

TRANSACTIONS OF THE SPRING 2001 MEETING OF THE TEXAS TECH PROCESS CONTROL AND OPTIMIZATION CONSORTIUM

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HIGHLIGHTS

The presentations are available to consortium members at the website, <http://www.ttu.edu/pcoc/>. Please contact either Professor Riggs at (806) 742-1765 or Dr. Hoo at (806) 742-4079 for login and password if needed. The first presentation,

- The first presentation, “[Process Control Education in the 21st Century: Teaching in a Cooperative and Active-Learning Environment](#)” was given by Professor David Clough from Univ. Colorado at Boulder (CO). Professor Clough shared the educational process that included extensive very modern laboratory sequence and replacing traditional lectures with 41 active-learning workshops.
- The second presentation, “Fast Track APC” was given by Daniel Lee of Celanese, Clearlake Plant. The key messages include, establishing a team, identifying potential processes, and having open transfer of information between the team and the consultants.
- The third presentation, “PHILLIPS 66 CO.’S \$ Benefits Road Map In Using Honeywell Hi Spec’s Dynamic Training Simulator, a presentation that was prepared by David French and Jayesh Shah but presented by Jack Watts. All members were from the Borger site. Benefits of the simulator cited included, reduced startup time, operator skill enhancement/retainment, reduced training time for new operators, and new control applications testing.
- Student Presentations

Kishor Gudekar (advisor Jim Riggs) discussed a modeling and optimization study of an industrial vinyl acetate reactor. [The study showed 7.8% profit improvement for offline optimization and 3 % profit improvement for online optimization over the current reactor operating policy.](#)

J. Govindhakannan (advisor Jim Riggs) presented an application of single event kinetics to n-octane hydroisomerization and Hydrocracking. The approach is based on representing reactants and products as boolean matrices. The reactions are simulated by the various operations on the boolean matrices obeying rules of carbenium ion chemistry.

Zhenhua Tian (advisor Karlene Hoo) presented a methodology for transition control using an intelligent adaptive multiple model approach with a robust controller design. He demonstrated the robustness of this method on a reactor that transitions between two conversion states even when model uncertainty and unmeasured disturbance were present.

Jim Riggs presented an overview of his research program. He overviewed research efforts in two primary areas: process control and process optimization. He described studies on large-scale optimization, fixed-bed reactors, and distillation control.

Karlene Hoo presented an overview of her research program. She discussed her three thrust areas: (1) modeling and control of distributed processes, (2) transition control, (3) integrating operability and control considerations within the process design framework, and (4) batch systems. She introduced two new graduate students- Zdravko Stefanov (BS, MS – Univ. Sofia, Bulgaria) and Guangyao Jia (BS, MS – Florida Institute of Technology).

- **Workshop:** The theme was “Controller Performance Monitoring.” It was a joint presentation between Dean Kassman of AspenTechnologies and Richard Carr of Honeywell.
- The meeting date for the Spring meeting has been selected as April 2 and 3.
- The next workshop theme is “Real-time Optimization.”

ATTENDANCE

Member Representatives

Dean Kassman
AspenTech
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Doug Waterman
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Visitors

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Tembec Canada
Tecmiscaming, Quebec

Steve Hendon
Open Matrix Technologies
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