Thirty-Fifth Annual
INTERNATIONAL PITTSBURGH
COAL CONFERENCE

University of Pittsburgh · Swanson School of Engineering
FINAL TECHNICAL PROGRAM

Clean Coal-based Energy/Fuels and the Environment

October 15-18, 2018
New Century Grand Hotel Xuzhou

Hosted by:

Co-hosted by:

The conference acknowledges the support of
K. C. Wong Education Foundation, Hong Kong
WELCOME!

On behalf of the Conference Advisory Board, Conference Committees, and the University of Pittsburgh we welcome you to the Thirty-Fifth Annual International Pittsburgh Coal Conference, which will be held October 15-18, 2018 at the New Century Grand Hotel Xuzhou, Xuzhou, Jiangsu Province, P. R. China, The Conference is hosted by China University of Mining Technology (CUMT) and University of Pittsburgh (PITT).

The theme of this year’s conference “Clean Coal-based Energy/Fuels and the Environment” covers wide spectrum of important topics on energy and environmental issues and technologies, which are directly related to coal extraction and utilization and its byproducts. Over 350 technical papers and posters will be presented at the conference. The Poster Sessions will be held on Tuesday, October 16, 2017 from 17:15 to 20:30. For detailed information about the technical sessions, please turn to page 6 in the Technical Program.

This year’s invited Plenary Speakers include: Prof. LI Yang, Chinese Academy of Engineering, China; Mr. Zhai Hong, Shanxi Yangquan Coal Industry (Group) Co., Ltd. China; Prof. GE Shirong, China University of Mining and Technology, China; Ms. Diane Madden, DOE-NETL, USA; Dr. LI Quansheng, Office for 2030 Project, China Energy Group, China; Dr. LI Wei, Yankuang Group Co., Ltd., China; Dr. Aleksander Sobolewski; Institute of Chemical Processing of Coal, Poland; and Mr. Francis Lau, Synthesis Energy Systems, USA.

We express our sincere gratitude to the Plenary Speakers and Moderators for their support and involvement, to all the authors and co-authors of the technical papers and to all the members of the International Technical Program Committee. Special thanks go to the session speakers and co-chairs, and to the international delegates for their invaluable contributions to the 2018 technical program.

As the chair of the Advisory Board of the Conference, I deeply appreciate your participation and interest in this year’s Conference and we invite you to join us next year for the Thirty-sixth Annual International Pittsburgh Coal Conference, which will be held at the Westin Convention Center Hotel in Pittsburgh, PA, USA, September 3-6,2019.

Sincerely,

Massood Ramezan, Chair
## TECHNICAL TOURS

**October 15 (Monday) 09:00-10:30**

**Route A: CUMT Campus Tour**
Including University Museum,
State Key Laboratory for Coal Resources and safe Mining,
State Key Laboratory for Geomechanics and Deep Underground Engineering

**October 15 (Monday) 13:00-17:00**

**Route B: Pan'an Lake, Excursion**
Land reclamation site, roughly 25 KM northeast of Xuzhou city center

## SIGHTSEEING TOURS

**October 15 (Monday) 09:00-11:30**

**Route A: Han Dynasty Relics**
Lion Hill Han Tomb and Terra-cotta Warriors and Horses

**October 15 (Monday) 14:00-16:00**

**Route B: Xuzhou Folklore Museum and Residential Quarter in Ming and Qing Dynasty**

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## ACCOMMODATIONS

**New Century Grand Hotel Xuzhou**

**Address:** 1 Huxi Rd, Quanshan District, Xuzhou City, Jiangsu Province, China, 221006

**International Attendees**
- Reserve before October 9, 2018
- Reduced rates for conference Attendees.
- 2 guests per room maximum.
- Payment will be collected by the hotel at check-in.
- You can use Visa or Master Card.
- Make your reservation here: [http://sesaf.cumt.edu.cn/Pcc/register?flag=en](http://sesaf.cumt.edu.cn/Pcc/register?flag=en)

**National Attendees**
(from mainland China, Hong Kong, Macao and Taiwan):
- Please make your hotel reservations here: [http://pcc2018.cumt.edu.cn/](http://pcc2018.cumt.edu.cn/)
## GENERAL INFORMATION

### CONFERENCE OVERVIEW

#### SUNDAY, OCTOBER 14, 2018
- **Registration**: 12:00-20:00

#### MONDAY, OCTOBER 15, 2018
- **Registration**: 08:00 - 20:00
- **Technical Tours (Route A)**: 09:00 - 10:30
- **Technical Tours (Route B)**: 13:00 - 17:00
- **Spouses Sightseeing Tours**: 09:00 - 16:00
- **Reception**: 18:30 - 20:30

#### TUESDAY, OCTOBER 16, 2018
- **Registration**: 08:00 - 20:00
- **Opening Ceremony**: 08:30 - 09:15
- **Plenary Session**:
  - Prof. GE Shirong: China University of Mining and Technology
    - “Robotic Mining Technology for Underground Mines”
  - Mr. ZHAI Hong: Yangquan Coal Industry (Group) Co. Ltd., China
    - “TBD”
- **Concurrent Tech. Sessions**: 10:50 - 12:30
- **Conference Lunch**: 12:30 - 13:30
- **Concurrent Tech. Sessions**: 13:30 - 17:10
- **Poster Sessions**: 17:15 - 20:30
- **Buffet Dinner**: 18:00 - 19:30

#### WEDNESDAY, OCTOBER 17, 2018
- **Registration**: 08:00 - 17:00
- **Plenary Session - 2**: 08:45 - 10:30
- **Concurrent Tech. Sessions**: 10:50 - 12:30
- **Conference Lunch**: 12:30 - 13:30
- **Concurrent Tech. Sessions**: 13:30 - 17:10
- **Banquet and Awards Program**: 18:00 - 21:00

#### THURSDAY, OCTOBER 18, 2018
- **Registration**: 08:00 - 10:30
- **Plenary Session - 3**: 08:45 - 10:30
- **Concurrent Tech. Sessions**: 10:50 - 12:30
- **Conference Lunch and Closing Ceremony**: 12:30 - 13:30
- **Concurrent Tech. Sessions**: 13:30 - 16:30

### PLENARY SPEAKERS

#### TUESDAY, OCTOBER 16, 2018
- **Prof. GE Shirong**: China University of Mining and Technology
  - “Robotic Mining Technology for Underground Mines”
- **Mr. ZHAI Hong**: Yangquan Coal Industry (Group) Co. Ltd., China
  - “TBD”

#### WEDNESDAY, OCTOBER 17, 2018
- **Dr. LI Quansheng**: Office for 2030 Project, China Energy Group, China
  - “Innovations and Practices in Green Development of Coal Resources”
- **Ms. Diane Madden**: DOE-NETL, USA
  - “Overview of U.S. DOE Coal Research Program”
- **Prof. LI Yang**: Chinese Academy of Engineering
  - “CCUS Technology and its Industrial Development in China”

#### THURSDAY, OCTOBER 18, 2018
- **Dr. LI Wei**: Yankuang Group Co., Ltd., China
  - “Yankuang Group Implements ‘Five Pathways’ for Transformation and Upgrading with the Goal of Establishing a World-class Green Energy Supplier and an International Mining Group”
- **Dr. Aleksander Sobolewski**: Institute of Chemical Processing of Coal, Poland
  - “Future of Coal - The Case Study from Poland”
- **Mr. Francis Lau**: Synthesis Energy Systems, USA
  - “SES Gasification Technology from R&D to Commercialization”
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<td>Power Plants - 2 (Session 7)</td>
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<td>Clean Coal Demonstration and Commercial Projects - 1 (Session 9)</td>
<td>Value-Added Products from Coal - 2 (Session 10)</td>
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<td>Coal Bed and Shale Gas - 1 (Session 21)</td>
<td>Value-Added Products from Coal - 4 (Session 22)</td>
<td>Gasification Technologies - 4 (Session 23)</td>
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<td>Clean Coal and Gas to Fuels - 1 (Session 32)</td>
<td>Coal Bed and Shale Gas - 3 (Session 33)</td>
<td>Value-Added Products from Coal - 6 (Session 34)</td>
<td>Gasification Technologies - 6 (Session 35)</td>
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<td>Clean Coal and Gas to Fuels - 2 (Session 38)</td>
<td>Coal Bed and Shale Gas - 4 (Session 39)</td>
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<td>Coal Science - 10 (Session 45)</td>
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<td>Gasification Technologies - 8 (Session 47)</td>
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Map of the New Century Grand Hotel - Main Conference Area
TECHNICAL PROGRAM

ORAL SESSIONS
Tuesday, October 16
10:50 - 16:50

SESSION 1
POWER PLANTS - 1

Laihong Shen and Ting Wang
10:50 Case Studies of Biomass Co-Firing in Full-Scale Pulverized Coal-Fired Power Plants in China. Wang Xuebin, Xi’an Jiaotong University, CHINA.

11:10 Pilot Test of Urea hydrolysis to Ammonia with Steam Stripping. Lu Xu, Zhang Xiangyu, Zhang Bo, Xu Hongjie, Xi’an Thermal Power Research Institute Co., LTD, PR-China.


SESSION 2
COMBUSTION TECHNOLOGIES - 1

Fubao Zhou and Massood Ramezan

11:10 Flue Gas Effects on Ditomite-Based Adsorbents for Elemental Mercury Removal. Huan Liu, Zuo Xiong, Yongchun Zhao, Junyong Zhang, Huazhong University of Science & Technology, PR-China.

11:30 Experimental Analysis of Moisture Re-Adsorption of Dried Coal Using a Superheated Steam. Geunyeong Park, Korea Institute of Industrial Technology and Sungkyunkwan University; Yongwoon Lee, Tae Young Chae, Won Yang, Korea Institute of Industrial Technology; Donghyun Lee, Sungkyunkwan University; Ikhwon Na, Nakgyun Kim, Hankook Technology; South Korea.


