

2008 University Coal Research (UCR) Historically Black Colleges and Universities and Other Minority Institutions (HBCU/OMI) Contractors Review Conference



AGENDA



TUESDAY, JUNE 10, 2008 OPENING SESSION - BALLROOM 3

7:00 - 8:00 a.m. Registration and Continental Breakfast - Foyer 3

8:00 - 9:00 a.m. **Opening Session - Ballroom 3**

Paula Flenory, Gasification and Fuels Division
U.S. Department of Energy
National Energy Technology Laboratory

Edgar Klunder, Gasification and Fuels Division
U.S. Department of Energy
National Energy Technology Laboratory

Keynote Address *George Richards*, Focus Area Leader for Energy System Dynamics Division
Office of Research & Development
U.S. Department of Energy, National Energy Technology Laboratory

Session A - Ballroom 3

MODERATOR: *Patricia Rawls*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

9:10 - 9:40 a.m. Constitutive Models to Describe the Response of Materials for High Temperature
Operating Conditions
I. Joga Rao, New Jersey Institute Technology

9:40 - 10:15 a.m. Computational Design and Prototype Evaluation of Aluminide-Strengthened
Ferritic Superalloys for Power-Generating Turbine Applications (up to 1,033 K)
Peter K. Liaw, University of Tennessee, Knoxville

10:15 - 10:30 a.m. **Break - Foyer 3**

10:30 - 11:05 a.m. Computer Aided Multi-Scale Design of SiC-Si₃N₄ Nanoceramic Composites for
High-Temperature Structural Applications
Vikas Tomar, University of Notre Dame

11:05 - 11:40 a.m. Solid State Joining of High Temperature Alloy Tubes for USC and Heat Exchanger
Systems
Bimal Kad, University of California, San Diego

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SESSION A - BALLROOM 3

- 11:40 - 12:15 p.m. A Novel Low-Temperature Diffusion Aluminide Coating for Ultrasupercritical Coal-Fired Boiler Applications
Ying Zhang, Tennessee Technological University
- 12:15 - 1:30 p.m. **Lunch (on your own)**
- 1:30 - 2:05 p.m. Rheological Behavior of Dense Assemblies of Granular Materials
Sankaran Sundaresan, Princeton University
- 2:05 - 3:00 p.m. **Workshop: Project Management Expectations - Ballroom 3**
Facilitator: *Robert Bedick, U.S. Department of Energy, National Energy Technology Laboratory*
- 3:00 - 4:30 p.m. **Poster Session – Foyer 3**



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Session B - Ballroom 4

MODERATOR: *Steven Seachman*, Project Manger, Gasification & Fuel Division
U.S. Department of Energy, National Energy Technology Laboratory

9:10 - 9:40 a.m. Gasification Transport: A Multiphase CFD Approach & Measurements
Mayank Kashyap, Illinois Institute of Technology, Chicago

9:40 -10:15 a.m. Model Predictive Control of Integrated Gasification Combined Cycle (IGCC)
Power Plants
Priyadarshi Mahapatra, Rensselaer Polytechnic Institute

10:15 - 10:30 a.m. **Break**

10:30 - 11:05 a.m. Closures for Coarse-Grid Simulation of Fluidized Gas-Particle Flows
Sankaran Sundaresan, Princeton University

11:05 - 11:40 a.m. Development of Nanofiller-Modulated Polymeric Oxygen Enrichment
Membranes for Reduction of Nitrogen Oxides in Coal Combustion
Jianzhong Lou, North Carolina A&T State University

11:40 - 12:15 p.m. Development of Doped Nano-Porous Carbons for Hydrogen Storage
Angela Lueking, The Pennsylvania State University

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SESSION B - BALLROOM 4

12:15 - 1:30 p.m. **Lunch (on your own)**

1:30 - 2:05 p.m. Integrated Removal of NO_x, with Carbon Monoxide as Reductant, and Capture of Mercury in a Low Temperature Selective Catalytic and Adsorptive Reactor
Neville Pinto, University of Cincinnati

2:05 - 3:00 p.m. **Workshop: Project Management Expectations - Ballroom 3**
Facilitator: *Robert Bedick, U.S. Department of Energy, National Energy Technology Laboratory*

3:00 - 4:30 p.m. **Poster Session – Foyer 3**



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WEDNESDAY, JUNE 11, 2008

SESSION A - BALLROOM 3

7:00 - 8:00 a.m. Continental Breakfast - Foyer 3

MODERATOR: *Robert Kornosky*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

8:00 - 8:35 a.m. Novel Adsorbent-Reactants for Treatment of Ash and Scrubber Pond Effluents
Bill Batchelor, Texas A&M University

8:35 - 9:10 a.m. Value-Added Products from FGD Sulfite-Rich Scrubber Materials
Vivak M. Malhotra, Southern Illinois University - Carbondale

9:10 - 9:45 a.m. Fly Ash Catalyzed Mercury Oxidation Chlorination Reactions
Sukh Sidhu, University of Dayton

9:45 - 10:20 a.m. Analysis of Bromine-Mercury Reactions in Flue Gas
Geoffrey D. Silcox, University of Utah

10:20 - 10:35 a.m. Break - Foyer 3

MODERATOR: *Robie Lewis*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

10:35 - 11:10 a.m. Development of Criteria and Identification of Particle Cluster Size Based on
Measurements of Void Fraction in Gas-Solid Systems
David Roelant, Florida International University

11:10 - 11:45 a.m. Battery-Free Wireless Temperature Sensor
Yi Jia, University of Puerto Rico, Mayaguez

11:45 - 12:20 p.m. Innovative Coal Solids-Flow Monitoring and Measurement Using Phase
Doppler and Particles Scattering Techniques
Stephen Seong Lee, Morgan State University

12:20 - 12:55 p.m. Hybrid Wired-Wireless Silicon Carbide-Based Optical Sensor for Extreme Sensing
Environment Temperature
Mumtaz Sheikh, University of Central Florida

12:55 p.m. Adjourn

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WEDNESDAY, JUNE 11, 2008

SESSION B - BALLROOM 4

7:00 - 8:00 a.m. Continental Breakfast - Foyer - 3

MODERATOR: *Paula Flenory*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

8:00 - 8:35 a.m. Development of Low Cost Membranes for (Ta, Nb & Cellulose Acetate) for H₂/CO₂ Separation for WGS Reactors
Naidu Seetala, Grambling State University

8:35 - 9:10 a.m. Characterization of Atomic and Electronic Structures of Electrochemically Active SOFC Cathode Surfaces
Meilin Liu, Georgia Institute of Technology

9:10 - 9:45 a.m. Novel Low Temperature Solid State Fuel Cell
Chonglin Chen, University of Texas at San Antonio

9:45 - 10:20 a.m. Prediction of Combustion Stability and Flashback in Turbines with High-Hydrogen Fuel
Bobby Noble, Georgia Institute of Technology

10:20 - 10:35 a.m. **Break - Foyer 3**

10:35 - 11:10 a.m. Development of Comprehensive Detailed and Reduced Reaction Mechanisms for Syngas and Hydrogen Combustion
Chih-Jen Sung, Case Western Reserve University

11:10 - 11:45 a.m. Accurate Determination of Syngas Flame Speeds and Validation of Kinetic Mechanisms
Yiguang Ju, Princeton University

11:45 a.m. **Adjourn**