

IAS Distinguished Lecture

Materials Genome Initiative and Materials Informatics

Professor Tong-Yi Zhang

Materials Genome Institute, Shanghai University, Shanghai, China

Date : 9 February 2018 (Friday)

Time : 10:30am – 12:00nn (*Light refreshments will be served from 10:00am to 10:30am*)

Venue : Connie Fan Multi-media Conference Room, 4/F, Cheng Yick-chi Building,
City University of Hong Kong



Abstract

This presentation briefly introduces the concept of Materials Genome Initiative (MGI) and Materials Informatics. Materials informatics is growing extremely fast by integrating machine learning with materials science and engineering, where techniques, tools, and theories drawn from the emerging fields such as data science, internet, computer science and engineering, digital technologies, and artificial intelligence are applied to the materials science and engineering to accelerate materials, products and manufacturing innovations. Preliminary works about the data-driven development of a formula of time, stress, and temperature dependent deformation (creep and stress relaxation) and the Bayesian statistical analysis of the size-dependent strength of concrete are introduced here to illustrate the concept of materials informatics, where sufficient data are necessary prerequisites. Building-up materials database is urgent. In addition to the financial support from funding agents, every member in the materials community shall be willing to share his/her own materials data.

Biography

Tong-Yi Zhang earned Master degree in 1982 and PhD in 1985, majoring in materials physics, from University of Science and Technology Beijing, China. From 1993 to 2015, he worked at Hong Kong University of Science and Technology, as Lecturer, Associate Professor, Professor, Chair Professor, and Fang Professor of Engineering. He full-time works now at Shanghai University, as the founding dean of the Materials Genome Institute, Shanghai University, and the founding dean of the Shanghai Materials Genome Institute. His research interests include mechanical properties of materials, micro/nanomechanics, surface stress of solids, fracture, thin films, microbridge tests, thermodynamics of materials, diffusion and phase transformation, and phase field simulations. He has authored and co-authored more than 230 SCI journal papers. He was a vice president of the International Congress on Fracture (ICF) 2013-2017 and now is a director of ICF executive committee. He was a vice president of The Far East and Oceanic Fracture Society 2001-2016. He was a recipient of the Second Prize of 2007 State Natural Science Award, China, the Second Prize of 1987 State Natural Science Award, China, and the 1988 National Award for Young Scientists, China. He became ICF Fellow in 2013, Fellow of the Hong Kong Academy of Engineering Sciences in 2012, member of Chinese Academy of Sciences in 2011, Senior Research Fellow of Croucher Foundation, Hong Kong, in 2003, Fellow of ASM International, USA, in 2001. He was Associate Editor-in-Chief of Science China Technological Sciences 2013 – 2017 and Editor-in-Chief since 2018. He is also Fracture and Continuum Mechanics Subject-Editor of the journal, Theoretical and Applied Fracture Mechanics (2013 – present).



Online registration: www.cityu.edu.hk/ias/event

All are welcome

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