

ON THE COVER: Cover image by Wenning Zhou. The cover graphic is an artistic depiction of the enhancement of natural gas recovery with simultaneous carbon dioxide geological sequestration fulfilled by CO₂ enhanced gas recovery (CO₂-EGR) technique. The art focuses on the occurrence of these processes at an atomic scale, zooming in on a small area of kaolinite clay within a shale reservoir being accessed using hydraulic fracturing. The article describes the use of Monte Carlo simulations to explore the gas adsorption mechanism in confined slit pores as well as the influences of a number of variables on CO₂/CH₄ competitive adsorption performances in kaolinite clay. It is expected the obtained results could provide molecular-level insights into the adsorption mechanism of CO₂/CH₄, and offer fundamental data for a CO₂-EGR project in kaolinite clay. For more information, see: "Adsorption mechanism of CO₂/CH₄ in kaolinite clay: insight from molecular simulation" by Wenning Zhou, Haobo Wang, Yuying Yan, and Xunliang Liu.

SPECIAL SECTION: 27TH INTERNATIONAL CONFERENCE ON IMPACT OF FUEL QUALITY ON POWER PRODUCTION AND ENVIRONMENT

Editorial

5789 DOI: 10.1021/acs.energyfuels.9b01852
27th International Conference on the Impact of Fuel Quality on Power Production and Environment
Rajender Gupta*

Articles

5790 DOI: 10.1021/acs.energyfuels.8b04044
Heteroatom Removal as Pretreatment of Boiler Fuels
Muhammad N. Siddiquee and Arno de Klerk*

5802 DOI: 10.1021/acs.energyfuels.8b04103
Analysis and Evaluation of Ash Deposits from the Coal-Fired Callide Oxyfuel Project
L. K. Elliott,* C. Spero, and T. F. Wall

5810 DOI: 10.1021/acs.energyfuels.8b04106
Fly Ash from Municipal Solid Waste Incineration as a Potential Thermochemical Energy Storage Material
Saman Setoodeh Jahromy,* Christian Jordan, Mudassar Azam, Andreas Werner, Michael Harasek, and Franz Winter

5820 DOI: 10.1021/acs.energyfuels.8b04169
Physicochemical Approach To Blend Biomass
Françoise Defoort,* Matthieu Campargue, Gilles Ratel, H el ene Miller, and Capucine Dupont

5829 DOI: 10.1021/acs.energyfuels.8b04163
Numerical and Experimental Study on Oxy-fuel Coal and Biomass Co-firing in a Bubbling Fluidized Bed
Chao Chen, Lingling Zhao,* Xuan Wu, and Jingfan Wang

5840 DOI: 10.1021/acs.energyfuels.8b04177
Characterization of Vinasse for Thermochemical Conversion—Fuel Fractionation, Release of Inorganics, and Ash-Melting Behavior
Meheretu Jaleta Dirbeba,* Anders Brink, Maria Zevenhoven, Nikolai DeMartini, Daniel Lindberg, Leena Hupa, and Mikko Hupa

5849 DOI: 10.1021/acs.energyfuels.8b04185
On Ash Deposition Rates from Air and Oxy-Combustion of Pulverized Coal, Petroleum Coke, and Biomass
Yueming Wang, Xiaolong Li, and Jost O. L. Wendt*

5859 DOI: 10.1021/acs.energyfuels.8b04168
Corrosion in Recycled Wood Combustion—Reasons, Consequences, and Solutions
Hanna Kinnunen,* Merja Hedman, Daniel Lindberg, Sonja Enestam, and Patrik Yrjas

5867 DOI: 10.1021/acs.energyfuels.8b04179
Performance Evaluation of Functionalized Biocarbon for Mercury Capture
Deepak Pudasainee, Rajender Gupta,* and Ataullah Khan*

5875 DOI: 10.1021/acs.energyfuels.8b04193
Fine Ash Formation and Slagging Deposition during Combustion of Silicon-Rich Biomasses and Their Blends with a Low-Rank Coal
Jingkun Han, Dunxi Yu,* Jianqun Wu, Xin Yu, Fangqi Liu, Jinhan Wang, and Minghou Xu

5883 DOI: 10.1021/acs.energyfuels.8b04199
Temperature-Gradient-Driven Aging Mechanisms in Alkali-Bromide- and Sulfate-Containing Ash Deposits
Jonne Niemi,* Roland Balint, Markus Engblom, Juho Lehmusto, and Daniel Lindberg

5893 DOI: 10.1021/acs.energyfuels.8b04208
Correlation of Sub-micrometer Ash Formation from Pulverized Biomass Combustion with Ash Composition
Lyuxiao Jiang and Changdong Sheng*

