

**REGISTRATION**

ICC Durban Main Foyer

14:00-17:00	<b>Parallel Meetings of Committees</b> <ul style="list-style-type: none"><li>▪ <i>Standing Committee on Biotechnology</i></li><li>▪ <i>TWAS-TWOWS Advisory Panel for Women in Science</i></li><li>▪ <i>Nominations &amp; Selections Committee</i></li></ul>	Meeting Room 11 AB Meeting Room 11 CD Meeting Room 11 E
17:00-19:00	<b>TWAS Regional Offices Annual Meeting</b> <p>Arab Region: M. El-Faham Sub-Saharan African Region: T. Egwang Latin American and Caribbean Region: L. Davidovich Central and South Asian Region: V. Krishnan East and South-East Asia and Pacific Region: Lü Yonglong, Fu Shuqin</p>	Meeting Room 11 AB
19:30	<i>Dinner at Hotels</i>	

## Monday, 19 October, 2009

Dark Shade: Closed sessions (for committee members only)

Venue: International Convention Centre (ICC)

08:00-19:30

### REGISTRATION

ICC Durban Main Foyer

08:30-10:00	<b>TWAS Prizes Committee Meeting</b>		Meeting Room 11 AB
10:00-10:15	Refreshments		Hall 2 AEFD
10:15-13:00	<b>TWAS Elections Committee Meeting</b>		Meeting Room 11 AB
13:00-14:30	Lunch		Hall 2 AEFD
14:30-16:30	<b>Joint Meeting of TWAS Finance and Programme Committees</b>		Meeting Room 11 AB
14:30-16:30	<b>Presentations by Young Affiliates: Biological Sciences</b> Chair: J.E. Dutra de Oliveira	Hall 2BH	<b>Presentations by Young Affiliates: Physical Sciences</b> Chair: M. Tchunte
14:30-14:50	Modulating the immunological synapse to enhance pathogen immunity and prevent autoimmunity A. Kalergis		Effects of magnetic interparticle coupling on the magnetic properties of ferromagnetic nanoparticle systems M. Knobel
14:50-15:10	Cyclooxygenase pathway and its relationship to some growth factors in experimental diabetic gestation M.K. Ahmed		Diophantine approximations, dynamical systems and fractal geometry: The Lagrange spectrum C.G. Moreira
15:10-15:30	Genomic dissection of primary congenital glaucoma: A blinding disorder in children in the developing world S. Chakrabarti		Quantum entanglement S.P. Walborn
15:30-15:50	Moringa - a food plant with multiple uses F. Anwar		Probing intra- and inter-molecular electronic processes with scanning probe microscopy Xiaohui Qiu
15:50-16:10	Genetic analyses of pathogenicity and resistance in the Magnaporthe and Fusarium-wheat pathosystem C.J. Cumagun		Poly (vinyl chloride) based polymer electrolytes for lithium polymer cells S. Ramesh
16:10-16:30	Increasing threats to forest health in South Africa B. Slippers		Modified analogues of kaolinite clay: Implications and applications E.I. Unuabonah
16:30-16:45	Poster Presentations by Young Affiliates and Research Unit Leaders Refreshments		Hall 2 AEFD

TWAS 11<sup>th</sup> General Conference and 20<sup>th</sup> General Meeting -- Programme

Monday, 19 October 2009 (continued)

16:45-19:30	<b>TWAS 29<sup>th</sup> Council Meeting</b> ( <i>Council Members only</i> )		<i>Meeting Room 11 AB</i>
16:45-18:05	<b>Presentations by Young Affiliates: Biological Sciences</b> <i>Chair: J.E. Dutra de Oliveira</i>	<i>Hall 2BH</i>	<b>Presentations by Young Affiliates: Physical Sciences</b> <i>Chair: M. Tchunte</i>
16:45-17:05	<i>Leishmaniasis in Sri Lanka: a new addition to the disease burden in Indian subcontinent</i> Y.D. Siriwardana		<i>A Bayesian spatial model for assessing risks of livelihood vulnerability on childhood diseases</i> L.N. Kazembe
17:05-17:25	<i>Discovery of specific enzyme-inhibiting natural products for the treatment of malaria and other neglected diseases</i> A. Khalid		<i>Solution of advection-diffusion equations by higher order Eulerian Lagrangian localized adjoint methods</i> M. Al-Lawati
17:25-17:45	<i>Exploring the nutritional and functional value of Nile perch processing waste</i> J.H. Muyonga		<i>The beauty of mathematics in process integration</i> T. Majozi
17:45-18:05			<i>The fundamental group scheme of algebraic varieties</i> Phung Ho Hai
20:00	<i>Cocktail Dinner</i> <i>Launch of the ASSAf Book on 'The State of Science in South Africa'</i>		<i>ICC – Fig Tree Courtyard</i>

