



The Institution of Engineers, Malaysia

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Pre AGM Talk on “Trilogy of Rare Earth Elements”

Organised by the Chemical Engineering Technical Division, IEM

BEM Approved CPD/PDP Hours: 2 Ref No: IEM16/HQ/331/T

Date: 1 October 2016 (Saturday)
Time: 9.00 am – 11.00 am
Venue: Auditorium Tan Sri Prof. Chin Fung Kee, Third Floor,
Wisma IEM, Petaling Jaya
Speaker: Professor Tan Ka Kheng

SYNOPSIS

Deng Xiaoping famously said in 1992 that “The Middle East has oil. China has rare earths.” Following China’s reduction of the export of the critical raw materials in 2009, some countries tried to neutralize China’s 95 percent global supply of rare earths. The performance and fate of three rare-earth plants will be scrutinized with four factors: Process technology, Profitability, Siting and HSE (health, safety and the environment). The RE trilogy tells of the tragic extinction of an old plant and the exuberance of trauma of a new one in Malaysia, and the bankruptcy of the world’s oldest and massively reworked plant in America. More important, their massive failures have very adverse impacts in industries and investment, although they also offer valuable insights and lessons to the public and bureaucrats, investors and users of rare earth elements. The myth of China’s monopoly of REE will be exposed. Substitutes and recycling of REE, alternative technology for efficiency improvement and new technology will be discussed briefly.

BIODATA OF SPEAKER

Professor Ka Kheng Tan studied Chemical Engineering at University of Birmingham (UK) in 1977 and Environmental Engineering at University of California at Berkeley in USA. He conducted PhD research at Cambridge University and developed the Theory of Transient Instability caused by unsteady-state diffusion in non-Newtonian liquids. He has more than 35 years’ experience in the academia as a lecturer and professor, and four years in industries, and provides expertise and consultancy service to government agencies, World Bank and private firms over the last thirty years. He was inaugural Head of Department of Chemical Engineering at University Putra of Malaysia and Director of School of Engineering and Science at Curtin University (Malaysia) before joining HELP University. Professor Tan is a pioneer and world leader in transient hydrodynamics instability theory driven by buoyancy, surface tension and shear force in Newtonian and non-Newtonian liquids, porous media and plasma. The theory has been successfully applied to the prediction of the boundary layer instability and the formation of mantle plumes in deep earth, which has been presented to the prestigious Penrose Conference and Beijing Geology University, IUTAM Symposium, Cambridge University and Tsinghua University.

ANNOUNCEMENTS TO NOTE:

- Preferential admission to talk shall be accorded to IEM members (pre-registration and online registration are NOT required).
- Non members may also attend the talk but will need to pay a registration fee of RM50 and an administrative fee of RM15. GST is inclusive.
- Members of affiliated organisations upon producing their membership cards will be exempted from paying registration fee. Administrative fee is nevertheless applicable.
- Limited seats are available on a “first come first served” basis (maximum 100 participants).
- IEM members are reminded to produce membership cards for confirmation of attendance (CPD purpose) failing which a fee of RM25 will be imposed. GST inclusive.

ADMINISTRATIVE FEE

- Kindly be informed that an administrative fee of RM15 is payable for talks organized by IEM. GST is inclusive.
- The fee would be used to cover overhead costs, building maintenance expenses as well as contribute to Wisma IEM Building Fund.
- All contributions will be deeply appreciated by IEM.
- Student Members are however exempted.

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Ir. Thayananthan Balakrishnan
Chairman

Chemical Engineering Technical Division, IEM