SESSION 3
RARE EARTH ELEMENTS IN COAL AND COAL BYPRODUCTS

Shifeng Dai and Andreas Richter
10:50 Rare Earth Elements in the Lignite from Mile Basin, Yunnan, China: Implication for Seawater Influence During Peat Accumulation. Jingjing Liu, Shifeng Dai, China University of Mining and Technology, PR-China.

11:10 Extraction of Rare Earth Element (REE) from Coal Ash in Korea. Sungyoon Park, Yejee Lim, Nway Oo Khin, Minsoo Kim, Sangwoon Woo, Han S. Kim, Konkuk University, South Korea.

11:30 Characteristics of Rare Earth Elements in Entrained Flow Gasification Residues. Ningdong, China; Xin Guo, Yuegang Tang, Yafeng Wang, Binbin Huan, Xi Pan, China University of Mining and Technology (Beijing), PR-China; Cortland F. Eble, Kentucky Geological Survey, USA.

11:50 Critical Elements in Changhsingian Coals of the Shugentian Coalfield, East Yunnan, China; Xue Zheng, Shifeng Dai, China University of Mining and Technology, PR-China.

SESSION 4
VALUE-ADDED PRODUCTS FROM COAL - 1

Hesheng Yu and Chunshan Song
10:50 Thermogravimetry Mass Spectrometry (TG-MS) Study of Pyrolytic Characteristics of Two Different-maturation Lignites. Haibo Yan, Jie Wang, East China University of Science and Technology, PR-China.

11:10 The Influence of Coal Characteristics on Coal-based Graphene. Xuan Huan, Yuegang Tang, Jingshi Xu, Xiaoyu Xu, China University of Mining and Technology (Beijing), PR-China.

11:30 Effect of Turbostratic Carbon on Microstructure and Hydrogen Absorption Performance of Mg-C Composite from Mechanical Milling. Pei Liu, Xinyuan Li, Ruqian Jiang, Xiaojing Liu, Yuanti Chen, Shixue Zhou, Shandong University of Science and Technology, PR-China.

11:50 Preparation and Lithium Storage Performance of C-GQDs/a-FeC03 Nanocomposites. Yating Zhang, Kaibo Zhang, Kaili Jia, Guoyang Liu, Shaozha Ren, Xi’an University of Science and Technology; Jieshan Qiu, Dalian University of Technology, Beijing University of Chemical Technology, PR-China.

12:10 Hollow Spherical Nano-ZnO/Coal-based Graphene Macro Porous Aerogels for Photocatalytic Conversion of Carbon Dioxide. Keke Li, Jing Zhang, Kaibo Zhang, Kaili Jia, Guoyang Liu, Yating Zhang, Xi’an University of Science and Technology; Jieshan Qiu, Dalian University of Technology, Beijing University of Chemical Technology, PR-China.

SESSION 5
GASIFICATION TECHNOLOGIES - 1

Zuotang Wang and Francis Lau
10:50 Thermodynamic Analysis of Chemical Looping Gasification Coupled with Lignite Pyrolysis. Zhang Kun; Demin He, Jun Guan, Dalian University of Technology; Xueqiang Li, Jianxuan Shang, Shanshan Coal and Chemical Industry Group Co. Ltd; Qiumin Zhang, Dalian University of Technology; PR-China.

11:10 Experimental Study on Coal Pyrolysis in a Fluidized Bed Reactor by Using Char as Heat Carriers. Kaikun Li, Qinhi Wang, Chunjiang Yu, Mengxian Fang, Zhongyang Luo, Zhejiang University, PR-China.
SESSION 6
COAL SCIENCE - 1
Junying Zhang and Atsushi Ishihara

10:50 Effect of Particle Size on the Enrichment of Sulfite Coals of Western Lignite Corporation (Turkey) by Spiral, Ali Ucar, Sevgi Karaca, Nezahat Ediz, Oktay Şahbaz, İ.Gökşay Ediz, Cem Sensogut, Dumlupınar University, TURKEY.

11:10 Time-Of-Flight Mass Spectrometric Study on In-Situ Pyrolysis of Coal-Based Model Compounds-Phenyl benzyl ketone (PKB), Fangfang Liu, Dalian University of Technology/ Xiamen University; Gang Li, Chinese Academy of Sciences; Jun Chen, Jing Yang, Xiamen University; Lijung Jin, Dalian University of Technology; Zichao Tang, Xiamen University; Haoquan Hu, Dalian University of Technology; PR CHINA.

11:30 Effect of Inorganics in Liquid Waste from Hydrothermal Treatment on Pyrolysis Behavior of a Vitrinite-Rich Coal, Chuan Zhu, China Coal Research Institute, State Key Laboratory of Coal Mining and Clean Utilization, China University of Mining and Technology; Qiang Xie, China University of Mining and Technology; Jinlong Zhong, China Coal Research Institute, State Key Laboratory of Coal Mining and Clean Utilization; Hao Guo, China University of Mining and Technology; Yuhong Zhang, China Coal Research Institute, State Key Laboratory of Coal Mining and Clean Utilization; PR CHINA.

11:50 Investigation into the Association Characteristics of Coal Tar Derived from Low and Medium Temperature Pyrolysis of Low Rank Coal by Means of Column Chromatography, Guangsheng Li, Lei Bi, Qiang Xie, Xianglan Zhang, Haiyong Zhang, China University of Mining and Technology, PR CHINA.

12:10 Pyrolysis Behavior of Briquette Coal from a Typical Chinese Brown Coal, Weiwei Xie, Yang Chen, Baoshi Guo, Huiya Guo, Lingmei Zhou, China University of Mining and Technology (Beijing), PR CHINA.

SESSION 7
POWER PLANTS - 2
Zhengchang Song and Ting Wang

13:30 Study on the Denitrification Performance of Mn-Fe Based Catalyst under Low Temperature Conditions, Wang CuiPing, Qingdao University, PR CHINA.

13:50 Mathematical Modeling and Controller Design for a 1000MW Ultra- Supercritical Coal _Red Unit, He Fan, Pei- hong Wang, Zhi-gang Su, Southeast University, PR CHINA.

14:10 1-D Analysis of a 560 MW Power Plant Boiler Performing Under Different Coal Specifications, Hamed Jafari, Won Yang, Korea Institute of Industrial Technology; Changkook Ryu, Professor, Sungkyunkwan University, Suwon; SOUTH KOREA.

14:30 Operation Guide System for Taean 300MW IGCC Plant, Bongkeun Kim, Senior Research Engineer, Doosan Heavy Industries & Construction; Yoseok Kim, Seongwoo Hon*, Doosan Heavy Industries & Construction; Jikhwam Kim, Korea Western Power Co., Ltd; Jeongseok-Yoo, Doosan Heavy Industries & Construction; SOUTH KOREA.

14:50 Latest Development of International Cofiring Biomass Technology Application, Xing Zhang, IEA Clean Coal Centre, UK.

SESSION 8
COMBUSTION TECHNOLOGIES - 2
Fubao Zhou and Wenhua Li

13:30 Development of Oxy-Fuel Combustion Technology in a 0.1 MWth Circulating Fluidized Bed, Jihoong Moon, Tae- Young Mun, Sung-Ho Jo, Myung Won Seo, Sung Jin Park, Nguyen Hoang Khoi, Gunung Oh, Ho Won Ra, Sang Jun Yoon, Sung Min Yoon, Jae-Goo Lee, FEP Convergence Research Center / Clean Fuels Laboratory, Korea Institute of Energy Research, SOUTH KOREA.

13:50 The Role of K2CO3 on Structural Changes of Coal, Biomass and Coal/Biomass Blends During Pre-Treatment Using N2 and CO2. Differences in the Reactivity Under Oxy-Combustion Conditions, Yuli Betuncer, Taiyuan University of Technology, PR CHINA; Diana López, Universidad de Antioquia, UdeA, COLOMBIA; Zhen-yi Du, Wen-ying Li, Taiyuan University of Technology, PR CHINA.

14:10 Performance Analysis for a Retrofitted Oxy-Fuel Boiler, Kai Yan, Xiaojianang Wu, Xiang Zhang, Jianwen Zhang, Shanghai Boiler Works Co Ltd., PR CHINA.

14:30 Integrated Flue Gas Purification for Staged, Pressurized Oxy-Combustion, Benjamin M. Kumfer, David Stokie, Piyush Verma, Young-Shin Jun, Washington University in St. Louis, USA; Gregory Yablonsky, Saint Louis University, USA; A. K. Suresh, Indian Institute of Technology Bombay, INDIA; Richard L. Axelbaum, Washington University, USA.

14:50 Integrated Process of Coal pyrolysis with Low Alkanes Reforming of CO2 over Modified Ni-Based Catalysts, Jiannan Lv, Yang Li, Lijun Jin, Haoquan Hu, Dalian University of Technology, PR CHINA.

SESSION 9
CLEAN COAL DEMONSTRATION AND COMMERCIAL PROJECTS - 1
Jianguo Yang and Diane Madden

13:30 Study on Process Optimization and Upgrading of Power Coal Preparation Plant in China, Zhang Zhen, China National Energy Group Ningxia Coal Group Coal Preparation Center, PR CHINA.

13:50 Numerical Investigation on Combustion and NOx Emission Characteristics in a 600 MW Tangentially Coal-fired Boiler Co-firing with Semi-coke, Zichen Tao, Chang’an Wang, Pengqiang Wang, Qingxin Feng, Maobo Yuan, Defu Che, Xi’an Jiaotong University, USA.

14:10 A CFD Modeling of Biomass Combustion in the Retrofit Boiler, Yu Jiang, Pusan National University; Byeong-Choel Sim, Korea South-East Power Co.; Chung-Hwan Jeon, Pusan National University; KOREA.

