THIRTY - SECOND - ANNUAL
INTERNATIONAL PITTSBURGH
COAL CONFERENCE
University of Pittsburgh - Swanson School of Engineering

PRELIMINARY PROGRAM

COAL - ENERGY, ENVIRONMENT AND
SUSTAINABLE DEVELOPMENT

October 5 - 8, 2015
Pittsburgh, PA USA
The David L. Lawrence Convention Center

Hosted By:
University of Pittsburgh
Swanson School of Engineering
**TECHNICAL TOUR**

**Longview Power**

966 Crafts Run Road

Maidsville, WV 26541

**Monday, October 5, 2015**

7:15 - Bus Pickup from the Westin Hotel Lobby
10:00 - 12:00 - Tour
12:00 - Lunch
13:00 - Depart for the Westin Hotel
16:00 - Arrive at the Westin Hotel

Cost: $50 (Lunch included)

Please visit www.pccpitt.org to register.

The Longview Power plant is the cleanest, most efficient coal-fired power plant in the mid-Atlantic region and one of the most efficient in the United States, producing 700 net MWs of electric power. Located near Morgantown, West Virginia, Longview is the newest and most technically advanced pulverized coal plant in the region. The Longview Power project cost approximately $2.0 billion, the largest private investment in West Virginia’s history. With a nominal heat rate of 8,700 Btu/kWh, the Longview Power plant’s efficiency rivals that of natural gas fired combined cycle plants and far surpasses that of all other coal-fired power plants in the region. Longview’s advanced supercritical boiler, low cost fuel source, minimal water usage and other project efficiencies combine to produce the lowest cost dispatch (delivery of electricity) of any coal-fired plant in the region. The Longview Power plant includes a state-of-the-art $500 million air pollution control system with significantly lower emissions than its permit limits, which are among the lowest in the nation. In addition, Longview emits 15% less CO$_2$ than most other coal plants because of its high fuel efficiency. The Longview Power plant is designed to utilize run-of-mine coal, supplied by Mepco, an affiliated company, avoiding the cost and environmental impacts of fuel preparation. Mepco transports coal from its underground mine to Longview by a 4.5 mile conveyor that reduces transportation costs and avoids the significant environmental impacts of trucking coal. This innovative plant meets all of today’s rigorous environmental requirements, while providing electricity economically to residential, commercial and industrial users.

Longview and Mepco provide excellent job opportunities to over 600 highly skilled employees. Longview and Mepco are dedicated to maintaining the health and safety of their employees and consistently do better than national industry safety standards. Longview and Mepco strive to be good corporate neighbors and responsible stewards of the environment and stand behind their core values and mission which include commitments to produce electricity economically and on an environmentally sustainable basis.

**Dress Code:** The plant is a functioning power plant. Visitors should wear clothes that are more like work clothes than business attire.

---

**GATEWAY CLIPPER DINNER CRUISE**

**Tuesday, October 6, 2015**

17:45 - Meet in the Westin Hotel Lobby for a short walk to the boarding dock
18:00 - 18:30 - Boarding at the dock by the Convention Center
18:30 - 21:00 - Dinner and cruising
21:00 - Return to dock for a short walk to the hotel

Please join us for a dinner cruise on Pittsburgh’s three rivers! Back by popular demand, this cruise is complimentary for conference attendees, but there is a charge of $45 to bring a spouse or friend. However, you MUST RSVP to the PCC secretary to be included on the cruise. For more information and to RSVP, please visit our website.

---

**ACCOMMODATIONS**

**The Westin Hotel**

1000 Penn Avenue

Pittsburgh, PA 15222

Recommended accommodations for the 2015 PCC are at the Westin Hotel in downtown Pittsburgh. The Westin Hotel is connected by a skywalk to the David L. Lawrence Convention Center. The conference rate is $182 per night in either a single or double room. There is an additional $10 charge per person for a room with more than two people.

Please note this group rate is available only until **September 11, 2015** and is subject to availability. To receive this discounted conference rate, please make your reservations directly with the hotel using the link provided on our website.
PLENARY SPEAKERS
TUESDAY, OCTOBER 6, 2015
Dr. Grace M. Bochenek
Director
National Energy Technology Laboratory, USA
“Backbone of the energy future”

Mr. Richard A. (Dick) Winschel
Director, Research & Development
CONSOL Energy Inc., USA
“U.S. coal – an Industry in transition”

Mr. Vann Bush
Managing Director, Energy Supply and Conversion
Gas Technology Institute, USA
“Finding coal’s future”

Mr. Norman Kettenbauer
Vice President - Engineering & Contracting
GenPower Services, LLC and Longview Power, LLC, USA
“Longview Power – Reliable, Economic, Clean Coal”

WEDNESDAY, OCTOBER 7, 2015
Dr. Lesley Sloss
Principal Environmental Consultant IEA CCC, UK
Lead - Coal Partnership area at UN Environment Programme
Advisory Board – Center for International Energy Policy,
SCOTLAND
“Coal - its future in an increasingly legislated environment”

Prof. Frans Waanders
Professor and Director
School of Chemical and Minerals Engineering
North-West University, SOUTH AFRICA
“Coal utilization in an uncertain economic world”

Prof. Farid A. Malik
Professor
Forman Christian College (American University)
Lahore, PAKISTAN
“Use of coal in the energy mix of Pakistan”

THURSDAY, OCTOBER 8, 2015
Prof. James Van Nostrand
Director, Center for Energy and Sustainable Development
West Virginia University College of Law, USA
“Response of the Coal Industry to the EPA’s Clean Power Plan: Litigate, Legislate, Retaliate, or Innovate?”

Mr. John Pippy
CEO
Pennsylvania Coal Alliance, USA
“The State of the PA coal industry under federal regulations”

Dr. Daman S. Walia
President and CEO. ARCTECH Inc., USA
“Coal biotechnology: a creative approach for carbon reduction, environmental footprint, while moving coal up the value chain”
## Preliminary Program Schedule

### Monday, October 5, 2015
- **7:15-16:00** Technical Tour – Longview Power
- **15:00-19:00** Registration – Room 306
- **18:30-20:30** Reception – Rooftop Terrace

### Tuesday, October 6, 2015
- **7:00-17:00** Registration – Room 306
- **8:00-8:20** Opening Ceremony – Ballroom
- **8:20-10:05** Plenary Session – Ballroom
- **10:05-10:20** Coffee Break
- **12:00-13:30** Conference Luncheon - Ballroom
- **18:00-21:00** Gateway Clipper Dinner Cruise

### Wednesday, October 7, 2015
- **7:00-17:00** Registration – Room 306
- **8:20-10:05** Plenary Session – Ballroom
- **10:05-10:20** Coffee Break
- **12:00-13:30** Conference Luncheon - Ballroom
- **18:00-21:00** Poster Session - East Atrium

### Thursday, October 8, 2015
- **7:00-17:00** Registration – Room 306
- **8:20-10:05** Plenary Session – Ballroom
- **10:05-10:20** Coffee Break
- **10:20-12:00** Session 37: Gasification Technologies: Bio-Conversion, Carbon Management: CO₂ Storage, Gasification Technologies: General - 4, Shale and Coal Bed Gas: General - 1, Coal Science: General - 5, Coal Science: General - 6
- **12:00-13:30** Awards Luncheon - Ballroom
- **13:30-15:10** Session 43: Clean Coal and Gas to Fuels - 1, Carbon Management: Conversions, Post Utilization or Heat Recovery, Gasification Technologies: Slag Analysis, Shale and Coal Bed Gas: General - 2, Coal Science: General - 7, Coal Science: General - 8
- **15:10-15:25** Session 49: Clean Coal and Gas to Fuels - 2, Carbon Management: Other Topics on CO₂ Capture, Gasification Technologies: Modeling - 2, Shale and Coal Bed Gas: General - 3, Coal Science: General - 9, Coal Science: General - 10
- **15:25-17:05** Session 51: Clean Coal and Gas to Fuels - 2, Carbon Management: Other Topics on CO₂ Capture, Gasification Technologies: Modeling - 2, Shale and Coal Bed Gas: General - 3, Coal Science: General - 9, Coal Science: General - 10
- **18:00-20:00** Advisory Board Meeting
**TECHNICAL PROGRAM**