5903 DOI: 10.1021/acs.energyfuels.8b04206
Radiative Properties of Coal Ash Deposits with Sintering Effects
John Parra-Álvarez,* Benjamin Isaac, Minmin Zhou, Sean Smith, Terry Ring, Stan Harding, and Philip Smith

5911 DOI: 10.1021/acs.energyfuels.8b04200
Influence of Fine Fuel Particles on Ash Deposition in Industrial-Scale Biomass Combustion: Experiments and Computational Fluid Dynamics Modeling
Thomas Plankenbühler,* Dominik Müller, and Jürgen Karl

Reviews

5918 DOI: 10.1021/acs.energyfuels.9b00384
Method Selection for Biojet and Biogasoline Fuel Production from Castor Oil: A Review
Masego Molefe, Diakanua Nkazi,* and Hembe Elie Mukaya

5933 DOI: 10.1021/acs.energyfuels.9b00852
Bitumen Coating on Oil Sands Clay Minerals: A Review
Qiang Chen and Qi Liu*

Articles

Fossil Fuels

5944 DOI: 10.1021/acs.energyfuels.8b02713
Hydrogen and Carbon Isotope Composition of Hydrocarbon Gases Generated during Pyrolysis of Peats from Different Environments
Yi Duan,* Mingchen Duan, Yingzhong Wu, Jingli Yao, Zhongping Li, Lantian Xing, and Yan Liu

5954 DOI: 10.1021/acs.energyfuels.9b00101
Adsorption of Polar Organic Components onto Sandstone Rock Minerals and Its Effect on Wettability and Enhanced Oil Recovery Potential by Smart Water
Aleksandr Mamonov,* Ove A. Kvandal, Skule Strand, and Tina Puntervold

5961 DOI: 10.1021/acs.energyfuels.9b00154
Formation and Flow Behaviors of in Situ Emulsions in Heavy Oil Reservoirs
Fuwei Yu, Hanqiao Jiang, Zhen Fan, Fei Xu, Hang Su, and Junjian Li*

5971 DOI: 10.1021/acs.energyfuels.9b00295
Acid Leaching of Rare Earth Elements from Coal and Coal Ash: Implications for Using Fluidized Bed Combustion To Assist in the Recovery of Critical Materials
R. Q. Honaker,* W. Zhang, and J. Werner

5981 DOI: 10.1021/acs.energyfuels.9b00352
Vitrinite Maturation in Confined Pyrolysis Experiments
Lifei Zeng, Wenkui Huang, Jun Jin, Wanyun Ma, Shuang Yu, and Changchun Pan*

5988 **S** DOI: 10.1021/acs.energyfuels.9b00445
Designing CO₂-Responsive Multifunctional Nanoscale Fluids with Tunable Hydrogel Behavior for Subsurface Energy Recovery
Hassnain Asgar, Jan Ilavsky, and Greeshma Gadikota*

5996 **S** DOI: 10.1021/acs.energyfuels.9b00465
Quantitative Description of Catalysis of Inherent Metallic Species in Lignite Char during CO₂ Gasification
Nurulhuda Halim, U.P.M. Ashik, Xiangpeng Gao, Shinji Kudo, Edy Sanwani, Koyo Norinaga, and Jun-ichiro Hayashi*

6008 DOI: 10.1021/acs.energyfuels.9b00514
Nanoscale Pore Structure Characterization of Tight Oil Formation: A Case Study of the Bakken Formation
Chunxiao Li, Lingyun Kong,* Mehdi Ostadhassan, and Thomas Gentzis

6020 DOI: 10.1021/acs.energyfuels.9b00637
Inhibition of the Hydration Expansion of Sichuan Gas Shale by Adsorption of Compounded Surfactants
Jingping Liu,* Zhiwen Dai, Congjun Li, Kaihe Lv, Xianbin Huang, Jinsheng Sun, and Bing Wei*

6027 DOI: 10.1021/acs.energyfuels.9b00657
Correlation between Drying Behaviors of Brown Coal and Its Pore Structures
Guorui Feng, Xiaohong Niu, Junjie Liao, Yanna Han,* Zongqing Bai, and Wen Li

6038 **S** DOI: 10.1021/acs.energyfuels.9b00667
Evaluating the Transport Behavior of CO₂ Foam in the Presence of Crude Oil under High-Temperature and High-Salinity Conditions for Carbonate Reservoirs
Guoqing Jian, Leilei Zhang, Chang Da, Maura Puerto, Keith P. Johnston, Sibani L. Biswal,* and George J. Hirasaki*