14:30 Hotspots and Technical Requirements on Coal Preparation in China, Jianguo Yang, You Zhou, Lixi Zhou, China University of Mining and Technology, Xuzhou, PR CHINA.
SESSION 10

VALUE-ADDED PRODUCTS FROM COAL - 2

Hesheng Yu and Chunshan Song

13:30 A Promising and Feasible Method to Enhance Oil Yield During Large-Scale Direct Liquefaction of Sodium-Rich Zhundong Coals, Xiao Li, China University of Mining and Technology, PR CHINA.

13:50 Preparation of Coal-based Conductive Carbon Membrane for Waste Water Treatment, Pan Zonglin, Yang Jiawei, Dalian University of Technology; Song Chengwen, Dalian Maritime University; Pan Yanqi, Wang Tonghua, Dalian University of Technology; PR CHINA.

14:10 Solvent Recovery and Recycling from Coal Pretreatment to Enable Zero-Waste Processes, Jiash Yi, Shuai Tan, Phuoc Hoang-Hanh Duong, Ian Hammontree, Dongmei Li, University of Wyoming, USA.

14:30 Fabrication of Oxygen-Enriched Carbon Nanofibers (OECNFs) from Wyoming PRB Coal for Supercapacitor Applications, Shuai Tan, Dongmei Li, University of Wyoming, USA.

14:50 Construction of Coal-based Activated Carbons by Physical-Chemical Activation for High Performance Supercapacitor Electrodes, Xiaoming Yue, Zhaoyang An, Shengfan Xue, Jing Xu, Yajun Wu, Zijing Liu, Cuicui Xiao, Mei Ye, Shuangquan Zhang, China University of Mining and Technology, PR CHINA.

SESSION 11

GASIFICATION TECHNOLOGIES - 2

Zuotang Wang and Francis Lau

13:30 Release of Sodium in Typical Shaxi High Ash Anthracite with Na-Flux Under Fast Pyrolysis Conditions, Rui Rao, Yongchun Zhao, Gaolei Li, Hongyue Wang, Junying Zhang, Huazhong University of Science & Technology; Jin Bai, Wen Li, Junying Zhang, Huazhong University of Science and Technology, PR CHINA.

13:50 Investigation on Effect of Functional Groups on Volatile Evolution in the Process of Pyrolysis and Gasification of Naomaofu Subbituminous Coal, Huan Wang, Qian Wang, Quan Wang, Jiao Kong, Meijun Wang, Taiyuan University of Technology, PR CHINA.

14:10 The Characteristics of Tar Quality in the Process of Pyrolysis and Gasification of Naomaofu Subbituminous Coal, Huan Wang, Qian Wang, Quan Wang, Jiao Kong, Meijun Wang, Taiyuan University of Technology, PR CHINA.

14:30 Interactions Between CO\textsubscript{2} and H\textsubscript{2}O on Char Structure Evolution During Coal Char Gasification, Yajie Zhou, Shenghua Zhu, Liang Ren, Lunjing Yan, Yonghui Bai, Taiyuan University of Technology, PR CHINA.

14:50 Experimental Study of the Flat-Flame Pulverized Coal Gasification Technology, Huiqian AnLiu Zhen, Baotai Peng, Qingshun Guan, Ziyang Feng, Bing Liu, Xinhu Fang, Ya Suo, Xin Cui, Feng Huang, Wenhua Li, National Institute of Clean-and-Low-Carbon Energy, PR CHINA.

SESSION 12

COAL SCIENCE - 2

Junying Zhang and Atsushi Ishihara

13:30 Study on the Emission and Transformation Behavior of As, Hg, Pb and Se During Coal Gangue Combustion in O\textsubscript{2}/CO\textsubscript{2} Atmosphere, Fangqin Cheng, Hao Peng, Baofeng Wang, Fengling Yang, Shanxi University, PR CHINA.

13:50 The Transformation Characteristic of Sulfur Species during Thermal Extraction of Typical Low Rank Coal, Jianan Yin, Xiongchao Lin, Yonggang Wang, Zhen gang Xu, China University of Mining & Technology (Beijing), PR CHINA.

14:10 Volatilization Characteristics of Mercury in Coal During Conventional and Microwave Drying Process, Ningning Zhang, Xilun University of Science and Technology; Changchun Zhou, China University of Mining and Technology, PR CHINA.

15:00 Process Development of Making High Efficiency Silicon-Calcium Fertilizer with the White Mud, Aiguo Chen, Huidong Liu, Xiaohuan Wang, Yongfeng Xiao, National Institute of Clean-and-Low-Carbon Energy, PR CHINA.

14:50 The Behavior of the Sulfur Transformation in Semi-Coke During Catalytic Depolymerization of Zaozhuan Coal, Zeyu Peng, Taiyuan University of Technology, PR CHINA.

SESSION 13

POWER PLANTS - 3

Laihong Shen and Ting Wang

15:30 Study on the Combustion Characteristics of Blue-Coke and Its Application in Pulverized Coal-Fired Boilers, Zhichao Wang, Wei Yao, Xi’an Thermal Power Research Institute Co., Ltd; Yingyan Wang, Shaanxi Coal and Chemical Industry Group Co., Ltd; Zhongcan Yang, Jiali Liu, Xi’an Thermal Power Research Institute Co., Ltd; PR CHINA.

15:50 NSGA-II Based Multi-objective Optimization of NOX Emission and Reheat Steam Temperature, Xian-hua Gao, Zhi-gang Su, Southeast University, PR CHINA.


16:20 Progress in Commissioning a Pilot-Scale Staged, Pressurized Oxy-Combustion System, Zhiwei Yang, Dishant Khatri, Adewale Adeosun, Tianxian Li, Akshay Gopan, Benjamin M. Kumfer, Richard L. Axelbaum, Washington University in St. Louis; Ismail Celik, Department of Mechanical and Aerospace Engineering, West Virginia University; USA.

16:50 Parallel Optimization Based on Artificial Bee Colony Algorithm, Debo Li, Yongxin Feng, Jielian Zhou, Electric Power Research Institute of Guangdong Power Grid Corporation, PR CHINA.

SESSION 14

COMBUSTION TECHNOLOGIES - 3

Fubao Zhou and Wenhua Li

15:30 Investigation on the Effect of Kaolin and Ammonium Sulfate as Additive to Melting Behavior: The Korean Rice Straw Co-Firing Case, Yumi Park, Ho Lim, Tae young Chae, young Chae, Yongwoon Lee, Jae wook Lee, Korea Institute of Industrial Technology; Dae hong Ko, Yongsei University; Won Yang, Korea Institute of Industrial Technology; SOUTH KOREA.

15:50 Ash Deposition and Slagging Behavior of Blended Coal with Xinjiang High-Alkali Coal in 3 MWth Test Facility, Xiaojiang Wu, Xiang Zhang, Jianwen Zhang, Kai Yan, Nan Chen, Shanghai Boiler Works Co., Ltd, PR CHINA.

16:10 Influence of SO\textsubscript{2} and Cl\textsuperscript{-} on Minerals Condensation and Slagging Characteristics, Shenghui Yu, Cheng Zhang, Xiao-pei Zhang, Xin Li, Qing-yang Yang, Gang Chen, Huazhong University of Science and Technology, PR CHINA.

16:30 Development and Evaluation of
16:50 Experimental Study on Cyclone Combustion of High-Alkali Coal, Zhang Xiangyu, Zhang Bo, Lu Xu, Xu Hongjie, Xi’an Thermal Power Research Institute Co., LTD., PR CHINA.

15:50 Montan Wax Extraction from Baqing Lignite and Its Characterization, Zhonghua Zhang, Cuiping Zhang, Xin Cui, Shuang Lang, Congyin Liu, Wenhua Li, Future Science &Technology City, PR CHINA.

16:10 Extraction of Polar Materials from Low Rank Coals, Seth T. Bassham, Ying Wang, and David A. Bell, University of Wyoming, USA.

16:30 Preparation of Carbon Fibers with Highspecific Surface Area by Degradative solvent Extraction product from Biomass Wastes, Chao Wu, Huazhong University of Science and Technology; Xian Lia, Huazhong University of Science and Technology, Xinjiang University; Xianqing Zhu, Kai Xu, Zhenzhong Hu, Weixiang Qian, Guangqian Luo, Huan Liu, Hongyuan Hu, Hong Yao, Huazhong University of Science and Technology, PR CHINA.

16:50 Upgrading of Lignite Pyrolysis Tar by Catalytic Cracking over Different Mo-loaded HZSM-5 Catalysts, Feng Mao, Jie Wang, East China University of Science and Technology, PR CHINA.

SESSION 17
GASIFICATION TECHNOLOGIES - 3
Zuotang Wang and Francis Lau

15:30 The Behavior of Volatiles’ Reaction at Different Temperatures During Pyrolysis of Naomaohu Subbituminous Coal, Xiaorong Li, Jin Xin, Tianzhou Du, Jiao Kong, Meijun Wang, Weiren Bao, Taiyuan University of Technology, PR CHINA.

15:50 Hydrogenation of Pinewood Hydrolysis Volatile Matter over Iron-Loaded Charcoal for Producing Light Hydrocarbons, Nan Zheng, Jie Wang, East China University of Science and Technology, PR CHINA.

16:10 Pyrolysis of Peat in the Presence of Phosphoric Acid, Feng Deng, China University of Mining and Technology (Beijing), Guangzhou University of Engineering Science; Qiang Xie, Dingcheng Liang, Deyian Liu, China University of Mining and Technology (Beijing), PR CHINA.

SESSION 18
COAL SCIENCE - 3
Junying Zhang and Atsushi Ishihara

15:30 Differentiation of Enriched Organically-Associated Trace Elements in The Macerals of High-Ge Coals from China, Qiang Wei, Shifeng Dai, China University of Mining and Technology, China University of Mining and Technology (Beijing), PR CHINA.


16:10 Migration and Removal of Minerals and Hazardous Trace Elements in Coal During Coal Washing, Chengwei Yang, Yuegang Tang, Chengwei Yang, Kangnan Feng, Xingyuan Li, Wenqiang Ma, China University of Mining and Technology (Beijing), PR CHINA.