**ORAL SESSIONS**
Tuesday, October 6, 2015
10:20 - 17:05

**SESSION 1**
CLEAN COAL DEMONSTRATION AND COMMERCIAL PROJECTS: DOE DEMONSTRATIONS OVERVIEW, FINANCIAL CONSIDERATIONS & POLYGENERATION WITH EOR

Jason Lewis and Marty Webler
10:20 - Overview & Status Update of U.S. DOE Major Fossil Energy Carbon Capture & Geologic Storage Demonstration Projects, Thomas A. Sarkus, Nelson F. Rekos, Michael Knaags, DOE/NETL, USA
10:40 - Considered Insights into Successful Financings of Clean Coal Demonstration and Commercial Projects with Governmental Financial Incentives, Martin Webler, DOE/NETL, USA
11:00 - TBA
11:20 - Texas Clean Energy Project Update, Karl E Mattes, Summit Power Group, USA
11:40 - Update on the Texas Clean Energy Project, Jason Lewis, DOE/NETL, USA

**SESSION 2**
COAL MINING: OPTIMIZATION OF MINING OPERATIONS

Richard Bajura
10:20 - Maximum Value from Coal Resources: Investigation into the Application of Net Present Value Optimization for Mining Seam Selection, Wynand Botes, B.W. Botha, D. Campbell, W. Heenop, VBKom Consulting Engineers, SOUTH AFRICA
10:40 - Industrial Engineering and Productivity Management in Coal Mining and Utilization: A Study with Special Reference to India, Venkata Satya, Surya Narayana, Rao Kambhampati, National Institute of Industrial Engineering, INDIA
11:00 - Indonesian Coal Production Forecasting Using Logistic Curve: Evaluation Based on Coal Basin, Fadhila A Rosyid, Tsuyoshi Adachi, Akita University, JAPAN
11:20 - Optimizing a Coal Mining and Beneficiation Plant Through Simplification, Brendan Botha, VBKom Consulting Engineers; Z. Botha, Exxaro Resources; J de Korte, CSIR, SOUTH AFRICA
11:40 - Design and Optimization of Closed Distance Seam Group Floor Drainage Borehole, PiXi-yu, Li Tie, University of Science and Technology Beijing, CHINA

**SESSION 3**
GASIFICATION TECHNOLOGIES: ADVANCED TECHNOLOGIES

Massoud Ramezan and Daniel Roberts
10:20 - Feasibility Analysis of Combined IGCC and Syngas Chemical Looping for Power Generation, James C. Fisher, DOE/NETL; John E. Plunkett, Noblis, Inc., USA
11:00 - Flame Spectroscopy in a High Pressure Gasifier During Petroleum Coke Gasification, Thangam Parameswaran, Robin Hughes, Marc Duchesne, CanmetENERGY Natural Resources Canada, CANADA
11:20 - Pilot Scale Studies on CO₂-Enhanced Coal Gasification in a Circulating Fluidized Bed Reactor, Grzegorz Tomaszewicz, Andrzej Czaplicki, Aleksander Sobolewski, Tomasz Chmielnia, Marek Scicak, Krysztof Slowik, Institute for Chemical Processing of Coal, POLAND
11:40 - Optimization of a Novel CO Conversion Quench Reactor, Philip Roessger, Konrad Uebel, Bernd Meyer, Institute of Process Engineering and Chemical Engineering, GERMANY

**SESSION 4**
COMBUSTION TECHNOLOGIES: FLUE GAS CLEANUP

John Wheeldon and Evan Granite
10:40 - Specification of NOₓ Emissions From Combustion of Lignites in a BFBC, Jan Hrdlicka, Pavel Skopeck, Jan Opatril, Czech Technical University in Prague, CZECH REPUBLIC
11:00 - Submicrometer Particle Capture in a Pressurized Electrostatic Precipitator (ESP), Zhichao Li, He Jing, Pratin Biswas, Washington University in St. Louis, USA
11:20 - Cross-Flow Wet Precipitator, Muhammad Ali, Hajrudin Pasic, Khairul Alam, Ohio University, USA
11:40 - Removal of Fine Particles from Flue Gas by Heterogeneous Condensation in WFGD System, Hao Wu, Danping Pan, Yezheng Jiang, Linjun Yang, Southeast University, CHINA

**SESSION 5**
U.S. EPA'S COALBED METHANE OUTREACH PROGRAM (CMOP) COAL MINE METHANE CONFERENCE TRACK 1

Felicia Ruiz and Steve Carpenter
11:00 - California Cap-and-Trade Panel Session #1: Coal Mine Methane Destruction In The California Compliance Offset Market: Introduction to the California Compliance Offset Program, David Antonioli, Verified Carbon Standard (VCS); Michael Coté, Ruby Canyon Engineering, USA

**SESSION 6**
COAL SCIENCE: GENERAL - 1

Jim Hower
10:20 - De-Sulfurization of Some Brazilian Power-Coals by Low Energy Ultraconcentration, Matheus S. Civeira, Luis F.O. Silva, Centro Universitário La Salle, BRAZIL; Frans Waanders, North-West University, SOUTH AFRICA; Binoy K. Saikia, CSIR-North East Institute of Science & Technology, INDIA
10:40 - Briquetting of Non- and Poor-Baking Hard Coals for its Usage in Smelting Reduction Processes under Consideration of Blending and Curing Effects, Reinhard Lohmeier, Hans-Werner Schröder, Jens-Uwe Repke, TU Bergakademie Freiberg, GERMANY; Hado Heckmann, Primetals Technologies Austria GmbH, AUSTRIA
11:00 - Manufacturing of Briquettes from Typical Highveld Coal Fines Using Various Binders, Frans Waanders, Nihabiseng Modiri, John Bunt, Hein Neomagus, North-West University, SOUTH AFRICA
11:20 - Briquetting of Chamalang Coal (Baluchistan) Fine Wastes Using Molasses Binder, Javad Akhtar, Shahid Munir, Khurrum Shazad, Naseer Sheikh, Sadaf Naz, Mariyam Hakim, University of the Punjab, PAKISTAN
11:40 - The Influence of Lignin Sulfonate as a Binder for Fine Coal Pellets, Christien A Strydom, T.S. Mthombo, J.R. Bunt, North-West University, SOUTH AFRICA

**SESSION 7**
CLEAN COAL DEMONSTRATION AND COMMERCIAL PROJECTS: CCS PROCESSES: PRE-COMBUSTION, POST-COMBUSTION & OXY-COMBUSTION

Diane Madden and Ted McMahan
13:30 - Polish Way of Managing Coal-Based Energy Sector alongside EU Policy, Jan Antonczyk, ENERGOPROJEKT-KATOWICE SA and AGH University of Science and Technology, POLAND
13:50 - Update on the Kemper County IGCC Project, Diane Revay Madden, DOE/NETL; Tim Pinkston, Southern Company, USA
14:10 - Petra Nova Carbon Capture & Sequestration Project Construction Update, Ted McMahon, DOE/NETL, Tony Armpriester, USA
14:30 - Pre-, Post- and Oxy-Combustion Approaches to Mitigate CO₂ Emissions: Techno-Economic Comparison, Giorgio Cucca, Francesca Ferrara, Alberto Pettinau, Sotacarbon S.p.A.; Giorgio Cau, Vittorio Tola, University of Cagliari, ITALY
14:50 - Advanced Super-Critical Coal Generation with Carbon Capture & Storage: Location Comparisons in the Eastern Interconnect, Joel Theis, DOE/NETL, USA

