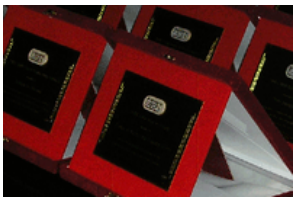
TWAS announces 2013 Prize winners

30 September 2013. TWAS has announced the winners of the TWAS Prizes for 2013 at the Academy's 24th General Meeting in Buenos Aires, Argentina.



TWAS Prizes are awarded in nine fields: Agricultural Sciences; Biology; Chemistry; Earth Sciences; Engineering Sciences; Mathematics; Medical Sciences; Physics; and Social Sciences (TWAS-Celso Furtado Prize). This year, there are 14 prize winners from Brazil (2), China (4), India (3), Jordan (1), Taiwan, China (3) and Turkey (1). The prize winners include 3 women.

Each TWAS Prize carries a cash award of USD15,000. The winners will lecture about their research at TWAS's 25th General Meeting in 2014, where they will also receive a plaque and the prize money.

Agricultural Sciences

> **ZHU Yongguan** of the Chinese Academy of Sciences' Institute of Urban Environment in Xiamen, China, has won the 2013 TWAS Prize in Agricultural Sciences for his systematic contribution to the understanding of arsenic dynamics in soil-plant systems, and mitigation of arsenic pollution, particularly in rice.

Biology (shared)

> **XU Guoliang** of the Institute of Biochemistry and Cell Biology within the Chinese Academy of Sciences' Shanghai Institutes for Biological Sciences in Shanghai, China, and **Sue Duan LIN-CHAO** of Academia Sinica's Institute of Molecular Biology in Taipei, Taiwan, China, share the 2013 TWAS Prize in Biology. Xu is recognized for his contribution to the understanding of the role and mechanism of DNA oxidation in epigenetic regulation of mammalian development. Lin-Chao is honoured for her contribution to the molecular mechanisms of RNA degradation machinery during post-transcriptional regulation in bacteria.

Chemistry (shared)

> **Ayyappanpillai AJAYAGHOSH**, CSIR Oustanding scientist at the Chemical Science and Technology Division of the National Institute for Interdisciplinary Science and Technology (NIIST) in Trivandrum, Kerala, India, and **Chung-Yuan MOU** of National Taiwan University's Department of Chemistry in Taipei, Taiwan, China, share the 2013 TWAS Prize in Chemistry. Ajayaghosh is recognized for his fundamental contribution to the understanding of the self-assembly of linear pi-systems to supramolecular architectures with diverse shape, size and properties, leading to a new class of soft functional materials. Mou is honoured for his pioneering contributions in the synthesis of mesoporous silica materials and his leadership in discovering its catalytic and biomedical applications.

Earth Sciences

> **LI Xia** of the Centre for Remote Sensing and Geographical Information Sciences of Sun Yat-sen University's School of Geography and Planning in Guangzhou, China, has won the 2013 TWAS Prize in Earth Sciences for his distinguished contribution to the development of cellular automata and agent-based models for land-use simulation and planning for sustainable land development in China.

Engineering Sciences (shared)

> **Indranil MANNA** of the Indian Institute of Technology (IIT) in Kanpur, Uttar Pradesh, India, and **Mohammad Ahmad Al-Nimr** of the Mechanical Engineering Department of Jordan University of Science and Technology in Irbid, Jordan, share the 2013 TWAS Prize in Engineering Sciences. Manna is recognized for his outstanding contributions in establishing microstructure-property correlations in nanometric materials. Al-Nimr is honoured for his contribution to our understanding of the behaviour of many energy devices, systems and processes that utilize, generate, convert, store and manage energy in an efficient, economical and environment-friendly

manner.

Mathematics

Artur AVILA of the Instituto de Matemática Pura e Aplicada in Rio de Janeiro in Brazil has won the 2013 TWAS Prize in Mathematics. He is recognized for his fundamental contributions to the theory of renormalization in low-dimension dynamical systems, to the theory of one-dimensional Schrödinger operators and related co-cycles, to the theory of Teichmüller flow, interval exchange transformations and translation flows.

Medical Sciences (shared)

Mei-Hwei CHANG of the Department of Pediatrics at National Taiwan University Hospital in Taipei, Taiwan, China, and **Turgay DALKARA** of the Institute of Neurological Sciences and Psychiatry of Hacettepe University in Ankara, Turkey, share the 2013 TWAS Prize in Medical Sciences. Chang is recognized for her contribution to proving the effect of hepatitis B vaccine in preventing human hepatocellular carcinoma and promoting the concept of cancer-preventive vaccine. Dalkara is recognized for his contribution to our understanding of molecular and cellular mechanisms leading to post-ischemia brain damage and migraine.

Physics (shared)

Rajesh GOPAKUMAR of the Harish-Chandra Research Institute in Allahabad, India, and **Marcos PIMENTA** of the Department of Physics of the Federal University of Minas Gerais (UFMG) in Belo Horizonte, Brazil, share the 2013 TWAS Prize in Physics. Gopakumar is recognized his discovery of duality symmetry between a class of two-dimensional conformal field theories and higher-spin theory in three-dimensional anti-de Sitter space. Pimenta is honoured for his contribution to our understanding of the optical and electronic properties of carbon nanomaterials (nanotubes and graphenes) using resonance Raman spectroscopy.

TWAS-Celso Furtado Prize in Social Sciences

ZHANG Linxiu of the Chinese Academy of Sciences' Center for Chinese Agricultural Policy in Beijing, China, has won the 2013 TWAS-Celso Furtado Prize in Social Sciences. She is recognized for her policy-relevant studies on rural development in China.