6048 DOI: 10.1021/acs.energyfuels.9b00671
Cationic/Nonionic Mixed Surfactants as Enhanced Oil Recovery Fluids: Influence of Mixed Micellization and Polymer Association on Interfacial, Rheological, and Rock-Wetting Characteristics
Nilanjan Pal, Mudit Vajpayee, and Ajay Mandal*

6060 **S** DOI: 10.1021/acs.energyfuels.9b00676
Speciation of Metals in Asphaltenes by High-Performance Thin-Layer Chromatography and Laser Ablation Inductively Coupled Plasma-Mass Spectrometry
Rémi Moulian, Sara Gutierrez Sama, Carole Garnier, Sandra Mounicou, Maxime Enrico, Xavier Jaurand, Ryszard Lobinski, Pierre Giusti, Brice Bouyssiere,* and Caroline Barrère-Mangote*

6069 DOI: 10.1021/acs.energyfuels.9b00689
Effect of a Magnetic Nanocomposite Pour Point Depressant on the Structural Properties of Daqing Waxy Crude Oil
Hailin Yu, Zhengnan Sun, Guolin Jing,* Zhiwei Zhen, Yang Liu, and Kai Guo

6076 DOI: 10.1021/acs.energyfuels.9b00781
Experimental Investigation of Aluminosilicate Nanoparticles for Enhanced Recovery of Waxy Crude Oil
Tito Wijayanto,* Masanori Kurihara, Teguh Kurniawan, and Oki Muraza*

6083 DOI: 10.1021/acs.energyfuels.9b00724
Applicability of Simulated Distillation for Heavy Oils
O. Castellanos Diaz* and H. W. Yarranton

6088 **S** DOI: 10.1021/acs.energyfuels.9b00816
Elucidating the Geometric Substitution of Petroporphyrins by Spectroscopic Analysis and Atomic Force Microscopy Molecular Imaging
Yunlong Zhang,* Fabian Schulz, B. McKay Rytting, Clifford C. Walters, Katharina Kaiser, Jordan N. Metz, Michael R. Harper, Shamel S. Merchant, Anthony S. Mennito, Kuangnan Qian, J. Douglas Kushnerick, Peter K. Kilpatrick,* and Leo Gross*

6098 DOI: 10.1021/acs.energyfuels.9b00860
Pyrolysis Characteristics of Low-Rank Coal under a CO-Containing Atmosphere and Properties of the Prepared Coal Chars
Cheng Ma, Chong Zou,* Junxue Zhao,* Ruimeng Shi, Xiaoming Li, Jiangyong He, and Xiaorui Zhang

6113 DOI: 10.1021/acs.energyfuels.9b00875
Hydrate Induction Time with Temperature Steps: A Novel Method for the Determination of Kinetic Parameters
Valentino Canale, Antonella Fontana, Gabriella Siani, and Pietro Di Profio*

6119 DOI: 10.1021/acs.energyfuels.9b00877
Apolar Behavior of Hydrated Calcite (10 $\bar{1}$ 4) Surface Assists in Naphthenic Acid Adsorption
Arjun Valiya Parambathu, Le Wang, D. Asthagiri, and Walter G. Chapman*

6126 DOI: 10.1021/acs.energyfuels.9b00878
Coke Deposition Inhibition for Endothermic Hydrocarbon Fuels in a Reforming Catalyst-Coated Reactor
Mingyu Gao, Lingyun Hou,* Xiaoxiong Zhang, and Dingrui Zhang

6134 DOI: 10.1021/acs.energyfuels.9b00924
Mineral Transformation and Morphological Change during Pyrolysis and Gasification of Victorian Brown Coals in an Entrained Flow Reactor
Tao Xu* and Sankar Bhattacharya

6148 **S** DOI: 10.1021/acs.energyfuels.9b00925
Simulation of Spontaneous Heating of a Small Fixed Bed of Dried Coal Exposed to a Flowing Wet Air Stream
Kouichi Miura*