**SESSION 8**
COAL MINING: ENVIRONMENTAL TECHNOLOGIES FOR MINING

Richard Bajura
13:30 - International Standards Development Under ISO TC-82 Mining with a Focus on Equipment, Safety, Mine Reclamation, & Reserve Estimation, Steven M Carpenter, Advanced Resources International, Inc., USA
13:50 - Risk Mapping and Rehabilitation of Emalahleni Municipal Area with Focus on Coal Mining Impacts, Adele Schoeman, North West University, SOUTH AFRICA
14:10 - An Analysis of Scientific Investigations Related to Reclamation of Coal Mines with Coal Combustion By-Products, kimery C. Vories, E-Ternion: Energy, Environment & Economy, USA
14:30 - Reclamation and Reforestation Works of Turkish Coal Enterprises, Metin Akta, Mustafa Aktas, Turkish Coal Enterprises; Nevzat Kavakli, Ministry of Energy & Natural Resources, TURKEY
14:50 - Experimental Study on Preparation Method for High-Performance Catalyst Applied in the Catalytic Combustion of Coal Mine Ventilation Air Methane, JianDong Kang, JingYu Ran, Chongqing University; Chen Hui, Chongqing Research Institute, CHINA
Session 17
U.S. EPA’s Coalbed Methane Outreach Program (CMOP) Coal Mine Methane Conference Track
General - 3
Felicia Ruiz and Steve Carpenter
10:20 - Emissions Control by Monitoring Total Excess Air and O₂, Dario DiMaggio, Kurz Instruments, Inc., USA
10:40 - Investigation of Temperature Uniformity During High Oxygen Concentration Combustion in 1MWt Circulating Fluidized Bed, Jingzhang Liu, Shiyuan Li, Qiangqiang Ren, Haoyu Li, Wei Li, Institute of Engineering Thermophysics, Chinese Academy of Sciences, China
11:00 - Examination of Changing Char Reactivity with Isothermal Oxy-Combustion Conversion by a Simplified Atomistic Simulation, Haihui Xin, Deming Wang, Chang’an Wang, China University of Mining and Technology; Chang’an Wang, Xi’an Jiaotong University, China; Jonathan P. Mathews, Penn State, USA
11:20 - Numerical Simulation of Oxy-Coal Mild Combustion with High-Velocity Oxygen Jets, Ruochen Liu, Enke An, Kun Wu, Tongji University, China
11:40 - Simultaneous Conversion of NOₓ and SO₂ from Flue Gas to Fertilizer Using Organic Catalyst, Zhipeng Xue, Shiqi Jin, Huadian Electric Power Research Institute, China

Session 18
Coal Science: Rare Earth Elements - 2
Jim Hower
10:20 - Deep Eutectic Solvents and Ionic Liquids for Extraction of Rare Earth Elements from Coal Ash, Elliot Roth, Evan Granite, DOE/NETL; Megan K. Macala, Trace Bank, AECOM, USA
11:00 - Rare Earth Occurrences in Coal and its Association with Tonsteins, Diapirs, and Igneous Activity, T. H. Andersen, Digitus International; Rex Bryan, Thomas Gray, Dave Richers, Tetra Tech, Inc., USA
11:20 - Characterization of Rare Earth Elements in Canadian Oil Sands Process Streams, Elliot Roth, Evan Granite, DOE/NETL; Trace Bank, AECOM, USA
11:40 - Prevention Rock Burst by Pre-split Blasting in Xiezhuang Coal Mine, Xia Yongjun, China Coal Technology Engineering Group Chongqing Research Institute, China

Session 19
Clean Coal Demonstration and Commercial Projects: Coal Gasification & Combustion Processes
Nelson Rekos and Greg O’Neil
10:20 - Application Progress of ECUST OMB Gasification Process, Guangsuo Yu, Zhijie Zhou, Xueli Chen, Zhenghua Dai, Yifei Wang, Haifeng Liu, Fuchen Wang, Xin Gong, East China University of Science and Technology, China
10:40 - China’s 600 MWe CFB Boiler - Some Issues in the Development and its Operation, Leming Cheng, Zhongyang Luo, Mengxiang Fang, Qinghui Wang, Mingjiang Ni, Kefa Cen, Zhejiang University; Li Nie, Qi Zhou, Dongfang Boiler Group Co., Ltd., China
11:00 - Advances in Flameless Oxy-Combustion Technology, Peter Reineck, ITEA S.p.A., United Kingdom; Massimo Malavasi, ITEA S.p.A., Italy
11:20 - CCS Flameless Pressurized Oxidation Combustion: Emphasis on “large scale pilot” facility, as the key step for process & equipment validation, before demo projects launching, and the new opportunity “ready for CCS” introduction, Massimo Malavasi, ITEA S.p.A., Italy
11:40 - Design of a Commercial-Scale Oxy-Coal Supercritical CO₂ Power Cycle, Nathan T. Weiland, Walter W. Shelton, DOE/NETL; Charles W. White, Noblis, Inc., USA

Session 20
Coal Mining: Geological Characterization and Ground Control
Richard Bajura
10:20 - Geology of the Newly Discovered Alpu – Eskiehir (Turkey) Coal Basin and Seismic Reflection Studies, Ilker Senguler, Y. Ziya Cosar, General Directorate of Mineral Research and Exploration, Turkey
10:40 - Numerical Modeling of Top Coal Caving by Using Discrete Element Method, N. Erhan Yavuz, Fatih Bayram, Aksaray University, Turkey
11:00 - Prevention Rock Burst by Pre-split Blasting in Xiezhuang Coal Mine, Xia Yongjun, China Coal Technology Engineering Group Chongqing Research Institute, China

Session 21
Gasification Technologies: Biomass Co-Gasification
Ting Wang and Jose Benitez
10:20 - Synergy and Inhibition During Co-Gasification of Biomass-Coal Blends, Pradeep K. Agrawal, Gautamini Newalkar, Carsten Sievers, Georgia Institute of Technology; Kristina Iisa, National Renewable Energy Laboratory, USA
10:40 - Poison Resistant Water-Gas-Shift Catalyst for Coal and Biomass Co-Gasification, Girish Srinivas, Steven C. Gebhard, Jeff Martin, Mike Looker, TDA Research Inc., USA
11:00 - An Experimental Investigation on Woodchips Gasification in Throat Type Downdraft Gasifier, Salih Çamur, Tübitak Marm, Turkey
11:20 - Techno-Economic Evaluation of a Low-Temperature CO₂ Capture Unit for IGCC Plants, Simon Roussanaly, David Berstad, Rahul Anantharaman, Petter Neska, Jana Jakobsen, SINTEF Energy Research, Norway
11:40 - Thermal Behaviors and Interactions of Petroleum Coke, Coal, and Biomass in Air/CO₂ Atmosphere, Ashak Mahmoud Parvez, Tao Wu, The University of Nottingham Ningbo China, China; Iqbal M. Mujtaba, University of Bradford, United Kingdom

Session 22
Combustion Technologies: Oxy-Combustion - 2
John Wheeland and Evan Granite
10:20 - Contributions to Water Gas-Shift Equilibrium for Fuel with High Oxygen Concentration, Mary F. Ornstein, KEMA Energy Services, Netherlands
10:40 - Investigation of Temperature Uniformity During High Oxygen Concentration Combustion in 1MWt Circulating Fluidized Bed, Jingzhang Liu, Shiyuan Li, Qiangqiang Ren, Haoyu Li, Wei Li, Institute of Engineering Thermophysics, Chinese Academy of Sciences, China
11:00 - Examination of Changing Char Reactivity with Isothermal Oxy-Combustion Conversion by a Simplified Atomistic Simulation, Haihui Xin, Deming Wang, Chang’an Wang, China University of Mining and Technology; Chang’an Wang, Xi’an Jiaotong University, China; Jonathan P. Mathews, Penn State, USA
11:20 - Numerical Simulation of Oxy-Coal Mild Combustion with High-Velocity Oxygen Jets, Ruochen Liu, Enke An, Kun Wu, Tongji University, China
11:40 - Simultaneous Conversion of NOₓ and SO₂ from Flue Gas to Fertilizer Using Organic Catalyst, Zhipeng Xue, Shiqi Jin, Huadian Electric Power Research Institute, China

