

1998 Conference Proceedings
University Coal Research Contractor Review Meeting

Papers and Presentations

Opening Remarks

RESEARCH OPPORTUNITIES IN ADVANCED RESEARCH & ENVIRON
ENVIRONMENTAL TECHNOLOGIES

Charles Schmidt, U.S. DOE/Federal Energy Technology Center

COAL TRANSPORTATION FUELS

Michael Nowak, U.S. DOE/Federal Energy Technology Center

ADVANCED RESEARCH PROGRAM

Robert Romanosky, U.S. DOE/Federal Energy Technology Center

Coal Science

ADVANCED SOLIDS NMR STUDIES OF COAL STRUCTURE AND CHEMISTRY

Zilm, Kurt W., Yale University

COAL AND COAL CONSTITUENTS STUDIED BY ADVANCED EMR TECHNIQUES

Belford, R. Linn, Illinois at Urbana/Chamapign, University of

Coal Surface Science

DETERMINATION OF THE FORMS OF NITROGEN RELEASED IN COAL TAR DURING
RAPID DEVOLATILIZATION

Fletcher, Thomas H., Brigham Young University

A SILICA/FLY ASH BASED TECHNOLOGY FOR CONTROLLING PYRITE OXIDATION

Evangelou, V.P., Kentucky, University of

ELECTROSTATIC SURFACE STRUCTURES OF COAL AND MINERAL PARTICLES

Mazumder, Malay K., Arkansas at Little Rock, University of

Reaction Chemistry

FUNDAMENTAL KINETICS OF SUPERCRITICAL COAL LIQUEFACTION: EFFECT OF
CATALYSTS AND HYDROGEN-DONOR SOLVENTS

McCoy, Benjamin J. and Smith, J.M., California at Davis, University of

REGULATION OF COAL POLYMER DEGRADATION BY FUNGI

Bumpus, John A., Northern Iowa, University of

COAL CHAR CRYSTALLINE TRANSFORMATIONS DURING COMBUSTION AND THEIR
IMPLICATIONS FOR CARBON BURNOUT

Hurt, Robert H., Brown University

SULFUR REMOVAL FROM COAL MATERIALS

Verkade, J., Iowa State University

SLURRY PHASE IRON CATALYSTS FOR INDIRECT COAL LIQUEFACTION

Datye, Abhaya K., New Mexico, University of

COAL/POLYMER COPROCESSING WITH EFFICIENT USE OF HYDROGEN

Broadbelt, Linda J., Northwestern University

ATTRITION RESISTANT IRON-BASED FISCHER-TROPSCH CATALYSTS

Jothimurugesan, K., Hampton University

Goodwin, Jr., James G., Pittsburgh, University of

Spivey, James J. and Gangwal, Santosh K., Research Triangle Institute

STUDY OF SOLVENT AND CATALYST INTERACTIONS IN DIRECT COAL

LIQUEFACTION

Calkins, William H., Delaware, University of

PROMOTED ZINC CHROMITE CATALYSTS FOR HIGHER ALCOHOL SYNTHESIS IN A

SLURRY REACTOR

Roberts, George W., North Carolina State University

Advanced Process Concepts

TEMPERATURE, VELOCITY AND SPECIES PROFILE MEASUREMENTS FOR

REBURNING IN A PULVERIZED, ENTRAINED FLOW, COAL COMBUSTOR

Tree, Dale R., Brigham Young University

LIBERATION CHARACTERISTICS OF PYRITE AND OTHER MINERAL MATTER FROM

COAL

King, R. Peter and Schneider, Claudio L., Utah, University of

NEW CATALYSTS FOR COAL PROCESSING: METAL CARBIDES AND NITRIDES

Oyama, S. Ted and Cox, David F., Virginia Polytechnic Institute & State University

