

You are cordially invited to a seminar organized by  
**Minerals, Metals and Materials Technology Centre (M3TC)** on

# **BIOETHANOL PRODUCTION IN BRAZIL**

## **Advances and Challenges**

Presented by

**Professor Maria Aparecida Silva**

School of Chemical Engineering  
University of Campinas (UNICAMP)



Bioethanol derived from sugarcane has been used as a fuel in Brazil for almost 100 years. Its evolution has followed an interesting history, from improvements in sugarcane production and processing to the development of co-generation systems for sugar mills providing bio-electricity that is sold to the grid.

Technology innovations developed in the last few decades have enabled the sugarcane agro-industry in Brazil to consolidate itself as a sustainable energy source. The current situation of bioethanol production will be presented along with future perspectives for production development. Selected research efforts towards development of a second generation ethanol production technology will be pointed out along with optimization of bioelectricity generation, current stage of the ethanol-chemical industry in Brazil, and the prospects for complete integrated biomass-bio-fuel-biomaterial-bio-energy commercial plants in the near future.

**ADMISSION IS FREE\***

1 March 2011 (Tuesday)

10.00am to 12.00pm

EA-06-03, Faculty of Engineering, National University of Singapore

[NUS Campus Map](#) & [NUS: Faculty of Engineering](#)

Please register attendance via email: [engljc@nus.edu.sg](mailto:engljc@nus.edu.sg)

\* Industry, government and academic personnel with appropriate technical background are invited to attend

## Minerals, Metals and Materials Technology Centre (M3TC)

Minerals, Metals and Materials Technology Centre (M3TC) was established in the Faculty of Engineering, National University of Singapore with the support from Economic Development Board in April 2007.

M3TC is a unique R&D centre that is actively involved in natural resources with particular emphasis on application based, research development and demonstration (RD&D) activities. Over the past three years, M3TC has delivered technological solutions to both the local and regional minerals industry across a range of commodities.

M3TC has also contributed specialist expertise to the consulting and professional development activities of relevant companies.

The centre's research aims to transform the minerals industry and has been able to generate cutting edge research work that optimizes the extraction and processing of minerals. It is our vision to become globally recognized in the minerals sector.

### Prof Maria Aparecida Silva



Dr Maria Aparecida Silva is Professor of Chemical Engineering at UNICAMP, Campinas in Sao Paulo, Brazil where she earned her PhD as well.

Her research areas are in drying, gas-solids flows, swirling flows, bio-fuels and bio-products. She has published extensively in these areas.

Her current research is in the development of second generation bio-fuels which includes production of ethanol from sugarcane bagasse as well as from sugarcane waste through enzymatic hydrolysis. Brazil is a world leader in production and utilization of ethanol from sugarcane. Dr Silva's research considers energetic integration of the whole process of sugar/ethanol/electricity production.