Session 23
U.S. EPA’s Coalbed Methane Outreach Program (CMOP) Coal Mine Methane Conference Track
General - 4
Felicia Ruiz and Steve Carpenter
10:20 - Gas Lab Production During Mining of Blue Creek Coal Seam, Alabama, and Production Analysis of Ventholes, C. Ozgen Karacan, Niosh-Omsh, USA
10:40 - PA Coal Mine Methane Recovery, Steven E. Winberg, Battelle, USA
11:00 - Lessons Learned in Developing Mine Methane Capture Projects across the U.S., Tom Vessells, Vessels Coal Gas, Inc., USA
11:40 - Overview of Global CMM and CBM Activity, Jonathan Kelafant, Advanced Resources International, Inc., USA

Session 24
Coal Science: General - 2
Jim Hower
10:20 - Fullerene Functionalized Fullerene Aggregates on Surface Soils and River Sediments from Santa Catarina Coal Mining Area, Matheus S. Civeira, Luis F.O. Silva, Centro Universitário La Salle, Brazil; Frans Waanders, North-West University, South Africa
10:40 - Coke Quality Variation in Heat-Recovery Coke Making Oven, Mhlwazi Solomon Nyathi, Richard Kruse, ArcelorMittal USA; Maria Mastalerz, Indiana Geological Survey, USA
11:00 - Mössbauer and Other Spectroscopic Analyses of North-East Indian Coals and Tailings Products, Frans Waanders, North-West University, South Africa; Binoy K. Saikia, CSIR-North East Institute of Science & Technology, India
11:20 - Evaluation of Coke Characteristics of Bituminous Coals by Thermogravimetric Analysis,
SESSION 25
CLEAN COAL DEMONSTRATION AND COMMERCIAL PROJECTS : CLEAN COAL & COAL/BIOBASIS-TO-LIQUID FUELS PROCESSES

John Rockey and Anthony Zian

13:30 - Clean Coal Demonstration in the World and Best Example for Lignite in Turkey, Hasan Hüseyin Erdogan, Murat Misir, Ministry of Energy and Natural Resources, TURKEY


14:30 - Design/Cost Study & Commercialization Analysis for Synthetic Jet Fuel Production at a Mississippian Site from Lignite and Woody Biomass with CO2 Capture & Storage via Enhanced Oil Recovery, Eric D. Larson, Tom Kreutz, Hans Meerman, Robert H. Williams, Princeton University; Steven Baxley, Southern Company Services, USA; Chris Grieg, University of Queensland, AUSTRALIA

14:50 - Direct Coal-to-Liquids (CTL) for Jet Fuel using Biomass-Derived Solvents, Satya P. Chauhan, Dan Garbark, Herman Benecke, Nick Conkle, Rachid Taha, Battelle; Jason T. Lewis, DOE/NETL., USA

SESSION 26
COAL MINING: MINING TECHNOLOGY

Richard Bajura

13:30 - Research on the Space-Time Deformation Mechanism of Soft Coal on the Roadway Under Mining Activity Influence and its Coupled Supporting Technology, Zhong-guang Sun, Jiang-tao Guo, China Coal Technology Engineering Group, Chongqing Research Institute; Shao-gang Li, China Coal Research Institute, CHINA

13:50 - High Performance Water Powered DTH-Percussion Drilling for Degasification, Peter Johansson, LKAB Wassara AB, USA

14:10 - Experimental Study on Foam Dust Suppression Agent in Underground Coal Mine, Zhi-tian Yang, Shuqin Cao, MinBo Zhai, Xi’an University of Science and Technology, CHINA

14:30 - Determination of Incubation Period for Ascertaining the Size of the Panel for Safety of Coal Mines with Respect to Spontaneous Heating, R. V. K. Singh, CSIR-Central Institute of Mining & Fuel Research, INDIA

14:50 - Study of Adding Surfactant to Coal Seam Water Injection, Huan Yuan, Tian-liang Li, Xi’an University of Science and Technology, CHINA

SESSION 27
GASIFICATION TECHNOLOGIES: MODELING - 1

James Fisher and Ting Wang

13:30 - Analysis of Sah Models for CFD Simulation of Industrial Coal-Water Slurry Entrained Flow Gasifier, Andreas Richter, Bernd Meyer, TU Bergakademie Freiberg, GERMANY; Yu Zhang, Jian Xu, Yong Yang, Synfuels China Technology Co., Ltd., CHINA


14:10 - Development and Application of a New Structure Based Viscosity Model for Oxide Melts Relevant to Fuel Slags, Guixuan Wu, Sören Seebold, Elena Yazhenskikh, Michael Müller, Institute of Energy and Climate Research (IEK-2), Forschungszentrum Jülich GmbH; Klaus Hack, GTT Technologies, GERMANY

14:30 - Performance Analysis of Power Generation and Synthetic Natural Gas (SNG) Production from Coal Gasification with Integrated versus Non-Integrated Configuration, Hsii-Mei Chiu, Po-Chuang Chen, Yau-Pin Chyoun, Institute of Nuclear Energy Research, Atomic Energy Council, TAIWAN; Ting Wang, University of New Orleans, USA

14:50 - Coal Hydrogasification for Aromatics and Methane, Guoqing Wang, Yongguang Nie, Zhichao Ma, San Zhou, Xuliang Jing, ENN Science & Technology Development Co., Ltd., CHINA

SESSION 28
COMBUSTION TECHNOLOGIES: CO-FIRING

John Wheeldon and Evan Granite

13:30 - Evaluating the Effect of Microalgae Biomass on the Combustion of Coal, Vitus Ejesieme, Nelson Mandela Metropolitan University, SOUTH AFRICA


14:10 - Preliminary Studies on Biomass Co-Firing Targeted to Demonstration in a Commercial Pulverized Coal Power Plant, Won Yang, Tefera Zelalem Tumosa, Seuk Cheun Choi, Korea Institute of Industrial Technology; Junho Oh, Changkook Ryu, Sungkynkwan University; Il Hwan Na, Nak Kyun Kim, Hankook Technology Co., SOUTH KOREA

14:30 - A Study on Yunnan Coal and Oat Straw Synergy During Co-Firing, Jumoko Mojiisola Olajede, Stephen Adegbite, Tao Wu, The University of Nottingham Ningbo China, CHINA

14:50 - Mineral Migration Under Co-Firing Conditions, Jumoko Mojiisola Olajede, Stephen Adegbite, Tao Wu, The University of Nottingham Ningbo China, CHINA

SESSION 29
U.S. EPA'S COALBED METHANE OUTREACH PROGRAM (CMOP) COAL MINE METHANE CONFERENCE TRACK GENERAL - 5

Felicia Ruiz and Steve Carpenter

13:30 - Development and Implementation of Ventilation Air Methane (VAM) Projects, Clark Talkington, Advanced Resources International, Inc., USA

13:50 - Estimating VAM Concentration Based on Coal Tonnage Forecast and Ventilation Flow Rate, Dominique Kay, Guy Drouin, Biothermica Technologies, CANADA

14:10 - Addressing the Technology and Standards Gaps for VAM Abatement in Australia and Elsewhere, David Cork, Rod Peet, Corky’s Sustainable Energy; Peter Yallamas, Aerison Pty Ltd, AUSTRALIA

14:30 - COMET TM – A Versatile Economic Low Temperature Catalytic Solution For Ventilation Air Methane Abatement, Ian Mitchell, David Watson, Suzanne Ellis, Peter Hinde, Alec Miller, John Matthey Davy Technologies Limited, USA

14:50 - VAM with CMM Injection and Power Generation Update, Jason Schroeder, Karl Walter, Durr Systems, Inc., USA

SESSION 30
COAL SCIENCE: GENERAL - 3

Jim Hower and Frans Waanders

13:30 - Hazardous Elements in Agricultural Soils Surrounding a Coal Power Plant from Santa Catarina (Brazil), Matheus S. Civeira, Luis F.O. Silva, Centro Universitário La Salle, BRAZIL; Frans Waanders, North-West University, SOUTH AFRICA


14:10 - Process for the Production of Asphalt Binder Substitutes from Pittsburgh #8 Coal, Swapnil L. Fegade, Jason P. Tremblly, Courtneu Paul, Ohio University, USA