16:30 Partitioning and Migration of Pb and Cr in an Ultra-Low Emission Pulverized Coal Boiler, Lin Chang, Huan Liu, Shibo Zhang, Yongchun Zhao, Junying Zhang, Huazhong University of Science & Technology, PR CHINA.

16:50 Arsenic Distribution and Speciation of High-ArSENic Ashes from a Lignite Fired Power Plant in Inner Mongolia, China, Bengen Gong, Qirun Yong, Zuo Xiong, Yongchun Zhao, Junying Zhang, Huazhong University of Science & Technology, PR CHINA.
SESSION 19
CARBON MANAGEMENT - 1
Wenjun Zhang and Omar Basha

10:50 Analysis of the Application Potential of CCUS in Four Major Industries in China, Xiaochun Li, Chinese Academy of Sciences, PR CHINA.

11:10 Commissioning and Completion of the Wyoming Integrated Test Center, Jason Begger, Wyoming Infrastructure Authority; William J. Morris, Wyoming Integrated Test Center; USA.

11:30 Research Status of Carbon Dioxide Utilization Technology, Jianwei Li, Jiaojiao Lei, Xing Xin, Feng Bai, Xi’an University of Science and Technology, PR CHINA.


SESSION 20
COMBUSTION TECHNOLOGIES - 4
Huaichun Zhou and Andreas Richter

10:50 Synergistic Mercury Removal with a Medium and Low Temperature SCR Catalyst of Fe-Modified MnOₓ/TiO₂ from Coal Combustion Flue Gas, Shibo Zhang, Yongchun Zhu, Junying Zhang, Huazhong University of Science and Technology, PR CHINA.

11:10 Numerical Investigation On Co-Firing with Ammonia And Pulverized Coal in A 10MWth Combustion Facility, Juwei Zhang, Takamasa Ito, Sakiko Ishihara, Toshiro Fujimori, IHI Corporation, Ltd., JAPAN.

11:30 Evolution of Organically Bound Metals During Zhundong Sub-Bituminous Coal Combustion, Xianpeng Zeng, Dunxi Yu, Huazhong University of Science and Technology, PR CHINA.

11:50 Migration and Transformation of Mercury in Coal Gangue Fired Power Plant with FF and WFGD, Yuming Zhou, Binbin Zhu, Bengen Gong, Yongchun Zhao, Junying Zhang, Huazhong University of Science and Technology, PR CHINA.

SESSION 21
COAL BED AND SHALE GAS - 1
Yanming Zhu and Leslie Ruppert

10:50 Impact of Tectonic Deformation on Coal Methane Adsorption Capacity, Wu Li, China University of Mining & Technology, PR CHINA.

11:10 The Feasible Discussion of Gas Recovery about Coal bed methène, Tight gas and Shale gas “Three gases” Commingling, Haiquan Zhong, Mengqi Hu, Pengbo He, Southwest Petroleum University at Chengdu, PR CHINA.

11:30 Experiences in the Capture and Utilization of Methane from the Coal Seam in Polish Mines, Marek Borowski, Agh University of Science and Technology; Artur Badyłak, Joanna Berger-Kirsz, Exme Berger Group; POLAND.

11:50 Experimental Study On Adsorption and Permeability of Coal Rock Under the Action of Artificial Electric Field, Shao Xianjie, Li Feng, Oyaka Dickens, Peng Yingming, Li Mingfeng, Liu Zeheng, Yanshan University, PR CHINA.

12:10 Study on Adsorption Capacity and Influencing Factors of Middle-High-Order Coal-Rocks in Ma, Wang Xixi, Yan Yi, Li Feng, Shao Xianjie, Yanshan University, PR CHINA.

SESSION 22
VALUE-ADDED PRODUCTS FROM COAL - 4
Dongping Tao and John Duddy

10:50 Experimental Research of the effect of Properties of coal charge on Ferrocene Properties, Shihua Shi, Zhen Xu, Jin -Hui Zhou, Yong-Hui Luo, Gong-er Wang, Yan-Gao Mao, Qi Zheng, Qing-Wen Dong, Shuai Lu, Wuhan University of Science and Technology, PR CHINA.

11:10 Study on Properties of Indonesian Coal and its Compatibility with Domestic Coal for Coking, Shi-Zhuang Shi, Zhen Xu, Jin-Hui ZHOU, Yan-Gao MAO, Qi ZHENG, Yong-Hui LUO, Gong-ER WANG, Qing-Wen DONG, Zhi-Long LIN, University of Science and Technology, PR CHINA.

11:30 The Relationship between the Improvement of TAMping Coal Quality and Quality of Coal Charge, Shi-Zhuang Shi, Zhen Xu, Jin-Hui Zhou, Qi Zheng, Yan-Gao Mao, Yong-Hui Luo, Gong-er Wang, Zhi-Long Lin, Shuai Lu, Wuhan University of Science and Technology, PR CHINA.

11:50 Contribution to the Briquetting and Coking Behaviour of Non-Baking Coals of Different Rank, Franz Fehse, Hans-Werner Schröder, TU Bergakademie Freiberg; Ronald Kim, ThyssenKrupp Industrial Solutions AG; GERMANY.

12:10 Understanding the Contribution of Component Coals in Coke Oven Blend, Philip Bennett, CoalTech Pty. Ltd.; Adrian Reifenstein, ALS Coal; AUSTRALIA.

SESSION 23
GASIFICATION TECHNOLOGIES - 4
Fuchen Wang and Johan van Dyk

10:50 Establishment and Application of Two-Step Reaction Equilibrium Calculation Model for UCG (Underground Coal Gasification), Tianhong Duan, China University of Mining and Technology (CUMT), PR CHINA.

11:10 Applying Spontaneous Adiabatic Test Procedure to Determine Co2 Gasification Reactivity and Kinetics of Coal for UCG Applications, JC van Dyk, North-West University; J Brand, African Carbon Energy; FB Waanders, North-West University; SOUTH AFRICA.

11:30 Role of Solids in Viscosity of Brown Coal Slags: How It Affects Tey and Transition to Non-Newtonian Flow, Alexander Ilyushechkin, San Shwe Hla, Daniel Roberts, CSIRO Energy, AUSTRALIA; Alex Kondratiev, National University of Science & Technology MISIS, RUSSIA.

11:50 Experimental Study On Liquid Hydrocarbon Formation During Pressurized Underground Coal Gasification Conditions, JC van Dyk, JF Brand, FB Waanders, North-West University, SOUTH AFRICA; M Nguyen, D Scheithauer, TU Bergakademie Freiberg; B Meyer, DBI-Virturesults GmbH & TU Bergakademie Freiberg, GERMANY.

12:10 Investigation the Shape of Cavity and Pollutants Migration Behavior After Underground Coal Gasification, Maofei Niu, Shuqin Liu, China University of Mining and Technology (Beijing), PR CHINA.

SESSION 24
COAL SCIENCE - 4
Junying Zhang and Alexander Ilyushechkin

10:50 Adsorption of Pure CH4 and CO₂ on the Crushing Coal Under Different Temperatures: Experiment and
TECHNICAL PROGRAM

SESSION 25
CARBON MANAGEMENT - 2

Wenjun Zhan and Omar Basha

13:30 Progress and Outlook of Yanchang Full-Chain CCUS Project, Ruiming Gao, Research Institute of Yanchang Petroleum (Group) Co. LTD, PR CHINA.

13:50 Numerical Simulation of Enhanced Gas Recovery from Homogeneous and Heterogeneous Formations, Ramesh K. Agarwal, Washington University in St. Louis, USA.

14:10 Preparation and CO2 Adsorption of Amine Modified Titanate Nanotubes, Xiaohua Wang, Yao Zhou, Xi'an University of Science & Technology, PR CHINA.

14:30 Synthesis Optimization and Performance of Nanocomposite Sodalite/Ceramic Membranes for Pre-Combustion CO2 Capture, Ovevaoghe Etergho-Iklegbe, University of the Witwatersrand, Johannesburg, SOUTH AFRICA.

14:50 Energy Efficiency Improvement and Debottlenecking for IGCC-CCS, Presenting Author: Omar M. Basha, North Carolina A&T State University; Co-Authors: Nicholas Siefert, Isaac Gamwo, National Energy Technology Laboratory, U.S. Department of Energy; Badie I. Morsi, University of Pittsburgh, USA

SESSION 26
COMBUSTION TECHNOLOGIES - 5

Huaichun Zhou and Andreas Richter

13:30 Effect of Natural and Forced Convection on Ignition and Soot Yields for Single Coal Particle Combustion, Lele Feng, Yuxin Wu, Tsinghua University; Kailong Xu, CAEP Software Center for High Performance Numerical Simulation; Hai Zhang, Tsinghua University; PR CHINA.


14:10 A Transient Process Simulation on Thermal Explosion of Propylene Recovery Reactor Linked with Calorimetric Techniques, Chi-Min Shu, Yi-Hong Chung, Zhao-Min Jiang, Yunlin University of Science and Technology, TAIWAN, ROC.

14:30 Method for Improving Power Efficiency of Coal Fired Power Plants Fitted with CCUS, Geoffrey D Bongers, Gamma Energy Technology P/L; Nikolai K Kinaev, Strategic Energy Consulting P/L; Zvonko Pregelj, Aliprom International P/L; AUSTRALIA.

SESSION 27
COAL BED AND SHALE GAS - 2

Yanming Zhu and Richard Bajura

13:30 Paleotectonic Stress Field Reconstruction and Prediction of Natural Fractures in the Longmaxi Shale Reservoir, Nanchuan Region, South China, Wei Ju, China University of Mining & Technology, PR CHINA.

13:50 CSIRO Ventilation Air Methane Abatement Research, Shi Su, Xin Yu, Jon Yin, Jun-Seok Bae, Yonggang Jin, Michael Cummington, Ramesh Thiruvengadachari, CSIRO, AUSTRALIA.