## Tuesday, 20 October, 2009

Dark Shade: Closed sessions (for members only)

Venue: International Convention Centre (ICC)

08:30-11:00	<b>TWAS 20<sup>th</sup> General Meeting (TWAS Members only)</b>	Hall 2 BH
11:00-11:30	Refreshments	Hall 2 AEFD
11:30-13:00	<b>Opening Ceremony and Presentation of Prizes, Medals and Certificates</b>	Hall 2 C
11:30-12:15	Opening Addresses	
12:15-13:00	Presentations of Prizes and Medals	
	Ernesto Illy Trieste Science Prize to: (To be announced)	
	TWAS Prizes to:	<ul style="list-style-type: none"> <li>▪ Jei-Fu Shaw, Agricultural Sciences</li> <li>▪ C. Arias &amp; S. López, Biology</li> <li>▪ Zhao Dongyuan, Chemistry</li> <li>▪ Sun Jimin, Earth Sciences</li> <li>▪ A. Sharma, Engineering Sciences</li> <li>▪ V. Srinivas, Mathematics</li> <li>▪ S.S. Abdool Karim, Medical Sciences</li> <li>▪ A.H. Chamseddine, Physics</li> <li>▪ P.K. Kaw, Physics</li> </ul>
	TWAS Regional Prizes to:	<ul style="list-style-type: none"> <li>▪ A. Badran, Jordan – Arab Region</li> <li>▪ V. Baryamureeba, Uganda – Sub-Saharan African Region</li> <li>▪ L. Bevilacqua, Brazil – Latin American and Caribbean Region</li> <li>▪ A.U. Rahman, Pakistan – Central and South Asian Region</li> <li>▪ Wu Cheng-Wen, Taiwan, China – East and South-East Asia and Pacific Region</li> </ul>
	C.N.R. Rao Prize to:	<ul style="list-style-type: none"> <li>▪ Akiça Bahri</li> </ul>
	Abdus Salam Medal to:	<ul style="list-style-type: none"> <li>▪ C.N.R. Rao</li> </ul>
	TWAS 2009 Medals to:	<ul style="list-style-type: none"> <li>▪ Wieland Gevers</li> <li>▪ Zhensheng Li</li> <li>▪ Sergio Rezende</li> </ul>
13:00-14:00	Lunch	Hall 2 AEFD

TWAS 11<sup>th</sup> General Conference and 20<sup>th</sup> General Meeting -- Programme

Tuesday, 20 October 2009 (continued)

14:00-14:45	<b>Abdus Salam Medal Lecture</b> Chair: C. Chetsanga <i>Advanced materials research from a developing country</i> C.N.R. Rao	Hall 2 BH
14:45-15:30	<b>Invited Lecture</b> Chair: A. Ndiaye <i>Naked Emperors</i> D. Block	Hall 2 BH
15:30-15:45	<i>Refreshments</i>	Hall 2 AEFD
15:45-18:15	<b>Symposium I: S&amp;T Development in South Africa</b> Convener: A. van Jaarsveld	Hall 2 BH
15:45-16:15	<i>Department of Science and Technology: Overview of the science and technology landscape in South Africa</i> P. Mjwara	
16:15-16:30	<i>DST-NRF Centre of Excellence in Biomedical TB Research: TB - old disease, new tricks</i> P. van Helden	
16:30-16:45	<i>DST-NRF Centre of Excellence in Birds as Keys to Biodiversity: The Percy FitzPatrick Institute - An overview</i> P. Hockey	
16:45-17:00	<i>DST-NRF Centre of Excellence in Catalysis: c*change - a large distributed research network in South African SET</i> M. Claeys	
17:00-17:15	<i>DST-NRF Centre of Excellence in Epidemiological Modelling and Analysis: Epidemiological Modelling at SACEMA 2006-2010</i> L. Scheepers	
17:15-17:30	<i>DST-NRF Centre of Excellence in Tree Health Biotechnology: Supporting post-graduate student education</i> B. Slippers	
17:30-17:45	<i>DST-NRF Centre of Excellence in Invasion Biology: Highlights from the first 5 years</i> D. Richardson	
17:45-18:00	<i>DST-NRF Centre of Excellence in Strong Materials: AMSEN-experiences of an African Network</i> L. Cornish	
18:00-18:15	<i>Academy of Science of South Africa - Overview of the book on the State of Science in South Africa</i> R. Diab	