14:30 - The Effects of Grinding on the Surface Chemistry, Properties and Burnout of Coals in a Drop Tube Furnace, Julian M Steer, Richard Marsh, David Morgan, Cardiff University; Mark Greenslade, Tata Steel UK, UNITED KINGDOM

14:50 - The Experiment Research of Sulfur Distribution and Screening and Floating and Sinking Tests for High-Sulfur Coal Desulfurization, Doudou Wang, Mei Li Du, Xi’an University of Science and Technology, CHINA

SESSION 31
SUSTAINABILITY AND ENVIRONMENT: GENERAL - 1

Jim Hower

15:25 - Effects of Cotton Waste Addition on the Oxidation Characteristics of High Sulfur Turkish Lignite, Arzu Kanca, Ataturk University, TURKEY

15:45 - Study of Solar Cells Materials Based on Pyrite From the Coal Mining Industry of South Brazil, Camila Machado de Oliveira, Michael Peterson, Adilson Oliveira da Silva, Maykorn Carning, Agenor de Noni Júnior, Carolina Milcharek Machado, Universidade do Extremo Sul Catarinense, BRAZIL

16:05 - Analysis Catalytic Pyrolysis of Sunflower Stalk With Ca-Fc-Ni-La Oxides and Coal Semi-Coke Based on Py-GC-MS, Shaoli Zhang, Fuxin Chen, Bin Hou,
SESSION 32
CARBON MANAGEMENT: POST COMBUSTION CAPTURE
Gary Stiegel and Henry Pennline
15:25 - Optimization of Amine-Based Solid Sorbent Chemistry for Post-Combustion Carbon Capture, Qianwen Gao, David C. Miller, DOE/NETL, USA
15:45 - Membrane Properties Required for Post-Combustion CO2 Capture at Coal-Fired Power Plants, Simon Roussanaly, Rahul Anantharaman, Karl Lindquist, Jana Jakobsen, SINTEF Energy Research, NORWAY; Haibo Zhai, Edward Rubin, Carnegie Mellon University, USA
16:05 - Experimental Study of the CO2 Absorption Performance in a New Type Spray Tower, Zaoxia Zhang, Xiaowei Wu, Yunsong Yu, Zhen Qin, Xi’an Jiaotong University, CHINA
16:25 - Aspen Modeling for MEA-CO2 System: Solution Approach for Rate-Based Column Model, Zhen Fan, Kun Liu, Heather Nikolici, Reynolds Frimpong, Guojie Qi, Kunlei Liu, University of Kentucky, USA
16:45 - Advanced Solid Sorbents for CO2 Capture from Flue Gas, Xiaoxing Wang, Chunjian Song, ENS Energy Institute, Pennsylvania State University, USA

SESSION 33
GASIFICATION TECHNOLOGIES: GENERAL - 3
Massoud Ramezan and Daniel Roberts
15:45 - Comparison of Simulating NGCC/IGCC Power Plants between Using Thermoflex and Aspen Plus, Henry A. Long, Ting Wang, Energy Conversion & Conservation Center, University of New Orleans, USA
16:05 - Investigation of Pyrolysis Yields from a Small-Scale Fluidized Bed Reactor, S. Pielsticker, B. Gövert, T. Kreitzberg, R. Kneer, RWTH Aachen University, GERMANY
16:25 - Gasification of PRB Coal Liquefaction Residue, William C. Schaffers, David Bell, University of Wyoming, USA
16:45 - Study on Co-Pyrolysis Experiment of Shenzu Coal and Middling Coal, Yuan Liu, Anning Zhou, Junli Wang, Chengjian Song, Tingting Kong, Xi’an University of Science and Technology, CHINA

SESSION 34
COMBUSTION TECHNOLOGIES: GENERAL
John Wheelon and Evan Granite
15:25 - Determination of Devolatilization Kinetics in Inert and CO2-Enriched Atmospheres in a Plug Flow Reactor, Sebastian A. Heuer, Martin Schiemann, Viktor Scherer, Ruhr-University, GERMANY
15:45 - A Critical Review of Numerical Models and Variables on Self-Heating of Coal Stockpiles and Their Practical Implications, Jian Zhang, Ting Ren, Zhongwei Wang, University of Wollongong, AUSTRALIA; Yuntao Liang, Shenyang Branch of China Coal Research Institute, CHINA
16:05 - Effects of Pore Diffusion on Kinetics Rate and NO Release During Char Combustion, Jie Xu, Rui Sun, Haerbin Institute of Technology, CHINA

SESSION 35
U.S. EPA’S COALBED METHANE OUTREACH PROGRAM (CMOP) COAL MINE METHANE CONFERENCE TRACK
GENERAL - 6
Felicia Ruiz and Steve Carpenter
15:25 - Preliminary Results of Coal Methane Resources Assessment in Mongolia, Ochirsukh Badarch, Mongolian Nature and Environment Consortium, MONGOLIA
15:45 - Coal Mine Methane Projects in Southwest China: Opportunities and Barriers to Development, Raymond C. Pilcher, Candice L. M. Tellio, James S. Marshall, Bong Jiang, Raven Ridge Resources Incorporated, USA
16:05 - Coal Mine Methane Development in Indian Scenario: Opportunities and Challenges, V K Sinha, CMPDL, T K Sinha, Coal India Ltd, INDIA
16:25 - VAM at Russian Coal Mines, Oleg V. Tailakov, Institute of Coal of SB RAS/KuzSTU; Peet M. Sööt, CMM Energy LLC, RUSSIA
16:45 - MEXICO CMM Project from Design to Reality, Mario Santillan, Adrian Huerta, Brenda Soto, Minera del Norte, MEXICO

SESSION 36
COAL SCIENCE: GENERAL - 4
Jim Hower and Frans Waanders
15:25 - Coal Mining Residues and Sulphide Oxidation by Fenton’s Reaction, Adilson C. Dalmora, Luis F.O. Scherer, Ruhr-University, GERMANY
15:45 - The Influence of Drying Conditions on Processing Properties of Lignite, Albrecht Matthes, Hans-Werner Schröder, Jens-Uwe Repke, TU Bergakademie Freiberg; Bastian Lehmann, RWE Power AG, GERMANY
16:05 - Coal Drying Characteristics in Two Stage Fluidized Bed Dryer, Dongmin Jang, Wonjae Lee, POSCO, SOUTH KOREA
16:25 - Study on Preparation and Mechanical Properties of Carbon Black/Ultra-Pure Coal Filled SBR, Shiyong Wang, Yang Wu, Bo Li, Xi’an University of Science and Technology, CHINA
16:45 - Study on the Preparation and Effect Factors of the Coal/Semi-Coke Blending Slurry (CCBS), An-Ning Zhou, Cheng-Jian Song, Jian-Lin Qu, Guang-Heng Wang, Ting-Ting Kong, Xi’an University of Science & Technology, CHINA

SESSION 37
GASIFICATION TECHNOLOGIES: BIO-CONVERSION
Aron Rose and Steve Markovich
10:20 - Biotreatment for Bio-Gasification for Converting Coal to Methane, Yanna Liang, Ji Zhang, Stephen Park, Rohit Pandey, Satya Harpalani, Southern Illinois University Carbondale, USA
10:40 - Biodegradation of Subbituminous Coal by Fungus, Jing Wang, Xiangrong Liu, Xi’an University of Science and Technology, CHINA
11:00 - HUMAXX MicGas™Coal Bio Refinery Techno-Economic Analysis for Deployment in Wyoming, Daman S.Walia, ARCTECH Inc., USA
11:40 - Synthesis of Polymer Encapsulated Porous KAolinite Proppant for Microbially Enhanced Coalbed Methane Recovery, Taylor D. Sparks, Kye Bum Han, John Fuertez, John McMellon, University of Utah, USA