14:10 Numerical Simulation of Multi-Fracture Propagation Characteristics in Hydraulic Fracturing of Coal Seam, Yingying Guo, Shuheng Tang, Songhang Zhang, China University of Geosciences (Beijing), PR CHINA.

14:30 Optimization of Technology for Development of Thin Interbedded Coalbed Methane in Western Guizhou Province of China, Shao Xianjie, Liu Zeheng, Li Feng, Oyaka Dickens, Yanshan University; Jin Liuqing, Guizhou Shale Gas Co., Ltd; Li Mingfeng, Yanshan University, PR CHINA.

14:50 Experiment on Improving Gas Diffusion rate of Coal Petrography by Vibration Waves, Shao Xianjie, Oyaka Dickens, Li Feng, Li Mingfeng, Liu Zeheng, Peng Yingming, Yanshan University, PR CHINA.

SESSION 28
VALUE-ADDED PRODUCTS FROM COAL - 5

Dongping Tao and John Duddy

13:30 Effect of Straw Addition to Coal on Coal-Based Activated Carbon for Methane Decomposition, YaJie Wang, Lijun Jin, Yang Li, He Yang, Haoquan Hu, Dalian University of Technology, PR CHINA.

13:50 Effect of Carbon from Anthracite Coal on the Hydrogen Absorption and Desorption Performance of Magnesium Based Hydrogen Storage Materials, Xiaojing Liu, Co-Authors: Xiaojing Liu, Shixue Zhou, Shandong University of Science and Technology, PR CHINA.

14:10 Preparation of Micro-Mesoporous Composite Sieves Catalyst and Its Catalytic Cracking Performance of Coal Tar, He Xiaoxiao, Meng Zhuoyue, Xue Wenyong, Zhaojingjing, Xi'an University of Science and Technology, PR CHINA.

14:30 Hydrogenation of Aromatic Components Over Ni/Mo/Mesoporous Analcime Carbide Catalyst, Chenguang Jiang, Haiyong Zhang, Yonggang Wang, Ning Chang, China University of Mining & Technology (Beijing), PR CHINA.

14:50 Partial Oxidation Cracking of Coal Tar Over Fe-Ni Mixed Metal Oxides for Production of Light Fuels and Hydrogen Rich Gas, Dechao Wang, Lijun Jin, Yang Li, Haoquan Hu, Dalian University of Technology, PR CHINA.

SESSION 29
GASIFICATION TECHNOLOGIES - 5

Fuchen Wang and Alexander Ilyushechkin

13:30 Development of New Technology
for Controlled Underground Coal- Coalbed Gas Fluidized Co-Mining, Zuotang Wang, China University of Mining and Technology (CUMT), PR CHINA.

13:50 Effects of Microwave Irradiation and Hydrothermal Treatment on the Gasification Characteristics of Brown Coal, Lichao Ge, College of Energy and Electrical Engineering and Zhejiang University; Hongcui Feng, HUATIAN Engineering & Technology Corporation, MCC; Jingyu Guan, Harbin Boiler Company Limited; Chang Xu, College of Energy and Electrical Engineering; Yanwei Zhang, Zihhua Wang, Zhejiang University; PR CHINA.

14:10 A Novel and Yet Simple Methodology Based on the use of Inclined Plane for the Measurement of Slag Viscosity, Baiqian Dai, Lian Zhang, Monash University, AUSTRALIA.

14:30 Mechanism for Calcium Species Enhancing Hydrogen Production during Steam Gasification of Modified Coke from Calcium Carbide Slag Added Coal Blending Coking, Jiang Guo, Haili Jiao, Dong Yan, Meijun Wang, Jiao Kong, Weiren Bao, Taiyuan University of Technology, PR CHINA.

14:50 The Impact of Coal Seam Methane in Underground Coal Gasification, Cliff Mallett, Jianmin Zhang, CUMT International UCG Research Centre, PR CHINA.

SESSION 30
COAL SCIENCE - 5
Junying Zhang and Johan van Dyk

13:30 Correction Method of Mercury Intrusion Test Result On Coals, Dangyu Song, Henan Polytechnic University, PR CHINA.

13:50 Study on Surface Structure and Drying Characteristics of Semi-Coke, Shiyong Zhao, Xiao Liang, Shaopeng Gao, Shuzhan Lv, Xi’an University of Science and Technology, PR CHINA.

14:10 The Effects of Supercritical CO2 on Pore Structure in High-rank Coal, Shiqi Meng, Xiaokang Yan, China University of Mining and Technology, PR CHINA.

14:30 Impact of Interaction between Coals on Coking Property of Blends, Haili Jiao, Meijun Wang, Jiao Kong, Jiang Guo, Dong Yan, Liping Chang, Professor, Taiyuan University of Technology, PR CHINA.

14:50 Study on Ash Fusion Behaviors and Physico-Chemical Characteristics of Semi-coke and its Blended Fuel with Coal, Maobo Yuan, Chang’an Wang, Pengqian Wang, Zichen Tao, Yongbo Du, Defu Che, Xi’an Jiaotong University, PR CHINA.

SESSION 31
CARBON MANAGEMENT - 3
Xiaochun Li and Omar Basha

15:30 Enhanced CO2 Sorption Performance of CaO/Ca2Al2O4 Sorbent with Steam Addition, Qing Li, Jieying Jing, Xuewei Zhang, Zehua Wei, Wenying Li, Taiyuan University of Technology, PR CHINA.

15:50 Molecular Basket Sorbents for CO2 and NOx/NOx Capture from Flue Gas of Power Plants and CO2 Utilization for Fuels and Chemicals, Chunshan Song, Pennsylvania State University, USA and Dalian University of Technology, PR CHINA; Xinwen Guo, Dalian University of Technology, PR CHINA; Xiaoxing Wang, Pennsylvania State University, USA.

16:10 High Efficiency Injection Technology in Deep Anthracite During CO2-ECBM Process, Sang Shuxun, China University of Mining and Technology; Wu Jianguang, Zhang Shouren, China United Coalbed Methane Co., Ltd; Zhou Xiaozhi, Liu Shiqi, Huang Huazhou, Wang Ran, China University of Mining and Technology; Zhang Bing, China United Coalbed Methane Co., Ltd; Jia Jialong, Wuhuan Institute of Technology; Han Sijie, China University of Mining and Technology; PR CHINA.

16:30 Enhanced CO2 Photocatalytic Reduction Reaction Simultaneously Accelerated H2 Evolution and CO2 Hydrogenation in A Twin Photoreactor, Zhuo Xiong, Yongchun Zhao, Junying Zhang, Huazhong University of Science & Technology, PR CHINA.

16:50 Preparation and Photocatalytic Properties of Bracts Like Ti/Li/Al-LDHs Using Chitosan Guiding Agent, Zhao Xiaolong, Zhou An-ning, Wang Jia-xin, Lei Dongqiang, Dong Yi-fan, Xi’An University of Science and Technology; Li Wen-ying, Taiyuan University of Technology; Zhang Yang, Xi’An University of Science and Technology; PR CHINA.

SESSION 32
CLEAN COAL AND GAS TO FUELS - 1
Hesheng Yu and Leslie Ruppert

15:30 Study on the Coating Internal Filtration Technology for Slurry Bed Fischer-Tropsch Reactor, Peiqian Yu, Peng Gao, Yifeng Bu, Ming Xu, Xuedong Jiang, National Institute of Clean-and-Low-Carbon Energy, PR CHINA.

15:50 A Single-phase Study on the Turbulence Models of Cyclonic-static Micro-bubble Flotation Column by CFD and PIV, Shiqi Meng, Xiaoakang Yan, China University of Mining and Technology, PR CHINA.

16:10 Low Temperature Synthesis of Ni3P/Al2O3 Catalysts for Naphthalene Hydrogenation, ZhiQiang Qie, Jieying Jing, Zhihui Yang, Ziyi Zhang, Wenying Li, Taiyuan University of Technology, PR CHINA.

16:30 Integrated Process of Coal Pyrolysis and Steam Reforming of Methanol Over Ni Based Catalysts, Xin-Fu He, Xiao-Qin Zhang, Jun Zhou, Hong-Ju Wu, An-niying Zhou, Xi’an University of Science and Technology, PR CHINA.

16:50 Hydrodeoxygenation of Denzofuran over Ni/ordered Mesoporous SiO2-Al2O3 Catalysts, Ru Wang, Zhen-ji Du, Hua-wei Peng, Jie Feng, Wen-yong Li, Taiyuan University of Technology, PR CHINA.

SESSION 33
COAL BED AND SHALE GAS - 3
Yanning Zhu and Richard Bajura

15:30 Origin of High and Variable Heavy Hydrocarbon Gases of Coal in Enhong Syncline of Yunnan Province in China, Fengjuan Lan, China University of Mining & Technology, PR CHINA.

15:50 Characterization of Multi-Scale Microfractions of Coals Related to Coal Rank, Xinghua Shi, Jienan Pan, Henan Polytechnic University, PR CHINA.

16:10 The Applicability Analysis of Determination Model in Nanometer Pore Using Low Pressure CO2 and N2 Adsorption in Coal, Yunbo Li, Dangyu Song, Henan Polytechnic University, PR CHINA.

16:30 Prediction and Validation of Organic Carbon Content in Shale Reserves Based on Back Propogation Neural Network, Zhen Zhang, Shuheng Tang, Songhang Zhang, Zhaodong Xi, China University of Geosciences (Beijing), PR CHINA.

16:50 Hot Coal Gas Desulfurization
SESSION 34
VALUE-ADDED PRODUCTS FROM COAL - 6
Dongping Tao and John Duddy

15:30 Study On Adsorption Properties of HZSM-5 Modified by Chemical Liquid Phase Deposition in Separating of M-Cresol and P-Cresol, Meng-yao Li, Yi Luo, Wen-jun Fan, Jie Feng, Wen-ying Li, Taiyuan University of Technology, PR CHINA.

