NUS Department of Mechanical Engineering

The Mechanical Engineering Department cordially invites you to our:

DEPARTMENT SEMINAR

Topic:	**What is NCMS?** **Meeting Assessment Challenges of Materials Performance and Safety**
Speaker:	**Professor Sun Dongbai**
Date:	**Thursday, 17 November 2011**
Time:	**3:00 pm – 4:00 pm**
Venue:	**EA-06-04** *(map of NUS can be found at http://www.nus.edu.sg/campusmap/)*

Abstract

First of all, typical failure cases of engineering components in China are summarized. The exploration indicates that the previous study with standard material samples failed to predict the failure behavior of engineering components due to scale-effect and multi-factor coupling effects under complex service environment. The failure accidents cause serious economic loss, environment pollution and also pose a threat to public security.

In order to intensively investigate the failure behavior of engineering components, Materials Service Safety Assessment Facilities (MSAF), which was one of the twelve major infrastructure facilities during China's Eleventh Five-year Plan, was approved by Chinese National Development and Reform Commission. Besides of a numerical simulation systems and an open&shared supporting system, MSAF Project is constructing six large-scale physical test facilities, including multiphase flow environment, atmospheric environment, mechanical-chemical multi-field coupled environment, special regional environment, high temperature and high pressure vapor environment, and extreme/multi-factor coupled environment, respectively. MSAF mainly focuses on the typical failure behaviors of key engineering materials in the fields of power generation, energy, transportation, off-shore, and infrastructure et al.

Meanwhile, on the basis of MSAF, National Center for Materials Service Safety (NCMS) is established. NCMS aims at becoming an open platform for global experts to carry out researches on materials service safety, and provides services on material selection, failure analysis, lifetime prediction, and safety assessment to meet the society and industrial needs. Even at the present construction stage, NCMS actively takes on responsibilities for relevant research projects. Broad international cooperation and collaboration are promoted to speed up the tempo of becoming a part of global research network.

About the Speaker

Prof. Dongbai Sun is the Vice President of the University of Science and Technology Beijing (USTB), and the Director-general and Chief Engineer of the National Center of Materials Service Safety (NCMS), China. Before joining the NCMS, he was the professor at the School of Materials Science and Engineering, and served as the Director of Department of Science and Technology, USTB. Prof. Sun graduated with the B.S. degree from Hunan University in 1982, and received his M.S./Ph.D. degree from USTB in 1989/1992.

Prof. Sun has published more than 180 papers in various science and technology periodicals in the international and domestic journals, of which about 80 papers are cited by SCI/EI, and published 2 books. His research interests cover corrosion science, surface engineering technology, corrosion and protecting of petrochemical processing, surface nano-technology and engineering. Recently, Prof. Sun focuses on the emerging interdisciplinary fields: performance and safety evaluation of engineering structural materials and industrial equipments. He has carried out about more than 30 research and technology development projects which supported by the state, ministries and corporations, and received 5 patents.

Prof. Sun currently serves as the council member for Chinese Materials Research Society (C-MRS), the executive council member at Surface Engineering Committee of Chinese Mechanical Engineering Society (CMES), and he is the honorary council member for Chinese Society for Corrosion and Protection. He is also the member of editorial board of the periodical of 《Journal of Rare Earths》, 《Journal of the Chinese Rare Earth Society》, 《Materials Protection》and《China Surface Engineering》. He has been honored by the Chinese Ministry of Education as the Cross-century Excellent Talents in University, and he received numerous honors and awards including First and Second Level National Talent of "Million & Ten Million" Excellent Talents Project and Outstanding Contribution Expert of State.

****Admission is Free. All are welcome to attend.****