

PUBLIC LECTURE ANNOUNCEMENT

FACULTY OF ENGINEERING
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We are organising a series of public lunch time lectures that will highlight the progress of some of the research activities within the Faculty of Engineering

TOPIC	Mathematical Modeling of Industrial Processing Operations: Principles and Selected Applications
SPEAKER	Prof Arun Sadashiv Mujumdar (Minerals, Metals & Materials Technology Centre, M3TC and Mechanical Engineering Department)
CHAired BY	
DATE	17 October 2007 (Wednesday)
TIME	1pm to 2pm
VENUE	LT1, Faculty of Engineering, National University of Singapore NUS Campus Map & NUS: Faculty of Engineering
<i>**Free assorted sandwiches will be provided for the first 15 attendees.**</i>	

SYNOPSIS

Most processing operations in diverse industrial sectors involve transfer of mass, energy and momentum with or without chemical reactions, phase changes etc. With the advent of powerful computing resources it is now accepted practice to apply mathematical modeling techniques to simulate complex industrial processes and examine them cost-effectively with minimal risk. With the help of a validated mathematical model one can carry out a parametric study and arrive at the optimal design and/or operating conditions without the high cost and risk involved in detailed experimental testing. Often, it is impossible to carry out extensive experimentation for a variety of reasons. Indeed, it is possible to examine innovative design concepts using models and thus intensify the innovation process which is central to R&D. This lecture will provide an overview of the basic concepts of mathematical modeling and present a number of illustrations drawn from the speaker's research and industrial experience. These include industrial drying of paper, application of pulse combustion to innovative drying technologies, novel spray dryer design concepts as well as applications in fuel cells, steelmaking processes. The objectives of such studies are to develop innovative design concepts that yield better energy efficiency, reduced emissions, safer operation, better product quality and improved cost-effectiveness

BIOGRAPHY

Arun S. Mujumdar is Professor in Mechanical Engineering Department and Centre Director of the newly formed Minerals, Metals and Materials Technology Centre (M3TC) supported by EDB. He holds a PhD in chemical engineering from McGill University. He was Professor of Chemical Engineering at McGill University (1975-2000) prior to joining NUS. Winner of several international awards for his research and professional contributions to heat and mass transfer in general and thermal drying technologies in particular, Professor Mujumdar has published over 300 journal papers and presented a similar number of conference papers including some 50 keynote and plenary lectures. He is Editor-in-Chief of Drying Technology (Taylor & Francis, NY) and the founding Program Chair of the widely acclaimed International Drying Symposium series (IDS) since 1978. He is author of two books and editor of over 50 books including the Handbook of Industrial Drying (3rd edition, CRC), many of which have been translated into several languages. Over 40 students have completed their PhD theses under his mentorship. Professor Mujumdar is Fellow of ASME (USA), CIC (Canada), IChE (India) and IES.