15:50 Preparation and Capacitive Properties of Carbon Materials from Direct Coal Liquefaction Residue and Phenolic Resin, Jiangtao Cai, Yating Zhang, Guoyang Liu, Anning Zhou, Xi’an University of Science and Technology; Jieshan Qiu, Beijing University of Chemical Technology and Dalian University of Technology, PR CHINA.

16:10 Study on Competition Relationship and Influencing Factors of Cresol - Butylated Products, Yi Luo, Meng-yao Li, Wen-jun Fan, Jie Feng, Wen-ying Li, Taiyuan University of Technology, PR CHINA.

16:30 Prediction of Metallurgical Coke Thermal Properties and Analysis of Influencing Factors, Shi-Zhuang Shi, Zhen XU, Jin-Hui ZHOU, Gong-er WANG, Yong-Hui LVO, Yan-Gao MAO, Qi ZHENG, Shuai LU, Zhi-Long LIN, Wuhan University of Science and Technology, PR CHINA.

16:50 Effect of N- and O-compounds on the Performance of NiWxCx Catalysts for Hydrogenation of Naphthalene, Haiyong Zhang, Ning Chang, Chenguang Jiang, Genwei Chen, Longyin Liu, China University of Mining & Technology (Beijing), PR CHINA.

SESSION 35
GASIFICATION TECHNOLOGIES - 6
Fuchen Wang and Alexander Ifrushechkin

15:30 Intensification of the Underground Coal Gasification Through Electromagnetic Microwave Radiation, Danilov O.S., Belov A.V., Grebenyuk I.V., Far Eastern Federal University, RUSSIA.

15:50 Characteristics of Coal Gasification Using Chemical-Looping with MoO3 as Gaseous Oxygen Carrier, Jing-xian Kang, Qun Yi, Taiyuan University of Technology; Guo-qiang Wei, Chinese Academy of Sciences (CAS); Yi Huang, Wen-ying Li, Jie Feng, Taiyuan University of Technology, PR CHINA.

16:10 Char Conversion in A Drop Tube Reactor: Numerical Modeling and Detailed Validation, Andreas Richter, Fengbo An, Bernd Meyer, TU Bergakademie Freiberg, GERMANY.

16:30 Carbon Footprint of the Exergy UCG™ Technology: Unminable Coal to Products, Michael S. Blinderman, Ergo Exergy Technologies Inc.; Simon I. Maev, Cvictus Inc.; CANADA.

16:50 Development of a New Dynamic Reduced Order Model for a Shell Coal Gasifier Integrating the Slag Flow Model, Mukeong Kim, Insoo Ye, Geun Sohn, Changkook Ryu, Sungkyunkwan University; Bongkeun Kim, Doosan Heavy Industries & Construction; SOUTH KOREA.

SESSION 36
COAL SCIENCE - 6
Junying Zhang and Johan van Dyk

15:30 Toward the Advanced Coal Science –Strategic Production of Fine Chemicals, Masakatsu Nomura, Faculty of Engineering, Osaka University; Satoru Murata, University of Toyama; JAPAN.

15:50 Geochemistry and Mineralogy of Coal and Gasification By-Products from Two Entrained-Flow Coal Gasification Plants in Ningdong, China, Yafeng Wang, Yuegang Tang, Baolin Wang, Xin Guo, Xi Pan, Binbin Huan, China University of Mining and Technology (Beijing), CHINA; Robert B. Finkelman, University of Texas at Dallas, USA.

16:10 Behavior of Trace Amount of Crystalline Minerals in Coal by TEM, TG-DTA and XRD, Atsushi Ishihara, Karin Uemura, Shunsuke Koyabu, Tadanori Hashimoto and Hiroyuki Nasu, Mie University, JAPAN.

16:30 Research on Methods to Differentiate Coal and Gangue Using Image Processing and Machine Learning, Weidong Wang, Ziqi Lv, Hengrun Lu, Hequn Li, China University of Mining and Technology (Beijing), PR CHINA.

16:50 Classification of Water Forms in Lignite and Energy Consumption Analyses During Microwave Drying Technology, Junjie Liao, Chao Li, Liping Chang, Weiren Bao, Taiyuan University of Technology, PR CHINA.

SESSION 37
SUSTAINABILITY AND ENVIRONMENT - 1
Shikui Dong and Massood Ramezan

10:50 Air Pollution and Coal Consumption in China: A Perspective from Space, Kai Qin, China University of Mining and Technology, PR CHINA.

11:10 A Novel Application of Palm Kernel Shell Derived Carbon to Magnesium-Based Hydrogen Storage Materials, Yeboah Martin Luther, Zongying Han, Xinyuan Li, Ruqian Jiang, Shixue Zhou, Shandong University of Science and Technology, PR CHINA.

11:30 Ti1Li3Al4-LDHs@Activated Carbon with Enhanced Photocatalytic CO2 Reduction Performance, Dong-Qiang Lei, An-Ning Zhou, Xiao-Ling Zhao, Wen-Ying Li, Xi’an University of Science and Technology, PR CHINA.

11:50 Pyrolysis Behaviors of Five Agricultural Wastes with a Focus on Liquid Product, Shiqi Wan, Nan Zheng, Jie Zhang, Jie Wang, East China University of Science and Technology, PR CHINA.

12:10 Preparation of Activated Carbons from Anthracite by CO2 Activation Coupled with KNO3 Catalyst for CO2 Adsorption, Zhang Shuangquan, Sun Cong, Yang Xiaoqin, China University of Mining & Technology, PR CHINA.

SESSION 38
CLEAN COAL AND GAS TO FUELS - 2
Hesheng Yu and Vann Bush

10:50 Candle Soot as a Novel Collector for Coal Flotation, Wencheng Xia, China University of Mining & Technology, PR CHINA.

11:10 Methanol Synthesis Over Cu/
TECHNICAL PROGRAM

Zno/Al2O3 Catalysts Prepared Using Reverse Microemulsion Method, Panpan Yang, Yulong Zhang, National Institute of Clean-and-Low-Carbon Energy(NICE), PR CHINA.


11:50 High Demand Ethylene Formation from CO2 Hydrogenation over Efficient and Stable Fe-Co-K/ZrO2 Catalysts: Promotional Mechanisms of Oxygen Vacancies, Jie Ding, University of Wyoming, USA and Nanjing University of Science and Technology, PR CHINA; Liang Huang, Wuhan University of Science and Technology, PR CHINA; Muoheng Fan, University of Wyoming, USA and Georgia Institute of Technology, USA; Qin Zhong, University of Wyoming, USA; Armistead G. Russell, Georgia Institute of Technology, USA; Hao Gu, University of Wyoming, USA; Haijun Zhang, Wuhan University of Science and Technology, PR CHINA.

12:10 An Evaluation of Coal Seam Gas Content and Porosity Based On Field and Laboratory Measurements, Ata Ramazani-Rend, Masoud Teymourfamianasl, Anıl Soylu, Olgun Esen, Abdullah Fişne, Istanbul Technical University, TURKEY.

SESSION 40

COAL MINING AND BENEFICIATION - 1

Nong Zhang and Qingyan Sun

10:50 Zno/Al2O3 Catalysts Prepared Using Reverse Microemulsion Method, Panpan Yang, Yulong Zhang, National Institute of Clean-and-Low-Carbon Energy(NICE), PR CHINA.

12:10 Coalbed Methane Enrichment Pattern and Screening of Favorable Areas in Western Guizhou, China, Chu Qingzhong, Yan Yi, Peng Yingming, Yanshan University; Jin Liuqing, Guizhou Shale Gas Co, Ltd; PR CHINA.

SESSION 41

GASIFICATION TECHNOLOGIES - 7

Shoujian Wang and Aleksander Sobolewski

10:50 Evaluation Method of the Energy Conversion Efficiency of Coal Gasification and Related Applications, Duan Tianhong, Wang Zuotang, China University of Mining and Technology, PR CHINA.

11:10 Designing of Intelligent Flexible Gasification Unit Using Excel and Aspen Simulation Workshoook, Jianwei Li, Bai Feng, Jiaojiao Lei, Xingxin, Xi’an University of Science and Technology, PR CHINA.

11:30 Process Analysis of RDF Gasification Integrated with Coal Boiler, Shaoliang Zhang, and Wenhua Li

SESSION 43

SUSTAINABILITY AND ENVIRONMENT - 2

Shaoliang Zhang, and Wenhua Li

13:30 Effect of Size and Surface
TECHNICAL PROGRAM

Chemistry of AuENPs on the Uptake of the ENPs into the Sediment-Dwelling Lumbiculus Variegatus, Ping Luo, China University of Mining and Technology, PR CHINA.

A New Canister Design for the Determination of Methane Content of Coal Seams by Direct Method, I. Goktay Ediz, Cem Sensogut, Sahin Yuwka, Ahmet Ozgur, Sunay Beyhan, Dumlupinar University, Turkey.

Prevalence of Musculoskeletal Disorders and Assessment of Workplace Factors: A Case of Coal Mine in Pakistan, Izhar Mithal Jiskani, Zhou Wei, China University of Mining and Technology, PR CHINA; Saleem Raza Chalgi, Mehran University of Engineering and Technology, PAKISTAN; Cai Qingxiang, China University of Mining and Technology, PR CHINA; Paras Behrani, Universiti Teknologi PETRONAS, MALAYSIA; Raheel Aziz, Balochistan University of Information Technology, PAKISTAN.

Producing Synthetic Natural Gas (Sng) From Tar Coal in Pakistan, Farid A Malik, FC College, PAKISTAN.

13:00 Gasification Fuel Cell Power Generation

14:00 A Research on Problems and Corresponding Strategies in Application of Integrated Membrane Techniques to Advance treatment and Recycling of Coking Wastewater, Shuguang Zhou, Guanghua Sun, Dalian University of Technology, PR CHINA.