SESSION 38
CARBON MANAGEMENT: CO2 STORAGE
Gary Stiegel and Henry Pennline
10:20 - Comparing Adsorption Behavior of Carbon Dioxide, Methane and Nitrogen on Coal and Shale, Xu Tang, Nino Ripeto, Virginia Polytechnic Institute and State University, USA
10:40 - Development of the First Internationally Accepted Standard for Geo Storage of Carbon Dioxide Utilizing Enhanced Oil Recovery (EOR) Under the International Standards Organization (ISO) Technical Committee TC 265, Steven M Carpenter, Advanced Resources International, Inc., USA
11:00 - Pressure Data and Interference Testing at the Citronelle SECARB Phase III Site, Alabama USA, Hunter Jonsson, George Kopenma, Jr., Advanced Resources International, Inc.; Rob Trautz, EPRI; Barry Friefeld, Lawrence Berkeley National Laboratory, USA
11:20 - Post Injection Site Care (PISC) at the SECARB Anthropogenic Test, David Riestenberg, George Koperna, Jr., Advanced Resources International, Inc.; Richard Rhudy, Rob Trautz, Electric Power Research Institute, USA
11:40 - Potential for the Use and Adsorption of Power Plant CO2 in the Appalachian Basin and Other Triassic Rift Basins in Maryland, Paul Petritz, State of Maryland Department of Natural Resources; Jennifer Gunnulfson, Environmental Resources Management, USA

SESSION 39
GASIFICATION TECHNOLOGIES: STORAGE
Gary Stiegel and Henry Pennline
10:20 - High Pressure, Entrained Flow Studies of Gasification of Rhenish Lignite, Daniel G. Roberts, Lucio N. Fogliaresi, Matthew J. Langley, David J. Harris, CSIRO Energy Technology, AUSTRALIA; Christian Schneider, Markus Walter, Technical University Bergakademie, GERMANY
TECHNICAL PROGRAM

SESSION 47
COAL SCIENCE:
GENERAL – 11
Frans Waanders and Jim Hower
14:10 - Coalbed Methane Enrichment Process of Medium-High Rank Coal in China, Yiwen Ju, University of Chinese Academic of Sciences; Mingming Wei, Guangzhou Institute of Geochemistry, CHINA
14:30 - The Study of the System Gas-Coal of Pechora Coal Basin, Zinfar Ismagilov, Valentina Malysheva, Institute of Coal Chemistry and Materials Science; Natalia Zhuravlyova, Roza Potokina, JSC West-Siberian Test Center, RUSSIA

SESSION 48
COAL SCIENCE:
GENERAL – 8
Jim Hower and Frans Waanders
13:50 - Strategies for Modeling and Simulation Aided Design of a Coal Washing Plant for Gasifier Feed Preparation, E. Caner Orhan, Ergin Gulcan, Ozcan Gulsoy, Emre C. Orhan, University of the Safranbolu, TURKEY
14:10 - Study on Dispersed Cuticles in Jurassic Coal of Northern Shanxi, Du Meili, Fan Jinwen, Cai Yuchu, Xi’an University of Science and Technology, CHINA
14:30 - Triboelectrostatic Separation of Reactive Macerals and Inert Macerals, Xinxin Zhang, Haisheng Li, Rongtao Zhu, Xin He, Chaoyong Li, Yang Jiao, China University of Mining & Technology, CHINA
14:50 - Study Of The Preparation Conditions to the Electrochemical Performance of Anthracite Based Activated Carbon Electrode Material, Guo Ming, Shuili Wang, Xi’an University of Science and Technology, CHINA

SESSION 49
COAL SCIENCE:
GENERAL – 9
Frans Waanders and Jim Hower
15:25 - Production of Petrochemicals and ULSD Via Direct Coal Liquefaction Technology, Eric Peer, John Duddy, Axens North America Inc., USA
15:45 - Increasing the Rate and Extent of Microbial Coal to Methane Conversion Through Optimization of Microbial Activity, Matthew W. Fields, Katie Davis, Hannah Schwartz, Robin Gerlach, Al B. Cunningham, Montana State University; Elliott Bamburt, U.S. Geological Survey, Wyoming-Montana Water Science Center, USA
16:25 - Thermodynamic Simulation of Methane Tri-Reforming Based on Aspen Plus, Chong Chen, Jian Wei Li, Xi’an University of Science and Technology, CHINA
16:45 - Syngas Generation Via Chemical Looping Dry Reforming, Ayame More, Götz Vesper, University of Pittsburgh, USA

SESSION 50
CARBON MANAGEMENT: OTHER TOPICS ON CO₂ CAPTURE
Gary Stiegel and Henry Pennline
15:25 - Synthesis and CO₂ Adsorbability of Ti/Li - In Aminobenzene Sulfonic Acid-Layered Double Hydroxide-Activated Carbon, An-ning Zhou, Ting-Ting Kong, Ying-Ping Zhang, Xi’an University of Science & Technology, CHINA
15:45 - Li- and K-Doped Na₂ZrO₃ Sorbents for CO₂ Capture, Yuhua Duan, DOE/NETL, USA
16:05 - CO₂ Capture of Synthetic Sorbent Using Caribde Slag from Chlor-Alkali Plant for Calcium Looping, Yingjie Li, Xiaotong Ma, Xin Xie, Lei Shi, Shandong University, CHINA
16:25 - Warm Gas Precombustion CO₂ Capture Using Hydrophilic Solvents, Nicholas Siefer, DOE/NETL and Carnegie Mellon University; Hanadi Nuhwala, Carnegie Mellon University; Wei Shi, Fan Shi, Jeffrey Culp, URS/AECOM/DOE/NETL; Elliot Roth, Victor Kusuma, ORISE/DOE/NETL; David Hopkinson, DOE/NETL, USA
16:45 - Advanced Process Control of Bubbling Fluidized Bed Adsorber-Regenerator Processes for Efficient Transient Operation, Priyadarshi Mahapatra, Jini Jiang Ma, AECOM / National Energy Technology Laboratory; Debangsu Bhattacharyya, Benjamin Omell, West Virginia University; Stephen E. Zitney, David Miller, DOE/NETL, USA

SESSION 51
GASIFICATION TECHNOLOGIES: MODELING – 1
Ting Wang and Massoud Ramezan
15:25 - Dynamic Simulation of Opposed Multi-Burner Coal-Water Slurry Gasification System, Zhenghui Dai, Junyu Yang, Chao Li, Qinfeng Liang, Guangsuo Yu, East China University of Science and Technology, CHINA
15:45 - Optical Experimental Study on the Characteristics of Impinging Reaction Region in Opposed Multiburner Gasifier, Xudong Song, Yan Gong, Guangsuo Yu, Qinghua Guo, East China University of Science and Technology, CHINA

SESSION 52
SHALE AND COAL BED GAS:
GENERAL - 3
Leslie Ruppert and Steve Carpenter
15:25 - Chloride and Bromide in Waters Associated With Production of Shale Gas, Coal Bed Methane, and Coal in the Northern Appalachian Basin, Paul F. Ziemkiewicz, Joseph J. Donovan, West Virginia University; Charles A. Cravotta III, U.S. Geological Survey, USA
15:45 - Study and Application of New CBM Clean Fracturing Fluid, Wangang Chen, Qi Yang, Jianguang Wu, Ping Zhang, China United Coalbed Methane Co., Ltd., CHINA
16:05 - The Treatment of Coal Seam Gas Co-Produced Water Using Natural Ion Exchange Material, Oscar Santiago, Kerry Walsh, James Chapman, CQ University; Edward Gardner, CQ University & Arris Pty Ltd, AUSTRALIA
16:25 - Synthesis of a Novel Gemini Surfactant Used for Coal-Bed Methane Fracturing Fluid, Zhiyuan Yang, Shuiling Cao, Xi’an University of Science and Technology, CHINA

SESSION 53
COAL SCIENCE:
GENERAL – 9
Frans Waanders and Jim Hower
15:45 - Release Behavior and Formation Mechanism of Polyacrylic Aromatic Hydrocarbons During Coal Pyrolysis, Meiqi Gao, Yulong Wang, Jie Dong, Liping Chang, Fan Li, Taiyuan University of Technology, CHINA
16:05 - Pyrolysis of a Long Flame Coal under Methanol Vapor, Xin-fu He, Lei Yang, Hong-ju Wu, Ya-gang Zhang, An-ning Zhou, Xi’an University of Science & Technology, CHINA
16:25 - Influence of Milling Time in Structure and Hydrogen Desorption Performances of Magnesium Carbon Hydrogen Storage Materials, Lihua Zhang, Qianqian Zhang, Bong Gu, Lei Pan, Shuxue Zhou, Shandong University of Science and Technology, CHINA
16:45 - Prediction of Metallurgical Coke Thermal Properties and Analysis of Influencing Factors, Shizhuang Shi, Guang-er Wang, Yong-hui Luo, Yan-gao Mao, Qi Zheng, Shuai Liu, Wuhan University of Science and Technology, CHINA
**Technical Program**