TWAS 11<sup>th</sup> General Conference and 20<sup>th</sup> General Meeting -- Programme

Tuesday, 20 October 2009 (continued)

18:30-19:30	<p><b>Induction of new TWAS Members and Young Affiliates</b></p> <p><i>Chair: J. Palis</i></p> <p><i>TWAS Members:</i></p> <p>Agricultural Sciences: E. Bekele</p> <p>Structural, Cell &amp; Molecular Biology: T. Blundell, R.V. Hosur</p> <p>Biological Systems &amp; Organisms: C.M. Morel, M. Shameel</p> <p>Medical &amp; Health Sciences: V. Moura Neto</p> <p>Earth Sciences: V.P. Dimri</p> <p>Chemical Sciences: K. Bhattacharyya, Y. Cao, T.K. Chandrashekar, E. Dagne, S. McDowell</p> <p>Engineering Sciences: N.K. Gupta, D.-T. Lee, V.C. Mow</p> <p>Mathematical Sciences: L.M. Alvarez Diaz</p> <p>Physics: R.A. Ganeev, J.A.H. Jornada, R. Ramaswamy</p>	Hall 2 C
	<p><i>TWAS Young Affiliates:</i></p> <p>Arab Region: A.Khalid, M.K. Ahmed, M. Al-Lawati</p> <p>Central &amp; South Asia: F. Anwar, S. Chakrabarti, Y.D. Siriwardana</p> <p>East &amp; South East Asia &amp; Pacific: C.J.R. Cumagun, H.H. Phung, Qiu Xiaohui, S. Ramesh,</p> <p>Latin America &amp; Caribbean: S.P. Walborn, A. Kalergis</p> <p>Sub-Saharan Africa: L.N. Kazembe, T. Majozi, J.H. Muyonga, B. Slippers, E.I. Unuabonah</p>	
20:00	Formal Dinner at ICC	Hall 1AB

**Wednesday, 21 October 2009**

Venue: International Convention Centre (ICC)

08:30-09:15	Invited Lecture Chair: J. Palis <i>Truth and beauty in mathematics and physics</i> M. Atiyah	Hall 2 BH
09:15-10:00	<b>Ernesto Illy Trieste Science Prize Lecture - 1</b> Chair: I. Serageldin To be announced	Hall 2 BH
10:00-10:30	Refreshments	Hall 2 AEFD
10:30-13:00	<b>TWAS 2009 Medal Lectures</b> Chair: F. Al-Kharafi	Hall 2 BH
10:30-11:15	<i>Biomedical science in two worlds</i> W. Gevers	
11:15-12:00	<i>The contribution of distant hybridization with decaploid <i>Agropyron elongatum</i> to wheat improvement in China</i> Li Zhensheng	
12:00-12:45	<i>Making waves with spins for 40 years</i> S. Rezende	
13:00-14:30	Lunch	Hall 2 AEFD
14:30-16:30	<b>Symposium 2: Impact of Global Financial Crisis on Research &amp; Education in Developing Countries</b> Convener: M.H.A. Hassan	Hall 2 BH
14:30-14:50	N. Pandor, Minister of Science & Technology, South Africa	
14:50-15:10	S. Rezende, Minister of Science & Technology, Brazil	
15:10-15:30	P. Chavan, Minister of Science & Technology, India	
15:30-15:40	J.-P. Ezin, Commissioner, Human Resources, Science & Technology, African Union	
15:40-15:50	K.Omi, Founder and Chairman, Science and Technology in Society (STS) Forum and Former Minister of Finance of Japan	
15:50-16:30	General discussion and conclusions	
16:30-17:00	Refreshments	Hall 2 AEFD

TWAS 11<sup>th</sup> General Conference and 20<sup>th</sup> General Meeting -- Programme

Wednesday, 21 October 2009 (continued)

