

TRANSACTIONS OF THE FALL 2004 MEETING OF THE TEXAS TECH PROCESS CONTROL AND OPTIMIZATION CONSORTIUM

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<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 at (806) 742-4079 for login and password if assistance is needed.
- **Workshop & Panel Discussion:** The speakers and panel participants were Bradley Houk (ExxonMobil), Rob Hawkins (Aspentech), Steve Finlayson (AMT), and Charles Cutler (Cutler Technologies). Each provided their viewpoints on MPC Maintenance. Their presentations are available at the website to member companies. A video tape of the workshop is available to member companies.
- **The first presentation:** “Advanced Systems Integration and Control for Life Support” by David Overland (NASA JSC, Houston). David spoke about the need for bioregenerative technologies for air, water, solids and food, including crops that are required for long-duration human exploration missions. He stressed (i) Automation issues that involve self-controlling (internally controlled) Systems (software, sometimes AI), self-regulation through System Design (analog). (ii) Integration of systems. (iii) Integration between systems. (iv) Integration of operations. Lastly, he presented a “list” of challenges.
- **The second presentation:** “Rolling Average Emissions Control” by Scott Boyden (Alstom Power). Scott presented current and new operating permits as they relate to emissions control. He then contrasted traditional to new schemes of emission controls. In the new scheme, the control strategy must have the ability to predict future dynamic behavior of current value, and be able to control current and future values (time-awareness by the control scheme).
- **The third presentation:** “Operator Advising, Operator Training and Process Identification” by Matthew Hetzel (TTU BS & MS ChE 2002). Matt demonstrated Cutler Tech Corp’s (CTC) new tool for operator advisor. CTC’S training simulator software is used to emulate an operator console on a PC with multiple screens. CTC’s operator/trainer on-line real time background “ what if “ mode permits prediction of future responses based upon proposed operator changes. CTC’S real time operator advisor provides a real time background to advise the operator and a training background to teach the operator through the use of scenarios.

- **The fourth presentation:** Research and teaching activities of M. Naz Karim, new chair of Chemical Engineering at TTU. Naz discussed his research in biotechnology, process identification, fed-batch fermentation and process control.
- [Vikram Shabde](#) presented his progress on his Ph.D. research on “Modeling a Spray-Drying Process that Produces Hollow Micro-particles.” His progress included a fundamental model of the mechanisms that produce a hollow micro-particle, the numerical method to solve the system of partial differential equations and the accompanying boundary conditions. His future work is to model the entire spray-drying process. This work is sponsored by LANL and involves the collaboration of Dr. Uzi. Mann (TTU ChE), Dr. Gary Gladsyz and Dr. Neil Carlson both at LANL.
- Due to time constraints, both [Karlene](#) and Jim did not present their research programs. However, their presentations can still be found at <http://www.che.ttu.edu/pcoc/pres/>. A digital recording of the workshop will be available to the sponsors.
- There were representatives from the seven of the eight industrial sponsors and three visiting companies in attendance at the meeting. The visitors included NASA, Aspentech, and ExxonMobil.
- The next workshop will be on “Topics with RT-OPT.”

ATTENDANCE

Member Representatives

Brent Fetzer Citgo Refining Lake Charles, LA 70602	Darrel Bond Clear Lake Plant Celanese Houston, TX 77258	Michael D. Barham ConocoPhillips Petroleum Co. P.O. Box 271 Borger, TX 79008-0271
Tom Carroll ConocoPhillips Petroleum Co. P.O. Box 271 Borger, TX 79008-0271	Steve Finlayson Applied Manufacturing Techs 3200 Wilcrest Dr. Houston, TX 77042	Don Snowden Control Consulting Inc. 1718 Fry Road, Suite 430 Houston, TX 77084
Jay Wehrstedt Tembec 33 Kipawa Road Temiscaming, Quebec	Scott Boyden Alstom Power, Inc. 1409 Centerpoint Blvd. Knoxville, TN 37932-1962	Leo Smith Citgo Refining. Lake Charles, LA 70602
Michael Plunk Pampa Celanese Pampa, TX		

Visitors

Bradley Houk
ExxonMobil Chemicals
Baytown, TX 77520

David Overland
NASA JSC
Houston, TX

Matthew Hetzel
Cutler Tech Corp
San Antonio, TX