P7-9 - The Separation and Enrichment of Dispersed Cuticles in Jurassic Coal of Xinjiang, Du Meili, Fan Jinwen, Cai Yuchu, Xi’an University of Science and Technology, CHINA

P7-10 - Food Waste Oil Preparation Coal Slime Floation Collector and Application Research, Du Meili, Cai Yuchu, Fan Jinwen, Xi’an University of Science and Technology, CHINA

P7-11 - The Preparation of Shenefu Coal-Based CMS for the Separation of CH\textsubscript{4}/N\textsubscript{2} Using PSA And Its Performance Study, ZhiYuan Yang, DeChao Wang, JiaoPing Liu, Xi’an University of Science and Technology, CHINA

P7-12 - Effect of Adjusting Coal Properties on Hulunbeier Lignite Pyrolysis Performance, Wenying Li, Huiling Rong, Huijun Huang, Cuiping Ye, Jie Feng, Taiyuan University of Technology, CHINA

P7-13 - Insights into the Effects of CeO\textsubscript{2} in the Ethylbenzene Dehydrogenation to Styrene with CO\textsubscript{2}, Hongxia Fan, Jie Feng, Xiaohong Li, Yunpeng Guo, Wenying Li, Taiyuan University of Technology, CHINA

P7-14 - Research in Magnesium Based Hydrogen Storage Material with Carbon Doped by Ball-Milling, Qianqian Zhang, Lihua Zhang, Bogu Liu, Pei Liu, Haipeng Chen, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-15 - Thermodynamics Change of Magnesium-Carbon Composite Material for Hydrogen Storage by Nickel Doping, Qianqian Zhang, Bogu Liu, Pei Liu, Lihua Zhang, Haipeng Chen, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-16 - Preparation of Magnesium-Carbon Composites with Catalyst Nickel by Ball-Milling for Hydrogen Storage, Qianqian Zhang, Pei Liu, Lihua Zhang, Bogu Liu, Haipeng Chen, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-17 - Role of Crystallitic Carbon in Carbon Disulfide Fixation by Magnesium-Carbon Composite During Ball-Milling, Bogu Liu, Lihua Zhang, Qianqian Zhang, Tao Li, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-18 - Effect of Crystallitic Carbon on Morphology and Hydrogen Desorption Performance of Magnesium Hydride Prepared by Ball-Milling, Bogu Liu, Pei Liu, Haipeng Chen, Lihua Zhang, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-19 - Effect of Apricot Shell Activated Carbon on Hydrogen Storage Performance of Magnesium, Pei Liu, Lihua Zhang, Qianqian Zhang, Bogu Liu, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-20 - Effect of Needle Coke on Desorption Enthalpy Change and Heat Absorption of Magnesium-Based Hydrogen Storage Material, Pei Liu, Qianqian Zhang, Bogu Liu, Lihua Zhang, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-21 - Kinetic Study on the Pyrolysis Behavior of Xinjiang Coal Based on Multi-Stage Parallel Reaction Model, Xiaohui Li, Xiangrong Liu, Xi’an University of Science and Technology, CHINA

P7-22 - Synthesis of N-Butanol with Calcium Carbide and Ethanol as the Feedstock, Dong Wang, Zhenyu Liu, Qingya Liu, Beijing University of Chemical Technology, CHINA

P7-23 - Preparation of Magnetic Fe\textsubscript{3-x}La\textsubscript{x}O\textsubscript{4}/AC Composites and investigation on its Adsorption of Alizarin Red from Aqueous Solution, Qing Wang, Yaodong Liang, Yongjun He, Tingting Wang, Dongbo Tian, Xi’an University of Science and Technology, CHINA

P7-24 - Study on Pyrolysis Characteristics of a Bio-Coal Briquette, Xin-fu He, Lei Yang, Hong-ju Wu, Ya-gang Zhang, An-ning Zhou, Xi’an University of Science and Technology, CHINA

P7-25 - Effect of Molybdenum Additive on Hydrodesulfurization of Carbon Disulfide by Solid Hydrogen In Magnesium-Carbon Hydrogen Storage Material, Lihua Zhang, Pei Liu, Bogu Liu, Qianqian Zhang, Shixue Zhou, Shandong University of Science and Technology, CHINA

P7-26 - The Experiment Research of Desulfurization Feasibility for Heyang No.1 Mine High-Sulfur Coal, Doudou Wang, Meili Du, Xi’an University of Science and Technology, CHINA

P7-27 - Experimental Study on Bioconversion of Shenefu Coal, Jiantao Li, Shuying Pi, Xiangrong Liu, Xi’an University of Science and Technology, CHINA

P7-28 - Application and Research on Coal Slime Floation with a New Micro-Emulsion, Wei-wei Xie, Hu-yun Chen, China University of Mining and Technology, CHINA

P7-29 - Technology of Humic Acid Extracted from Slime, Wu Deng, Shui Li Wang, Xi’an University of Science and Technology, CHINA

P7-30 - Matching Relationship between Microorganisms and Sub-Bituminous in the Process of Biosolubilization, Zilin Yue, Xiangrong Liu, Xi’an University of Science and Technology, CHINA

P7-31 - Activated Carbon as a Potential Char Surrogate in Char Kinetics Studies, Madison Kelley, Jason Porter, Colorado School of Mines, USA

**POSTER SESSION 8 COAL MINING**

P8-1 - Comparison Experiment of the Safe Oxygen Content of Mono-Component and Multi-Component Flammable Gas in the Coal Mine, Wang Hua, Wang Lian-hua, Qufu Normal University, CHINA

P8-2 - Experimental Research on the CO Impact on the Explosion Characteristics of CH\textsubscript{4}, Wang Hua, Wang Lian-hua, Qufu Normal University, CHINA

**POSTER SESSION 10 U.S. EPA’S COALBED METHANE OUTREACH PROGRAM (CMOP) COAL MINE METHANE CONFERENCE TRACK**

P10-1 - Invalidation Risk and Transfer Methods Mine Methane Capture Offsets Developed for the CA Compliance Marketplace, Matt Wallace, ISU Environmental Insurance Brokers, Inc., USA

P10-2 - Estimate The Optimum Horizontal Well Depth For Gas Drainage Using Numerical Method Case Study Tabas Coal Mine, Iran, Adel Taheri, Farhang Sereshti, Shahrood University of Technology, IRAN

**2015 Session Chairs**

**Gasification**
Massood Ramezan, Leonardo Technologies, Inc. (LTI), USA

**Clean Coal Demonstration and Commercial Projects**
Thomas Sarkus, DOE/NETL, USA

**Combustion**
John Wheeldon, EPRI, USA

**Clean Coal and Gas to Fuels**
Vann Bush, Gas Technology Institute, USA

**Sustainability and Environment**
Jim Hower, University of Kentucky, USA

**Carbon Management**
Evan Granite, DOE/NETL, USA

**Coal Science**
Jim Hower, University of Kentucky, USA

**Coal Mining**
Richard Bajura, West Virginia University, USA

**Coal Bed and Shale Gas**

**U.S. EPA’s Coalbed Methane Outreach Program (CMOP) Coal Mine Methane Conference Track**
Felicia Ruiz, U.S. Environmental Protection Agency, USA
Orders can be placed online or send a check/money order payable to “University of Pittsburgh”, specify the year and quantity, and mail to: Pittsburgh Coal Conference University of Pittsburgh 940 Benedum Hall Pittsburgh, PA 15261, USA