14:00 Comparison of Air Pollutant Dispersion Around Buildings Using Computational Fluid Dynamics, Hesheng Yu, China University of Mining and Technology, PR CHINA; Jesse Thé, University of Waterloo and, Lakes Environmental Software, CANADA.

13:30 Research on the Motion Characteristics of Fine Coal in Centrifugal Slurry by Ultra Low Ash Pure Coal, Shaopeng Gao, Shiyong Zhao, Xiao Liang, Shaopeng Gao, China University of Mining and Technology, PR CHINA.

13:30 The Effect of Particle Size on the Recovery of Fine Coals from the Slime Pond of Western Lignite Corporation (Turkey) By Knelson Concentrator, Ali Ucar, Nezahat Ediz, Oktay Sahbaz, Sevgi Karaca, I. Goktay Ediz, Cem Sensogut, Dumlupinar University, TURKEY.

14:00 Hydrogen Sorption Properties of MG-C Composites Prepared by Nickel Ball Milling, Ruqian Jiang, Ruqian Jiang, Xinyuan Li, Xiaojing Liu, Shixue Zhou, Shandong University of Science and Technology, PR CHINA.

14:00 Study on the Preparation of Coal Slurry by Ultra Low Ash Pure Coal, Shaopeng Gao, Shiyong Zhao, Xiao Liang, Xi’an University of Science and Technology, PR CHINA.

13:30 Effect of Pretreatment Methods on Oil Agglomeration Performance, Jie Sha, China University of Mining & Technology, PR CHINA.

14:00 Internal Heat Transfer Characteristics of Pulverized Coal During Pyrolysis, Hongzhi Ni, Demin He, Jun Guan, Associate Professor, Dalian University of Technology; Xueqiang Li, Jianxuan Shang, Shaanxi Coal and Chemical Industry Group Co. Ltd; Qumin Zhang, Dalian University of Technology; PR CHINA.

13:30 Development of The Integrated Gasification Fuel Cell Power Generation System with CO2 Near Zero Emission, Dong Binqi, Shenhua Group Corporation Limited; Li Pingping, Li Chufu, National Institute of Clean and-Low-Carbon Energy; Yang Zhibin, China University of Mining and Technology (Beijing); Yuan Ming, Shenhua Group Corporation Limited; Wei Chang, National Institute of Clean and-Low-Carbon Energy; Peng Suping, China University of Mining and Technology (Beijing); PR CHINA.

13:30 Study on Water Reduction of Coal Pyrolysis Product Over Perovskite Catalysts, Wang Qingyu, Demin He, Jun Guan, Dalian University of Technology; Xueqiang Li, Jianxuan Shang, Shandong University of Science and Technology, PR CHINA.

13:30 Structural Features and Pyrolysis Behaviors of Extracts from Microwave-Assisted Extraction of a Low Rank Coal with Different Solvents, Yanjun Xiong, Haoquan Hu, Lijun Jin, Yang Li, He Yang, Dalian University of Technology; PR CHINA.

13:30 Characteristic of Fine Coal in Centrifugal Milling, Xinyuan Li, Xiaojing Liu, Shixue Zhou, Shandong University of Science and Technology, PR CHINA.

13:30 High Sulphur Tipong Coals of Assam, Amritanshu Kumar, Theem College of Engineering; S.K. Srivastava, Central Institute of Mining and Fuel Research, INDIA.

13:30 Research on Problems and Corresponding Strategies in Application of Integrated Membrane Techniques to Advance treatment and Recycling of Coking Wastewater, Shuguang Zhou, Guanghua Sun, Dalian University of Technology, PR CHINA.

13:30 Comparison of Air Pollutant Dispersion Around Buildings Using Computational Fluid Dynamics, Hesheng Yu, China University of Mining and Technology, PR CHINA; Jesse Thé, University of Waterloo and, Lakes Environmental Software, CANADA.

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13:30 Structural Features and Pyrolysis Behaviors of Extracts from Microwave-Assisted Extraction of a Low Rank Coal with Different Solvents, Yanjun Xiong, Haoquan Hu, Lijun Jin, Yang Li, He Yang, Dalian University of Technology; PR CHINA.

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13:30 Study on the Preparation of Coal Slurry by Ultra Low Ash Pure Coal, Shaopeng Gao, Shiyong Zhao, Xiao Liang, Xi’an University of Science and Technology, PR CHINA.

SESSION 45

COAL SCIENCE - 10

Francis Lau and Diane Madden

13:30 Effect of Pretreatment Methods on Oil Agglomeration Performance, Jie Sha, China University of Mining & Technology, PR CHINA.

14:10 The Effect of Particle Size on the Recovery of Fine Coals from the Slime Pond of Western Lignite Corporation (Turkey) By Knelson Concentrator, Ali Ucar, Nezahat Ediz, Oktay Sahbaz, Sevgi Karaca, I. Goktay Ediz, Cem Sensogut, Dumlupinar University, TURKEY.

14:10 Hydrogen Sorption Properties of MG-C Composites Prepared by Nickel Ball Milling, Ruqian Jiang, Ruqian Jiang, Xinyuan Li, Xiaojing Liu, Shixue Zhou, Shandong University of Science and Technology, PR CHINA.

14:10 Study on the Preparation of Coal Slurry by Ultra Low Ash Pure Coal, Shaopeng Gao, Shiyong Zhao, Xiao Liang, Xi’an University of Science and Technology, PR CHINA.

SESSION 46

COAL MINING AND BENEFICIATION - 2

Nong Zhang and Qingyun Sun

13:30 Progressive Reaction between Na/Na and Silica during Gasification of Low Rank Coal, Ge Yu, Yu, Huazhong University of Science and Technology, PR CHINA.

14:10 R-GAS™ Coal Gasification Technology Development and Demonstration, Zhiwu Feng, Yangquan Coal Chemical Group, PR CHINA; Zhong Eric Zhou, Gas Technology Institute, USA.

14:10 Design Basis of 1 MWth Calcium Looping Gasification Pilot Unit, Zekun Jia, Zhiwu Feng, Yangquan Coal Chemical Group, PR CHINA; Zhong Eric Zhou, Gas Technology Institute, USA.

14:10 Dry Solids Pump – Full-scale Development and Testing at 500 psi,
TECHNICAL PROGRAM

Timothy W. Saunders, Joseph Caravella, Gas Technology Institute; Greg Weber, University of North Dakota; USA.

SESSION 48
COAL SCIENCE - 8
Shifeng Dai and Alan Kolker

13:30  New Direction of High Efficient Utilization of Coal-Research Process of All Group Component Separation and Applied Technology, Zhihong Qin, Xiaoin Yang, China University of Mining and Technology, PR CHINA.

13:50  Model Research on the Main Process Parameters of Heavy Medium Separation, Deng Jianjun, Chen Ming, China University of Mining & Technology; Guo Congtao, Hualai Mining Group; Sun Qingfang, Wang Chuanzheng, China University of Mining & Technology; PR CHINA.

14:10  Experiment and Mechanism Study on Floatation of Fine Coal by Nano Bubble Flotation Column, Fangyu Ma, Doctoral Student, China University of Mining and Technology; Doping Tao, Liaoan University of Science and Technology; Youjun Tao, China University of Mining and Technology; PR CHINA.

14:30  Process Factors for Preparing Ultra-low-ash Low-rank Coal using Oil Bubble Flotation, Jinhao Ou, Quan An, Li An, Anning Zhou, Zhen Li, Wei Yu, Lijun Liu, Meili Du, Chao Yang, Xi'an University of Science and Technology, PR CHINA.

14:50  Exploration on the Process Characteristics of Oily-Bubble Flotation of Low Rank Coal, Tao Xiu-xiang, Chen Songjiang, Yang Zhao, Li Lu-lu, China University of Mining and Technology, PR CHINA.

SESSION 51
COAL SCIENCE - 11

Francis Lau and Diane Madden


15:50  Effect of Additives on Semi-Coke Water Slurry Property and Quantum Chemistry Study, Meng Zhaoyue, Yang Zhuyuan, He Xiaoxiao, Xue Wenying, Xi'an University of Science and Technology, PR CHINA.

16:10  Adsorption and conversion of thiophene on the modified NaY zeolites in the atmospheres containing H2, CH4, and CO, Fanjiing Wei, Junjie Liao, Xiaoqin Guo, Liping Chang, Weiren Bao, Taiyuan University of Technology, PR CHINA.

16:30  Insight into Ce-Fe Binary Oxides for Oxidative Dehydrogenation of Ethylbenzene to Styrene with CO2, Kechen Song, Xueqi Guo, Doping Xu, China University of Mining & Technology (Beijing), PR CHINA.

SESSION 53
GASIFICATION TECHNOLOGIES - 9

Shoujian Wang and Aleksander Sobolewski

15:30  Effect of Lignite Support Precursor on Desulfurization Performance of Semicoke Supported Zinc Oxide Sorbent in Medium Temperature Coal Gas, Ting Li, Liu Xu Bao, Jiao Kong, MeiJun Wang, XiuRong Ren, LiPing Chang, Taiyuan University of Technology, PR CHINA.

15:50  Solid Hydrogen in MGH for Hydrosulfurization of Carbonyl Sulfide: A Density Functional Theory Study, Xinyuan Li, Xinyuan Li, Ruiqian Jiang, Yun Zou, Lin Li, Xiao Li, China University of Mining and Technology, PR CHINA.

16:10  Highly-Efficiency Adsorption of Hexavalent Chromium on Low Rank Coals, Xing-Yun Zou, Lin Li, Xiao-Fang You, Peng Wang, Jun Qiu, Jun-Xiang Wang, Shandong University of Science and Technology; Xiaopeng Cao, Shandong University of Science and Technology; Wei-Ling Sun, Peking University; Qing-Jian Zhang, Shandong University of Science and Technology; PR CHINA.

