

# NETL 2009 Workshop on Advanced Process Engineering Co-Simulation (APECS)

Pittsburgh Airport Marriott Hotel, Pittsburgh, PA  
October 20-21, 2009



## AGENDA



**TUESDAY, OCTOBER 20, 2009 - THREE RIVERS ROOM**

- 7:00 - 8:00 a.m.      **Registration/Continental Breakfast - THREE RIVERS FOYER**
- 8:00 - 8:20 a.m.      **Welcome**
- *Ronald Breault*, U.S. Department of Energy, NETL
  - *Robert Romanosky*, U.S. Department of Energy, NETL
  - *Stephen E. Zitney*, U.S. Department of Energy, NETL

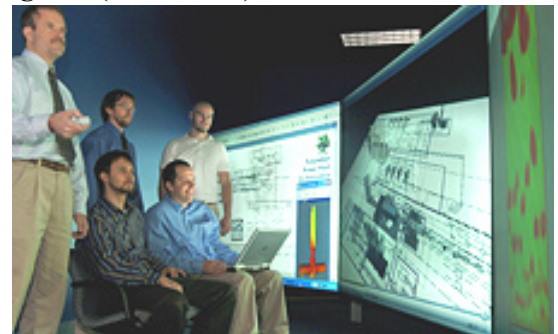


### APECS OVERVIEW

- 8:20 - 9:00 a.m.      **Advanced Process Engineering Co-Simulation for Design and Optimization of Fossil Energy Systems with Carbon Capture**  
*Stephen E. Zitney*, U.S. Department of Energy, NETL
- 9:00 - 9:40 a.m.      **APECS Software and Architecture Overview**  
*John Widmann*, ANSYS Inc.
- 9:40 - 10:00 a.m.      **BREAK - THREE RIVERS FOYER**
- 10:00 - 11:00 a.m.      **APECS Process/Equipment Co-Simulation Workflow (with Demo)**  
*Eric Ferguson*, ANSYS Inc.
- 11:00 - 11:20 a.m.      **Process-Industry CAPE-OPEN Software Standard Overview**  
*Stephen E. Zitney*, U.S. Department of Energy, NETL
- 11:20 - 11:40 a.m.      **APECS with ANSYS® Engineering Knowledge Manager™ (with Demo)**  
*Sorin Munteanu*, ANSYS Inc.
- 11:40 - 1:00 p.m.      **LUNCH - CORAOPOLIS/FINDLEY ROOM**

### APECS APPLICATIONS

- 1:00 - 2:00 p.m.      **APECS Applications at ALSTOM Power**  
*David Sloan*, ALSTOM Power
- 2:00 - 2:30 p.m.      **Process/Equipment Co-Simulation of a Syngas Chemical Looping Process**  
*L.S. Fan*, Ohio State University



# NETL 2009 Workshop on Advanced Process Engineering Co-Simulation (APECS)

Pittsburgh Airport Marriott Hotel, Pittsburgh, PA  
October 20-21, 2009

**TUESDAY, OCTOBER 20, 2009 - THREE RIVERS ROOM**

## **APECS APPLICATIONS**

- 2:30 - 3:00 p.m.      **Process/Equipment Co-Simulation of a Pulverized Coal Plant with Cooling Tower**  
*Wade Huebsch, West Virginia University*
- 3:00 - 3:20 p.m.      **BREAK - THREE RIVERS FOYER**
- 3:20 - 3:50 p.m.      **Process/Equipment Co-Simulation for Gasification- and Combustion-based Energy Applications**  
*Mike Bockelie, Reaction Engineering International*
- 3:50 - 4:20 p.m.      **Process/Equipment Co-Simulation: An Integrated Energy Company Perspective**  
*Lanre Oshinowo, ConocoPhillips*
- 4:20 - 4:50 p.m.      **Process/Equipment Co-Simulation: A Chemical Process Industry Perspective**  
*Kunle Ogunde, DuPont*
- 4:50 - 5:00 p.m.      **Wrap-Up**
- 5:00 p.m.              **Adjourn**

**WEDNESDAY, OCTOBER 21, 2009 - THREE RIVERS ROOM**

## **REDUCED-ORDER MODELS (ROMs)**

- 7:00 - 8:00 a.m.      **Registration/Continental Breakfast - THREE RIVERS FOYER**
- 8:00 - 8:20 a.m.      **Principal Component Analysis (PCA)-based ROMs**  
*Lorenz T. Biegler, Carnegie Mellon University*
- 8:20 - 9:00 a.m.      **APECS ROM Builder (with Demo)**  
*John Widmann, ANSYS Inc.*
- 9:00 - 9:40 a.m.      **APECS ROM Applications at ALSTOM Power**  
*David Sloan, ALSTOM Power*
- 9:40 - 10:00 a.m.    **Development of CAPE-OPEN ROMs for APECS Power Generation Applications**  
*Michael Bockelie, Reaction Engineering International*
- 10:00 - 10:20 a.m.   **BREAK - THREE RIVERS FOYER**
- 10:20 - 10:40 a.m.   **Recent Advances in Reduced-Order Modeling for Transport Phenomena**  
*Paul Cizmas, Texas A&M University*

# NETL 2009 Workshop on Advanced Process Engineering Co-Simulation (APECS)

Pittsburgh Airport Marriott Hotel, Pittsburgh, PA

October 20-21, 2009

WEDNESDAY, OCTOBER 21, 2009 - THREE RIVERS ROOM

10:40 - 11:00 a.m.      **Multizonal Reactor Network ROMs**  
*Scott Drennan, Reaction Design*

## APECS ADVANCED FEATURES

11:00 - 11:40 a.m.      **APECS Design Optimization**  
*David Sloan, ALSTOM Power*

11:40 - 1:00 p.m.      **LUNCH - CORAOPOLIS/FINDLEY ROOM**

1:00 - 1:20 p.m.      **Stochastic Analysis and Multi-Objective Optimization**  
*Urmila Diwekar, Vishwamitra Research Institute*

1:20 - 1:40 p.m.      **Integration of APECS and Aspen Plus Dynamics**  
*John Widmann, ANSYS Inc.*

1:40 - 2:20 p.m.      **Integration of APECS with VE-Suite for Virtual Plant Simulation (with Demo)**  
*Doug McCorkle, Iowa State University*

2:20 - 2:30 p.m.      **BREAK - THREE RIVERS FOYER**

## APECS CURRENT AND FUTURE DEVELOPMENT

2:30 - 3:00 p.m.      **APECS Development 2009/2010**  
*John Widmann, ANSYS Inc.*

3:00 - 5:00 p.m.      **APECS Roadmapping Session and Closing Remarks**

5:00 p.m.              **Adjourn**

U.S. Department of Energy - Office of Fossil Energy - National Energy Technology Laboratory