17:00-19:00	<b>Symposium 3: Astronomy in Developing Countries</b> <i>Convener: G. Ellis</i>	<i>Hall 2 BH</i>
17:00-17:20	<i>Radio Astronomy in Africa: New instruments and opportunities</i> J. Jonas	
17:20-17:40	<i>Frontiers of radio astronomy: The giant metrowave radio telescope in India</i> G. Swarup	
17:40-18:00	<i>Chemical composition of planetary nebulae</i> S. Torres-Peimbert	
18:00-18:20	<i>Two dimensional spectroscopy: A new look to the universe</i> J. Steiner	
18:20-18:40	General discussion and conclusions	
19:30	<i>Party at the beach hosted by the eThekweni (Durban) Municipality</i>	



**Thursday, 22 October 2009**

Venue: *International Convention Centre (ICC)*

08:30-09:15	<b>Ernesto Illy Trieste Science Prize Lecture - 2</b> <i>Chair: F. Shah</i> To be announced	<i>Hall 2 BH</i>
09:15-10:35	<b>Presentations by recipients of TWAS Regional Prizes</b> <i>Chair: M.T. Clegg</i>	<i>Hall 2 BH</i>
09:15-09:35	<i>One way ticket to science</i> A. Badran	
09:35-09:55	<i>The university in times of cultural shock</i> L. Bevilacqua	
09:55-10:15	<i>Remarkable developments of science &amp; technology/higher education in Pakistan</i> A.U. Rahman	
10:15-10:35	<i>Biomedical research and development in Taiwan</i> Cheng-Wen Wu	
10:35-11:00	<i>Refreshments</i>	<i>Hall 2 AEFD</i>
11:00-13:00	<b>Symposium 4: Human Pre-History in Africa</b> <i>Convener: P.P. Majumder</i>	<i>Hall 2 BH</i>
11:00-11:30	<i>Origins of the human brain: The paleoneurological evidence</i> E. Bruner	
11:30-12:00	<i>Genomic reconstruction of human evolution and migration</i> P.P. Majumder	
12:00-12:30	<i>The genomic landscape of South African populations</i> H. Soodvall	
12:30-13:00	General discussion and conclusions	
13:00-14:30	<i>Lunch</i>	<i>Hall 2 AEFD</i>

TWAS 11<sup>th</sup> General Conference and 20<sup>th</sup> General Meeting -- Programme

Thursday, 22 October 2009 (continued)

14:30-16:30	<p><b>Lectures by Awardees of TWAS 2008 Prizes</b> <i>Hall 2 BH</i></p> <p><b>Biological &amp; Earth Sciences</b></p> <p><i>Chair: C. Wambebe</i></p>	<p><b>Lectures by Awardees of TWAS 2008 Prizes</b> <i>Hall 2 C</i></p> <p><b>Physical Sciences</b></p> <p><i>Chair: I. Eltayeb</i></p>
14:30-14:50	<p><i>Biotechnology for the production of value-added products from agricultural produce</i></p> <p>Jei-Fu Shaw, Agriculture</p>	<p><i>Self-organized meso-fabrication and functionalities in confined soft materials</i></p> <p>A. Sharma, Engineering Sciences</p>
14:50-15:10	<p><i>Identification of host proteins required for rotavirus infection through a functional genomic screen</i></p> <p>C. Arias and S. López, Biology</p>	<p><i>New advances in mesostructured materials</i></p> <p>Zhao Dongyuan, Chemistry</p>
15:10-15:30	<p><i>Prevention of HIV infection in young women in South Africa: the path to a new female-initiated HIV prevention technology</i></p> <p>S.S. Abdool Karim, Medical Sciences</p>	<p><i>Complete intersection points on affine varieties, and zero cycles</i></p> <p>V. Srinivas, Mathematics</p>
15:30-15:50	<p><i>Aeolian deposits and paleoclimate records in China</i></p> <p>Sun Jimin, Earth Sciences</p>	<p><i>Noncommutative geometry as the key to unlock the secrets of space-time</i></p> <p>A.H. Chamseddine, Physics</p>
15:50-16:10	<p><b>Lecture by Awardee of C.N.R. Rao Prize</b></p> <p><i>Chair: C. Wambebe</i></p> <p><i>Water challenges in sub-Saharan Africa: towards sustainable solutions</i></p> <p>Akiça Bahri</p>	<p><b>Lecture by Awardee of TWAS 2008 Young Scientist Prize in South Africa</b> <i>Hall 2 C</i></p> <p><i>Chair: I. Eltayeb</i></p> <p><i>Cosmic Rays and Solar Activity</i></p> <p>S. Ferreira</p>
16:10-16:30	<p><b>Lecture by Awardee of TWAS 2009 Young Scientist Prize in South Africa</b> <i>Hall 2 BH</i></p> <p><i>Chair: C. Wambebe</i></p> <p><i>Title to be announced</i></p> <p>E. van Heerden</p>	
16:30-17:00	<p><i>Poster Presentations by Young Affiliates and Research Unit Leaders</i></p> <p><i>Refreshments</i></p>	<i>Hall 2 AEFD</i>

