

# TRANSACTIONS OF THE SPRING 2005 MEETING OF THE TEXAS TECH PROCESS CONTROL AND OPTIMIZATION CONSORTIUM

April 19, 2005

Karlene A. Hoo, James B. Riggs and Charles R. Cutler  
Department of Chemical Engineering  
Texas Tech University, Lubbock, Texas  
<http://www.che.ttu.edu/pcoc/>

## HIGHLIGHTS

- The presentations will be made available to the consortium members at the website, <http://www.che.ttu.edu/pcoc/>. Please contact Professor Hoo as (806) 742-3451 for login and password if assistance is needed.
- **Workshop & Panel Discussion:** The speakers and panel participants were Apostolos Georgiou (ExxonMobil), Bernie Corripio (Dow Chemical), Boyd Gochenour (Aspentech), Obi Joshi (ChevronTexaco), Rogier Pouwer (Honeywell), and Robert Morrison (Invensys) . Each provided their viewpoints on what is required to make real-time optimization successful. Their presentations are available to the member companies at our website. A DVD of the workshop and a CD of the presentations will be sent to each member company in approximately one month.
- **The first presentation business day,** “Wireless Sensors” by Peter Fuhr (Apprion). Peter gave a very entertaining and insightful glimpse into the issues associated with wireless sensors and wireless communications dealing with reliability, security, and standards with a 120+ slides in a 30-minute presentation.
- **The second presentation business day,** “Best Practices for RTO and APC” by Mark Darby from the University of Houston. Mark stressed the finer points of capturing and communicating benefits, identifying constraints early via feedback from operators & process engineers and updating the planning model based on RTO models.
- **The third presentation business day,** “Application of Data Based Methods for Design of Recombinant Proteins” by Naz Karim, Chair Dept of Chemical Engineering, TTU. The presentation describes the possibility of designing any glycoproteins (glycosylated protein) using data based approaches, such as neural networks. This is accomplished by training multiple neural networks using published data on glycoproteins.
- Karlene Hoo presented an overview of her research program. Karlene discussed her research on modeling and optimization of a spray drying process that produces hollow micro and nano hollow particles, interface between design and control of two integrated biological reactors that are part of the advanced life support systems being investigated for NASA’s human mission to the moon and Mars, improved design of a non-invasive device to aid in the hemodynamic transport of venous return in the long veins in the legs, and a fundamental model of drug transport to solid tumors.

- Jim Riggs presented an overview of his research program. He discussed the significance of the refinery-wide optimization study, nonlinear MPC applied to a reactive distillation column, and a new effort to develop software tools to assist engineers to effectively maintain RTO projects.
- There were representatives from the seven of the eight sponsors and eight visiting companies in attendance at the meeting. The visitors included representatives from Honeywell, Aspentech, Open Matrix Technologies , ExxonMobil, Apprion, Air Products, ChevronTexaco, and Invensys.
- The next workshop will be on “MPC Identification Methods and MPC Closed-Loop Identification.”

## ATTENDANCE

### *Member Representatives*

Brent Fetzer  
Citgo Refining  
Lake Charles, LA 70602

Tom Clinkscales  
Citgo Refining  
Lake Charles, LA

Jack Watts  
Conoco Phillips Petroleum Co.  
Borger, TX 79008-0271

Mark Bailey  
Conoco Phillips Petroleum Co.  
Borger, TX 79008-0271

John Eckhoff  
Citgo Refining  
Lake Charles, LA

Mike McCarty  
Control Consulting Inc  
1718 Fry Road Suite 430  
Houston, TX

Jay Wehrstedt  
Tembec  
Temiscaming, Quebec  
Canada

David Stanley  
Dow Chemical  
2301 N. Brazosport Blvd.  
Freeport, TX

Hemant Jha  
Applied Manufacturing Techs  
3200 Wilcrest Dr.  
Houston, TX

Yingwei Cai  
Celanese Clear Lake  
Houston, TX

Darrell Bond  
Clear Lake Plant  
Celanese  
Houston, TX

Matthew Hetzel  
Cutler Tech. Corp  
San Antonio, TX

Brian Ashcraft  
Dow Chemical  
2301 N. Brazosport Blvd.  
Freeport, TX 77541-3257

Bernie Corripio  
Dow Chemical  
Midlands, MI

Jerrel Schoenrock  
Pampa Plant  
Celanese  
Pampa, TX

Jimmy Caswell  
Pampa Plant  
Celanese  
Pampa, TX

*Visitors*

Bradley Houk  
ExxonMobil  
Baytown, TX 77520

Apostolos Georgiou  
ExxonMobil  
Fairfax, VA

Rogier Pouwer  
Honeywell  
Phoenix, AZ 85053

George Shen  
Air Products & Chemicals  
Allentown, PA

Maurice Jett  
Aspentech  
1293 Eldridge Parkway  
Houston, Texas 77077

Boyd Bischoff  
Aspentech  
1293 Eldridge Parkway  
Houston, Texas 77077

M. Boyd Gochenour  
Aspen Technology  
Houston, TX

Obi Joshi  
ChevronTexaco  
El Segundo, CA

Robert Morrison  
Invensys  
Houston, Texas

Mark Darby  
University of Houston  
Houston, TX

Steve Hendon  
eSimulation, Inc.  
Houston, TX 77058

Peter Fuhr  
Apprion, Inc.  
Moffett Field, CA

Obi Joshi  
ChevronTexaco  
ElSegundo, CA 90245

Maurice Jett  
Aspen Technology  
Houston, TX