AQUEOUS BIPHASE EXTRACTION FOR PROCESSING OF FINE COALS

Osseo-Asare, K., Pennsylvania State University

MECHANISMS AND OPTIMIZATION OF COAL COMBUSTION

Zygorakis, Kyriacos, Rice University

CATALYTIC GASIFICATION OF COAL USING EUTECTIC SALT MIXTURES

Yeboah, Yaw D. and Xu, Yong, Clark Atlanta University

Sheth, Atul and Godavarty, A., Tennessee Space Institute, University of

Agrawal, Pradeep, Georgia Institute of Technology

Engineering Fundamentals and Thermodynamics

ASH & PULVERIZED COAL DEPOSITION IN COMBUSTORS & GASIFIERS

Ahmadi, Goodarz, Clarkson University

SEPARATION OF FISCHER-TROPSCH WAX FROM CATALYST BY SUPERCRITICAL

FLUID EXTRACTION

Thies, Mark C., Clemson University

HINDERED DIFFUSION OF ASPHALTENES AT EVALUATED TEMPERATURE AND

PRESSURE

Guin, James A., Auburn University

EFFECT OF MOISTURE ON THE FLOWABILITY OF NON-COHESIVE GRANULAR MATERIALS

Caram, H.S., Lehigh University

THE SCALE-UP OF LARGE PRESSURIZED FLUIDIZED BEDS FOR ADVANCED COAL-FIRED POWER PROCESSES

Glicksman, Leon, Massachusetts Institute of Technology

Louge, Michel, Cornell University

NOVEL TECHNIQUES FOR SLURRY BUBBLE COLUMN HYDRODYNAMICS

Dudukovic, M.P. and Fan, L.S., Washington University

PHASE BEHAVIOR OF LIGHT GASES IN HYDROCARBON AND AQUEOUS SOLVENTS

Gasem, K.A.M. and Robinson, Jr., R.L., Oklahoma State University

ORTHORHOMBIC NANOSCALE ZIRCONIA AS A HIGH TEMPERATURE CERAMIC FOR POWER APPLICATIONS

Helble, Joseph J., Connecticut, University of

COAL CLEANING BY GAS AGGLOMERATION

Wheelock, Thomas D., Iowa State University

Environmental Science

IN SITU INFRARED STUDY OF CATALYTIC DECOMPOSITION OF NO

Chuang, Steven S.C., Akron, University of

CHEMISTRY OF MERCURY SPECIES AND THEIR CONTROL IN COAL COMBUSTION

Biswas, Pratim, Cincinnati, University of

SO₂ AND H₂S REMOVAL BY CaCO₃-BASED SORBENTS AT HIGH PRESSURES

Sotirchos, Stratis V., Rochester, University of

REDUCTION OF INHERENT MERCURY EMISSIONS IN PC COMBUSTION

Kramlich, John C., Washington, University of

INVESTIGATION OF MIXED METAL SORBENT/CATALYSTS FOR THE SIMULTANEOUS REMOVAL OF SULFUR AND NITROGEN OXIDES

Akyurtlu, Ates and Akyurtlu, Jale, Hampton University

DEVELOPMENT OF CALCIUM-BASED SORBENT FOR HOT GAS CLEANUP

Wheelock, Thomas D., Iowa State University

PILLARED CLAYS AS SUPERIOR CATALYSTS FOR SELECTIVE CATALYTIC REDUCTION OF NO

Yang, Ralph T., Michigan, University of

DEVELOPMENT OF NOVEL ACTIVATED CARBON-BASED ADSORBENTS FOR CONTROL OF MERCURY EMISSIONS FROM COAL-FIRED POWER PLANTS

Vidic, Radisav D., Pittsburgh, University of

DEVELOPMENT OF HIGH ACTIVITY, COAL-DERIVED, PROMOTED CATALYTIC SYSTEMS FOR NO_x REDUCTION AT LOW TEMPERATURES

Calo, J. M., Brown University

DEVELOPMENT OF MULTI-TASK CATALYSTS FOR REMOVAL OF NO_x, AND TOXIC ORGANIC COMPOUNDS DURING COAL COMBUSTION

Smirniotis, Panagiotis G., Cincinnati, University of

NEW WATER TOLERANT, HIGHLY ACTIVE CATALYSTS FOR THE SELECTIVE REDUCTION OF NITRIC OXIDE BY ALCOHOLS

Datta, Ravindra, Iowa, University of

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

Lior, Noam, Pennsylvania, University of

OPTIMIZATION OF COAL PARTICLE FLOW PATTERNS IN LOW NOX BURNERS

Sinclair, Jennifer L., Purdue University

Wendt, Jost O.L., Arizona, University of

MINIMIZATION OF NOX EMISSIONS FROM MULTI-BURNER COAL-FIRED BOILERS

Pershing, David W., Utah, University of

Fletcher, Thomas H., Brigham Young University

Minimization of Environmental Impact

COAL-CONVERSION WASTEWATER TREATMENT BY CATALYTIC OXIDATION IN SUPERCRITICAL WATER

Savage, Phillip E., Michigan, University of

ELECTROKINETIC DENSIFICATION OF COAL FINES IN WASTE PONDS

Davis, E. James, Washington, University of

FUNDAMENTAL STUDY OF LOW-NOX COMBUSTION FLY ASH UTILIZATION

Hurt, R. H. and Suuberg, E. M., Brown University

RESIDUES FROM COAL CONVERSION AND UTILIZATION: ADVANCED

MINERALOGICAL CHARACTERIZATION AND DISPOSED BY-PRODUCT DIAGENESIS

McCarthy, Gregory J., North Dakota State University

THE REMOVAL OF SULFUR DIOXIDE (SO₂) FROM FLUE GAS USING UTILITY

SYNTHESIZED ZEOLITES

Grutzeck, Michael W., Pennsylvania State University

COMPOSITIONALLY GRADED ALUMINA/MULLITE COATINGS FOR PROTECTION OF SILICON CARBIDE CERAMIC COMPONENTS FROM CORROSION

Sotirchos, Stratis V., Rochester, University of

DEVELOPMENT OF AN ON-LINE COAL WASHABILITY ANALYZER

Miller, J. D., Utah, University of

PREFERENTIAL RECYCLING/REJECTION IN CFBC/FBC SYSTEMS USING TRIBOELECTROSTATIC SEPARATION

Ban, Heng and Stencil, John, Kentucky, University of

HIGH-CARBON FLY-ASH AS A BINDER FOR IRON ORE PELLETS

Kawatra, S. K., Michigan Technological University

NOVEL SUPPORTED BIMETALLIC CARBIDE CATALYSTS FOR COPROCESSING COAL AND WASTE

Oyama, S. Ted, and Cox, David F., Virginia Polytechnic Institute & State University

Song, Chunshan, Pennsylvania State University

High Temperature Phenomena

HIGH TEMPERATURE HIGH PRESSURE THERMODYNAMIC MEASUREMENTS FOR
COAL MODEL COMPOUNDS

Kabadi, Vinayak N. And Chen, John C., North Carolina A&T State University

Special Topics

LABORATORY EXPERIMENTS TO SIMULATE CO₂ OCEAN DISPOSAL

Masutani, Stephen M., Hawaii at Manoa, University of