Shipping:
All Years on CD-ROM: $5.00
Domestic and International

Year Edition and Cost

<table>
<thead>
<tr>
<th>Year Edition</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Annual - 1984</td>
<td>$30.00</td>
</tr>
<tr>
<td>2nd Annual - 1985</td>
<td>$30.00</td>
</tr>
<tr>
<td>3rd Annual - 1986</td>
<td>$30.00</td>
</tr>
<tr>
<td>4th Annual - 1987</td>
<td>$30.00</td>
</tr>
<tr>
<td>5th Annual - 1988</td>
<td>$40.00</td>
</tr>
<tr>
<td>6th Annual - 1989</td>
<td>$40.00</td>
</tr>
<tr>
<td>7th Annual - 1990</td>
<td>$50.00</td>
</tr>
<tr>
<td>8th Annual - 1991</td>
<td>$50.00</td>
</tr>
<tr>
<td>9th Annual - 1992</td>
<td>$50.00</td>
</tr>
<tr>
<td>10th Annual - 1993</td>
<td>$50.00</td>
</tr>
<tr>
<td>11th Annual - 1994</td>
<td>$50.00</td>
</tr>
<tr>
<td>12th Annual - 1995</td>
<td>$50.00</td>
</tr>
<tr>
<td>13th Annual - 1996</td>
<td>$50.00</td>
</tr>
<tr>
<td>14th Annual - 1997</td>
<td>$30.00</td>
</tr>
<tr>
<td>15th Annual - 1998</td>
<td>$30.00</td>
</tr>
<tr>
<td>16th Annual - 1999</td>
<td>$30.00</td>
</tr>
<tr>
<td>17th Annual - 2000</td>
<td>$30.00</td>
</tr>
<tr>
<td>18th Annual - 2001</td>
<td>$30.00</td>
</tr>
<tr>
<td>19th Annual - 2002</td>
<td>$30.00</td>
</tr>
<tr>
<td>20th Annual - 2003</td>
<td>$30.00</td>
</tr>
<tr>
<td>21st Annual - 2004</td>
<td>$30.00</td>
</tr>
<tr>
<td>22nd Annual - 2005</td>
<td>$30.00</td>
</tr>
<tr>
<td>23rd Annual - 2006</td>
<td>$30.00</td>
</tr>
<tr>
<td>24th Annual - 2007</td>
<td>$30.00</td>
</tr>
<tr>
<td>25th Annual - 2008</td>
<td>$30.00</td>
</tr>
<tr>
<td>26th Annual - 2009</td>
<td>$30.00</td>
</tr>
<tr>
<td>27th Annual - 2010</td>
<td>$30.00</td>
</tr>
<tr>
<td>28th Annual - 2011</td>
<td>$30.00</td>
</tr>
<tr>
<td>29th Annual - 2012</td>
<td>$30.00</td>
</tr>
<tr>
<td>30th Annual - 2013</td>
<td>$30.00</td>
</tr>
<tr>
<td>31st Annual - 2014</td>
<td>$50.00</td>
</tr>
</tbody>
</table>

ADVISORY BOARD

Richard Winschel, Chair, CONSOL Energy Inc, USA
Richard Bajura, West Virginia University, USA
Robert Beck, The National Coal Council, Inc., USA
Francois Botha, Illinois Clean Coal Institute, USA
Vann Bush, Gas Technology Institute, USA
Tarunjit Butalia, The Ohio State University, USA
Steve Carpenter, Advanced Resources International, USA
Shiao-Hung Chiang, University of Pittsburgh, USA
John Duddy, Axens North America, Inc., USA
Dan Duellman, American Electric Power, USA
Janet Gellici, The National Coal Council, Inc., USA
Evan Granite, U.S. DOE/NETL, USA
Gerald Holder, University of Pittsburgh, USA
Jim Hower, University of Kentucky - CAER, USA
Mike Jones, Lignite Energy Council, USA
Francis Lau, Synthesis Energy Systems, USA
Wenhua Li, NICE, CHINA
Ke Liu, CHINA
Kouichi Miura, Kyoto University, JAPAN
Badie I. Morsi, University of Pittsburgh, USA
Masakatsu Nomura, Osaka University, JAPAN
Guven Onal, Istanbul Technical University, TURKEY
Massood Ramezan, LTI, USA
Leslie Ruppert, U.S. Geological Survey, USA
Thomas Sarkus, U.S. DOE/NETL, USA
Alan Scaroni, Pennsylvania State University, USA
Chunshan Song, Penn State University, USA
Gary Stiegel, Consultant, USA
Sam Tam, DOE (Fossil), USA
Johan van Dyk, African Carbon Energy, SOUTH AFRICA
Ting Wang, University of New Orleans, USA
John Wheeldon, EPRI, USA

INTERNATIONAL VICE CHAIRS

Duke Du Plessis, Alberta Energy Research Institute, CANADA
Hung-Taek Kim, Ajou University, SOUTH KOREA
Bernd Meyer, Freiberg University Mining & Technology, GERMANY
Kouichi Miura, Kyoto University, JAPAN
Geoff Morrison, IEA Clean Coal Centre, UNITED KINGDOM
Ke Liu, CHINA
Daniel Roberts, CSIRO, AUSTRALIA
Aleksandr Sobolewski, Institute for Chemical Processing of Coal, POLAND
Johan van Dyk, African Carbon Energy, SOUTH AFRICA

TO ORAL AND POSTER PRESENTERS:

For oral sessions, computer-operated LCD projectors will be provided for PowerPoint presentations. PowerPoint presentations can be emailed to the conference secretary at ipcc@pitt.edu at least 2 weeks before the conference or you may also bring it with you to the conference on a CD or memory stick. Each oral presentation including discussion is limited to 20 minutes.

The poster session is scheduled for 18:00 - 21:00 on Wednesday, October 7, 2015. The Conference will provide boards/easels for poster setup.

The Pittsburgh Coal Conference does not provide financial support to the authors of contributed papers. Benefits from participation include the privilege of presenting a paper at this Conference and publication of the paper in the Conference Proceedings for worldwide distribution.
<table>
<thead>
<tr>
<th>Conference Registration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration is also available online. Payment for the registration fee can be made by credit card securely online, wire transfer/bank draft, or checks payable to the University of Pittsburgh. Checks or bank drafts must be from a U.S. Bank or a foreign bank with a New York Branch.</td>
<td></td>
</tr>
<tr>
<td>On-Site Registration begins 15:00 - 19:00 on Monday, October 5, and continues from 07:00 until 17:00 each day of the conference.</td>
<td></td>
</tr>
<tr>
<td>Refunds will be honored if cancellation is received before September 30, 2015, less a $50.00 processing fee. NO refunds will be made after September 30, 2015.</td>
<td></td>
</tr>
</tbody>
</table>

**ACCOMMODATIONS**

Reservations for The Westin Hotel can be made online via our website. The rate of $182/single or a double is guaranteed until September 11, 2015.

---

**INCLUDED IN REGISTRATION FEE:**

**Full Program fee includes:**
Technical Program, Pre-Registered Attendees List, Breaks, Conference Gatherings (3 Luncheons, Poster Session, and Receptions), and one CD-ROM of the Conference Proceedings.

**One Day fee includes:**
Technical Program, Pre-Registered Attendees List, Breaks, one CD-ROM of the Conference Proceedings, and Conference Gatherings (specific day attending only).

**Student fee includes:**
Technical Program, Pre-Registered Attendees List, Breaks, Conference Gatherings (3 Luncheons, Poster Session, and Receptions), and one CD-ROM of the Conference Proceedings.

---

**FULL PROGRAM PAID BEFORE JULY 31, 2015**

- **Presenters and Board Members** $700 ____
- **General Public, Co-Authors** $800 ____
- **Student (Full Time ID)** $350 ____

**FULL PROGRAM PAID AFTER JULY 31, 2015**

- **All Attendees (Presenters, Board Members, General Public, Co-Authors)** $850 ____
- **Student (Full Time ID)** $350 ____

**One-Day Program (Please specify day attending):**

- 10/6 (Tues.)
- 10/7 (Wed.)
- 10/8 (Thurs.)

**Cost:** $450 ____

TOTAL ENCLOSED $________