16:30  Turbulence Model Development
and Validation for Gasification Applications, Omar M. Bashir, North Carolina A&T State University; Nicholas Siefert, Isaac Gamwo, National Energy Technology Laboratory/U.S. Department of Energy; Badie I. Morsi, University of Pittsburgh; PR CHINA.

SESSION 54
COAL SCIENCE - 9
Shifeng Dai and Alan Kolker

15:30 Incidence Degree of the Operation and Structure Factors for the Performance of Three Products Hydrocyclone Screen (TPHS), C. Wang, Ji Chen, L. Shen, Y. Huang, Q. Nie, China University of Mining & Technology, PR CHINA.

15:50 Effects of Hydrothermal Dewatering on Lignite Physico-Chemical Structures and Analysis of Moisture Removal Mechanism, Qiong Mo, Junjie Liao, Liping Chang, Weiren Bao, Taiyuan University of Technology, PR CHINA.

16:10 Study on the Coal Rock Microstructure Separation of Low-Rank Coal in Enhanced Gravity Field, Yushuai Xian, Youjun Tao, China University of Mining and Technology, PR CHINA.

16:30 Experimental Study of CO₂-Water-Mineral Interactions and Their Influence on the Pore Structure of High Rank Coal, Yi Du, Huazhong University of Science & Technology; Shuxun Sang, China University of Mining and Technology; Junying Zhang, Huazhong University of Science & Technology; Changqing Fu, Xi’an University of Science & Technology, PR CHINA.

CLEAN COAL DEMONSTRATION AND COMMERCIAL PROJECTS

P2-1 Novel Nanocomposite Surface Treatment to Reduce Drag and Corrosion in Transport Pipelines, Vinod Veedu, Erika Brown, Matthew Nakatsuka, Ganesh Arumugam, Oceanit, USA.

COMBUSTION TECHNOLOGIES

P3-1 Multiform Sulfur Adsorption Centers and Copper-Terminated Active Sites of Nano-CuS for Efficient Elemental Mercury Capture from Coal Combustion Flue Gas, Zequn Yang, The University of Hong Kong, HONG KONG SAR; Hailong Li, Shihao Feng, Central South University, PR CHINA; Pu Li, The University of Hong Kong, HONG KONG SAR; Chen Liao, Xi Liu, Jiexia Zhao, Jianping Yang, Central South University, PR CHINA.

P3-2 Mechanism Analysis and Experimental Study of Ammonia Denitrification Technology in High Temperature Reduction Zone of Coal-Fired Boiler, Bo Zhang, Xiangyu Zhang, Ning Gao, Xu Lu, Xiaofeng Xiang, Hongjie Xu, Xi’an Thermal Power Research Institute Co., Ltd., PR CHINA.

P3-3 Multiple Roles of Nano-Sulfide in an Efficient Removal of Elemental Mercury from Coal Combustion Flue Gas, Jie Xia Zhao, Hai-long Li, Kai-min Shih, Zequn Yang, Lei Zhu, Xi Liu, Wenbing Zhu, Jianping Yang, PR CHINA.

P3-4 Study on Removal of Hg from Flue Gas by Modified Activated Carbon, Yang Li, Xiangyang Li, Peng Huang, Lijun Jin, Hao-juan Hu, School of Chemical Engineering, Dalian University of Technology, PR CHINA.

CLEAN COAL AND GAS TO FUELS

P4-1 Superior Lattice Oxygen Reactivity over Ni Modified W03-based Redox Catalysts for Chemical Looping Partial Oxidation of Methane, Sai Chen, Liang Zeng, Hao Tian, Xinyu Li, Jinlong Gong, Tianjin University, PR CHINA.

P4-2 Application Study of Direct Coal Liquefaction Asphalt (DCLA) Used as Paving Material, Sheng-zhen Zhang, Jian-ming Wei, Cui-qing Zhang, National Institute of Clean-and-Low-Carbon Energy, PR CHINA.

P4-3 Development of Advanced Technology for Indirect Coal to Liquid and Products Processing, Li Chufu, Men Zhuowu, National Institute of Clean-and-Low-carbon Energy; Yuan Ming, Li Jingfeng, Hao Xinghui, Shenhua Group Corporation Limited; Xu Ming, National Institute of Clean and-low-carbon Energy; PR CHINA.

P4-4 Effect of Precursors on the Active Site Formation of Cu/Zn/Al Methanol Synthesis Catalyst, Yulong Zhang, Fan Zhang, Xiaoying Xu, National Institute of Clean and-low-Carbon Energy, PR CHINA.

P4-5 Fe-modified Nickel-Based Catalyst for CO₂ Reforming of Methane, Peipei Wang, Lijun Jin, Hao-juan Hu, Dalian University of Technology, PR CHINA.

P4-6 Cleaning of Bitumen Streams by Hydrothermal Treatment and In-Situ Hot Filtration, Qiang Chen, China University of Mining and Technology, PR CHINA.
CARBON MANAGEMENT

P5-1 A Viable Path Forward to Carbon Capture and Storage in Wyoming, USA; Erin H. Phillips, Kipp Coddington, Scott Quillian, J. Fred McLaughlin, University of Wyoming; Nick Bosshart, Energy and Environmental Research Center; Anne Oudinot, Advanced Resources International, Inc.; Yuri Ganshin, Heng Wang, Matthew Johnson, Zunsheng Jiao, Tom Moore, Davin Bagdonas, Charles Nye, University of Wyoming; USA.

P5-2 Incorporation of Heterocycles in Metal Organic Frameworks for Enhancing CO2 Capture, Chenkai Gu, Jing Liu, University of Science and Technology, PR CHINA.

P5-3 Enhanced CO2 Adsorption Capacity of Porous Carbons Treated with Nonthermal Plasma, Dawei Wu, Jing Liu, Huazhong University of Science and Technology, PR CHINA.

P5-4 Enhancement of CO2 Adsorption in Titanium alkoxide Functionalized Metal Organic Frameworks, Jianbo Hu, Jing Liu, Chenkai Gu, Huazhong University of Science and Technology, PR CHINA.

P5-5 Adhesion Force Study of Particles on CO2 Absorption Membrane Based on Atomic Force Microscope, Ying Sun, China University of Mining and Technology; Linjun Yang, Southeast University; PR CHINA.

P6-1 Drying and Stabilization of Powder River Basin Coal Using Heat from a NuScale Nuclear Reactor, Ying Wang, Dr. William C. Schaffers, David A. Bell, University of Wyoming; Jong Suk Kim, Richard D. Boardman, Idaho National Laboratory; USA.

P6-5 Detailedly Analyze the Composition and Structure of Heavy Weight Fractions of Coal Tar, Wei Wang, Cui-ping Ye, Hai Mu, Wen-ying Li, Jie Feng, Taiyuan University of Technology, PR CHINA.

P6-6 Evolutions of Physical and Chemical Structures of Lignite During Dewatering Process and Their Effects On Combustion Reactivity, Yankun Yang, Junjie Liao, Liping Chang, Weiren Bao, Taiyuan University of Technology, PR CHINA.

P6-7 Study on the Co-Combustion Characteristic and Pollutant Emission of Coal Gangue and Coal Slime in O2/CO2 Atmosphere, Baofeng Wang, Wenzhu Li, Shaolong Gao, Fengling Yang, Fangqin Cheng, Shaxi University, PR CHINA.

P6-8 Adsorption of Phenol onto Various Granularity Coal: Adsorption Kinetics and Adsorption Isotherms, Xueqiang Li, Jianxuan Shang, Dalian University of Technology; Peixian Li, China University of Mining and Technology, PR CHINA.

P6-9 Coal Pyrolysis of Low Rank Coals Using Supercritical Carbon Dioxide, Joshua Walter, Ben Goorich, Breanne Engebrecht, TerraPower, LLC, USA.

P6-10 Aliphatic Species in Mobile Phase of a High-Volatile Bituminous Coal and Its Thermal Decomposition Behavior, Bin Tian, Northwest University; Yi-Liang Tian, Bachelor, China University of Petroleum-Beijing at Karamay; Long Xu, Xiao-Xun Ma, Northwest University; PR CHINA.

P6-11 The Humic Acid was Prepared by Oxidation of Lignite and Study on the Flocculation of Humic Acid, Yan Zhao, Jun Guan, Demin He, Engineer, Dalian University of Technology; Xueqiang Li, Jianxuan Shang, Professorate Senior Engineer, Shansi Coal and Chemical Industry Group Co. Ltd; Qinmin Zhang Professor, Dalian University of Technology; PR CHINA.

P6-12 The Cleanability Evaluation of No.3 Coal Seam in An’ping, Yitang and Xizhuang Exploration Area, Xuejuan Wang, Yuegang Tang, Chengwei Yang, Kai Ye, Qingshun Cao, Guohua Liu, China University of Mining & Technology (Beijing), PR CHINA.


P6-14 Thermodynamics and Kinetics of Adsorption of Methylene Blue by Coking Coal, Rong Zhao, Hongxiang Xu, China University of Mining & Technology (Beijing), PR CHINA.

P6-15 Preparation of Briquette Coal with a Lubricating Oil Sludge as Binder, Tonghuan Zhang, Xin Chen, Yingjie Gao, Xi Zhao, Congcong Wang, Yanwei Song, Shandong University of Science and Technology, PR CHINA.

P6-16 Effect of Supercritical Methanol/NaOH Alcoholysis on PAHs Contents in Suncun Coal, Zhen-Xue Liu, Hao Liu, Xiao-Wen Zhang, Jing-Lian Wei, Shandong University of Science and Technology, PR CHINA.

COAL MINING AND BENEFICIATION

P7-1 A New Canister Design for the Determination of Methane Content of Coal Seams by Direct Method, I. Goktay Ediz, Cem Sensogut, Sahin Yuvka, Ahmet Ozgur, Sunay Beyhan, Dumlupinar University, Turkey.

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