TWAS 11<sup>th</sup> General Conference and 20<sup>th</sup> General Meeting -- Programme

Thursday, 22 October 2009 (continued)

17:00-19:00	<b>Presentations by TWAS Research Units Biological Sciences</b> <i>Chair: P. Berjak</i>	<i>Hall 2 BH</i>	<b>Presentations by TWAS Research Units Physical Sciences</b> <i>Chair: E. Dagne</i>	<i>Hall 2 C</i>
17:00-17:20	<i>Air pollution in Cotonou-Bénin: Biomarkers of exposition</i> L. Ayi-Fanou		<i>Development of nanofiltration membrane from rice husk ash and clay composite for water treatment</i> E.O. Dare	
17:20-17:40	<i>Cytosine arabinoside reduces the numbers of high proliferative potential colony forming cells (HPP-CFC) and granulocyte macrophage colony forming cells (GM-CFC) in vivo</i> J.E. Chisi		<i>Solar-powered membrane processes for drinking water production in Mali</i> A. Tolofoudye	
17:40-18:00	<i>Investigation in the structure, properties and reactivity of bioactive compounds</i> V. Mudogo		<i>Electrochemical synthesis and properties of conducting polymers: Applications in energy storage</i> M. Fall	
18:00-18:20	<i>Population structure of Africans: The quest for understanding genetic susceptibility to disease</i> M. Ibrahim		<i>Study of ionic conductivities for SOFC</i> Ismunandar	
18:20-18:40	<i>Characterization of microbial diversity in soda lakes of Kenya</i> H.I. Boga		<i>Optimisation of electrolytic processes applied to the promotion of a clean environment</i> E. Ngameni	
18:40-19:00	<i>The antibacterial bioactivity of some medicinal plants used in reproductive health care from Western Uganda</i> Kamatenesi-Mugisha		<i>Arsenic calamity in Bangladesh: its impact on agriculture through soil-water-plant system</i> G.K.M. Mustafizur Rahman	
19:30	<i>Dinner - Cultural Evening</i>		<i>Sibaya Casino</i>	

**Friday, 23 October 2009**

Venue: *International Convention Centre (ICC)*

<b>08:30-10:30</b>	<b>Symposium 5: Infectious Diseases</b> <i>Convener: W. de Souza</i>	<i>Hall 2 BH</i>
08:30-08:50	<i>Visceral leishmaniasis (Kala-azar) in Sudan: Epidemiology, clinical manifestations and immunopathology</i> A.M. El Hassan	
08:50-09:10	<i>Contribution of structural biology to the identification of potential vaccines and drug targets for infectious diseases</i> J.L. Silva	
09:10-09:30	<i>UB 05 a new marker of protective immunity to malaria</i> V.P. Titanji	
09:30-09:50	<i>Making a horse out of a mule: Tat DNA candidate vaccine for HIV-1</i> U. Ranga	
09:50-10:30	General discussion and conclusions	
<i>10:30-11:00</i>	<i>Refreshments</i>	<i>Hall 2 AEFD</i>
<b>11:00-12:45</b>	<b>Symposium 6: Science &amp; Technology Education for Development</b> <i>Convener: J. Jansen</i>	<i>Hall 2 BH</i>
11:00-11:20	<i>The involvement of science academies in science education improvement</i> J.E. Allende Rivera	
11:20-11:40	<i>Critical issues for effective science and technology education for development in sub-Saharan Africa</i> E.N. Sabiti	
11:40-12:00	<i>Innovation in science &amp; technology education for development - Doing more with less</i> M. Shamsheer Ali	
12:00-12:20	<i>Science and technology education at the interface between secondary school and higher education</i> D. Grayson	
12:20-12:45	General discussion and conclusions	
<b>12:45-13:15</b>	<b>Closing Ceremony</b>	<i>Hall 2 BH</i>
<b>13:15</b>	<i>Lunch</i>	<i>Hall 2 AEFD</i>