

2000 Conference Proceedings
University of Coal Research Contractors Review Meeting

Table of Contents

Papers and Presentations

NOx Control Technologies
Catalysts for Coal Conversion & Utilization
Emission Control Technologies
Engineering Fundamentals & Thermodynamics
Advanced Air Separation Technologies
CO₂ Capture/Sequestration Technologies
Hot Gas Cleanup
Minimization of Environmental Impact

Papers and Presentations

NOx Control Technologies Fundamental Study of Low-NOx Combustion Fly Ash Utilization [PDF-63KB] Eric M. Suuberg, Brown University
Pillared Clay as Superior Catalysts for Selective Catalytic Reduction of NO [PDF-20KB] Ralph T. Yang, University of Michigan
Development of High Activity, Coal-Derived, Promoted Catalysts Systems for NOx Reduction at Low Temperature [PDF-14KB] Joseph Calo, Brown University
Mechanistic Studies and Design of Highly Active Cuprate Catalysts for the Direct Decomposition and Selective Reduction of Nitric Oxide by Hydrocarbons to Nitrogen for Abatement of Stack Emissions [PDF-18KB] Ravindra Datta, Worcester Polytechnic Institute
Optimization of Coal Particle Flow Patterns in Low-NOx Burners [PDF-9KB] Gregory E. Ogden, University of Arizona
Development of a Novel Radiatively/Conductively Stabilized Burner for Significant Reduction of NOx Emissions and for Advancing the Modeling and Understanding of Pulverized Coal Combustion and Emissions [PDF-22KB] Stuart W. Churchill, University of Pennsylvania
Minimizing of NOx Emissions from Multi-Burner Coal-Fired Boilers [PDF-20KB] David Pershing, University of Utah
Development of Multi-Task Catalysts for Removal of Nox and Toxic Organic Compounds in Coal Combustion [PDF-13KB] Panagiotis G. Smirniotis, University of Cincinnati
Catalysts for Coal Conversion & Utilization Catalytic Gasification of Coal Using Eutectic Salt Mixtures [PDF-17KB] Yaw Yeboah, Clark Atlanta University
Novel Supported Bimetallic Carbide Catalysts for Coprocessing of Coal with Waste Materials [PDF-16KB] Chunshan Song, Pennsylvania State University

Study of Solvent and Catalyst Interactions in Direct Coal Liquefaction [PDF-8KB] Jasna Tomic, University of Delaware
Promoted Zinc Chromite Catalysts for Higher Alcohol Synthesis in a Slurry Reactor [PDF-23KB] George W. Roberts, North Carolina State University
Catalysts for High Cetane Ethers as Diesel Fuels [PDF-20KB] Kamil Klier and Richard Herman, Lehigh University

Emission Control Technologies
Effects of Fly Ash on Mercury Oxidation During Post Combustion Conditions [PDF-14KB] Robert C. Brown, Iowa State University
Combined Theoretical and Experimental Investigation of Mechanisms and Kinetics of Vapor-Phase Mercury Uptake by Carbonaceous Surfaces [PDF-13KB] Lindsey Munro and Seok-Joon Kwon, University of Pittsburgh
CO ₂ Sequestration and Recycle by Photosynthesis [PDF-9KB] Steven S.C. Chuang, University of Akron
Atomic-Level Imaging of CO ₂ Disposal as a Carbonate Mineral: Optimizing Reaction Process Design [PDF-20KB] Michael J. McKelvy, Arizona State University
Sampling, Analysis, and Properties of Primary PM-2.5: Application to Coal-Fired Utility Boilers [PDF-11KB] Allen Robinson, Carnegie Mellon University
Contribution of Semi-Volatile Organic Material to Ambient PM _{2.5} [PDF-12KB] Delbert Eatough, Brigham Young University
Water Gas Shift Kinetics at Membrane Reactor Conditions [PDF-26KB] Carl R. F. Lund, SUNY-Buffalo
CO ₂ Mitigation through Controlled Photosynthesis [PDF-42KB] David Bayless, Ohio University
SO ₂ Removal with Coal Scrubbing [PDF-10KB] Hari Prashanth Sundaram, West Virginia University

Engineering Fundamentals & Thermodynamics
Thermodynamic Analysis of Ammonia-Water-Carbon Dioxide Mixtures for Designing New Power Generation Cycles [PDF-144KB] Ashish Gupta, State University of New York at Buffalo
Novel Slurry Phase Diesel Catalysts for Coal-Derived Syngas [PDF-17KB] Calvin H. Bartholomew, Brigham Young University
Computational and Experimental Modeling of Three-Phase Slurry Bubble Column Reactors [PDF-14KB] Dimitri Gidaspow, Illinois Institute of Technology
Identification and Experimental Database for Binary and Multicomponent Mixture with Potential for Increasing Overall Cycle Efficiency [PDF-20KB] Stephen Bajorek, Kansas State University
Advanced Computational Model for Three-Phase Slurry Reactors [PDF-110KB] Goodarz Ahmadi, Clarkson University
Advanced Diagnostics Techniques for Three-Phase Slurry Bubble Column Reactors (SBCR) [PDF-12KB]

Muthanna H. Al-Dahhan, Washington University

Advanced Air Separation Technologies

Air Separation by Pressure Swing Adsorption Using Superior Adsorbent [PDF-17KB]

Ralph T. Yang, University of Michigan

Supported Dense Ceramic Membranes for Oxygen Separation [PDF-10KB]

Timothy L. Ward, University of New Mexico

Palladium/Copper Alloy Composite Membranes for High Temperature Hydrogen Separation from Coal-Derived Gas Streams [PDF-12KB]

J. Douglas Way, Colorado School of Mines

CO₂ Capture/Sequestration Technologies

Atomic-Level Imaging of CO₂ Disposal as a Carbonate Mineral: Mineral Carbonation Reaction Processes: Optimizing Reaction Process Design [PDF-28KB]

Andrew Chizmeshya, Arizona State University

CO₂, Separation Using Zeolite Membranes [PDF-14KB]

Christopher Gump, University of Colorado

Hot Gas Cleanup

High Temperature Removal of H₂S from Coal Gasification Process Streams Using an Electro-Chemical Membrane System [PDF-15KB]

Jack Winnick, Georgia Institute of Technology

Engineering a New Material for Hot Gas Cleanup [PDF-13KB]

Kristen P. Constant, Iowa State University

Control of Interfacial Dust Cake to Improve Efficiency of Moving Bed Granular Filters [PDF-13KB]

Robert C. Brown, Iowa State University

Electrostatically Enhanced Barrier Filter Collection [PDF-14KB]

John Erjavec, University of North Dakota

Minimization of Environmental Impact

Study of Activation of Coal Chars [PDF-47KB]

Eric Suuberg, Brown University

Development of Activated Carbons from Coal Combustion By-Products [PDF-13KB]

Harold Schobert, Zhe Lu and Mercedes Maroto-Valer, Pennsylvania State University