

# INFORMS Speaker Series

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## Applications of Optimization in Chemical and Refining Industries

Speaker

**Dr. Murali Gopalakrishnan**

Affiliation

**Principal Engineer,  
Lyondell Chemical Company**

**When: 10 AM, Friday, 3rd November, 2006**

**Where: Room 102 D, Engineering Bldg D2**

### Short Bio

Dr. Murali Gopalakrishnan is a Principal engineer at Lyondell Chemical Company's Chocolate bayou plant located near Houston, Texas. He is responsible for the Optimization of Olefins and Hydrocarbons units at the Chocolate bayou facility. Prior to joining Lyondell, he worked at Aspen Technology Inc from 1998 to 2005. While he was at Aspen Technology he implemented Real Time Optimization systems in many chemical units.

A native of India, Murali earned a B.S. and M.S degree in Chemical engineering from Indian Institute Of Technology, India. He also holds a Doctorate in Chemical engineering from Auburn University, USA.

### Abstract

Optimization tools are used extensively to solve various business problems in chemical and refining industries. Typical optimization problems include planning, scheduling, real time optimization, advanced process control and material balance reconciliation. This presentation will focus mainly on real time optimization and material balance reconciliation.

As the market conditions change, Real time Optimization (RTO) calculates the most profitable operating conditions, taking into account the operating constraints. Fundamental process models are used to represent the process units. The resulting problem is large, complex and non-linear.

Material balance is an important business function in chemical or refining units. Material balance is calculated using tank inventories, barge movements and process flow measurements. Despite extensive maintenance, flow measurements can have significant error. Material balance reconciliation optimally distributes the error across all the plant measurements leading to a good material balance.

Details can be found at

<http://www.uh.edu/~informatics/events/events.htm>.

If you have any questions regarding this event, please contact Dr. Gino Lim at 713-743-4194 or at [ginolim@uh.edu](mailto:ginolim@uh.edu).