- 6161 DOI: 10.1021/acs.energyfuels.9b00972
Probing the Interactions of Dolomite Surfaces with Oil at the Molecular Scale
 Nan Wang, Ian R. Collins, Kevin J. Webb, Qifang Wan, and Colm Durkan*
- 6170 DOI: 10.1021/acs.energyfuels.9b01001
Exploratory Analysis of Automotive Diesel Fuel Stability Test Methods by Infrared Spectroscopy and Parallel Factor Analysis
 Vinicius L. Skrobot, Caio de Sousa Santos, and Jez Willian Batista Braga*
- 6177 **S** DOI: 10.1021/acs.energyfuels.9b01030
Experimental Evaluation of Common Sulfate Mineral Scale Coprecipitation Kinetics in Oilfield Operating Conditions
 Ping Zhang,* Zhang Zhang, Jiayao Zhu, Amy T. Kan, and Mason B. Tomson
- 6187 DOI: 10.1021/acs.energyfuels.9b01031
Effects of Reaction Condition on the Emission Characteristics of Fuel-N during the O₂/H₂O Combustion Process of Demineralized Coal
 Zhuozhi Wang, Yupeng Li, Wenkun Zhu, Rui Sun,* Yaying Zhao,* and Xiaohan Ren
- 6197 DOI: 10.1021/acs.energyfuels.9b01032
Sulfonated Nonpolymeric Aminophosphonate Scale Inhibitors—Improving the Compatibility and Biodegradability
 Mohamed F. Mady,* Halvar Malmin, and Malcolm A. Kelland*
- 6205 DOI: 10.1021/acs.energyfuels.9b01045
Coke Yield Prediction Model for Pyrolysis and Oxidation Processes of Low-Asphaltene Heavy Oil
 Dong Liu, Jin Hou, Haijun Luan, Jingjun Pan, Qiang Song,* and Ruonan Zheng
- 6215 DOI: 10.1021/acs.energyfuels.9b01061
Molecular Characterization of Henan Anthracite Coal
 Jiaxun Liu, Yuanzhen Jiang, Wang Yao, Xue Jiang, and Xiumin Jiang*
- 6226 DOI: 10.1021/acs.energyfuels.9b01090
Relationship between Microstructure and Thermal Conductivity in Coal Slags with Variable Silica and Alumina
 Qian Wang, Da Wang, Qiang Li, and Jiansheng Zhang*
- 6234 DOI: 10.1021/acs.energyfuels.9b01065
Correcting T_{max} Suppression: A Numerical Model for Removing Adsorbed Heavy Oil and Bitumen from Upper Ordovician Source Rocks, Arctic Canada
 Zhuoheng Chen,* Keith Dewing, Dane P. Synnott, and Xiaojun Liu
- 6247 DOI: 10.1021/acs.energyfuels.9b01114
Synthesis and Physicochemical Investigation of Anionic–Nonionic Surfactants Based on Lignin for Application in Enhanced Oil Recovery
 Shuyuan Chen, Yujie Zhou, Hongjuan Liu, Jingjing Yang, Yingying Wei, and Jianan Zhang*
- 6258 **S** DOI: 10.1021/acs.energyfuels.9b01116
Assessment of Various Approaches in the Prediction of Methane Absolute Adsorption in Kerogen Nanoporous Media
 Wanying Pang, Yin Zhu Ye, and Zhehui Jin*
- 6264 DOI: 10.1021/acs.energyfuels.9b01120
Prediction of the Penetration Grade and Softening Point of Vacuum Residues and Asphalts by Nuclear Magnetic Resonance and Chemometric Methods
 Leonardo Jaimes M., Nicolás Santos S., and Daniel Molina V.*
- 6273 **S** DOI: 10.1021/acs.energyfuels.9b01119
Interaction of Amphiphilic Polymers with Medium-Chain Fatty Alcohols to Enhance Rheological Performance and Mobility Control Ability
 Yao Lu, Ziyu Meng, Kai Gao, Jirui Hou, Hairong Wu,* and Wanli Kang*
- 6283 DOI: 10.1021/acs.energyfuels.9b01125
Impact of Water Pressure on the Organic Matter Evolution from Hydrous Pyrolysis
 Lina Sun, Jincal Tuo,* Mingfeng Zhang, Chenjun Wu, and Shunqi Chai
- 6294 **S** DOI: 10.1021/acs.energyfuels.9b01154
New Insights into the Primary Reaction Products of Naomaohu Coal via Breaking Weak Bonds with Supercritical Ethanolysis
 Shisheng Liang, Yucui Hou, Weize Wu,* Li Li, and Shuhang Ren
- 6302 DOI: 10.1021/acs.energyfuels.9b01164
Adsorption and Agglomeration Characteristics of Fly Ash Particles in Low–Low-Temperature Flue Gas Treatment Systems
 Yu Yan, Ke Sun, Lei Deng, and Defu Che*
- 6313 **S** DOI: 10.1021/acs.energyfuels.9b01169
Experimental and Correlation Development of Heavy Oil Viscosity Using Bio-Additives
 Manojkumar Gudala, Shirsendu Banerjee, Tarun Kumar Naiya,* and G. Suresh Kumar
- 6327 DOI: 10.1021/acs.energyfuels.9b01150
Increasing the Penetration Depth of Microwave Radiation Using Acoustic Stress to Trigger Piezoelectricity
 Matthew Morte,* John Dean, Hiroko Kitajima, and Berna Hascakir

6335 DOI: 10.1021/acs.energyfuels.9b01204
Formation and Dissociation Kinetics of Methane Hydrate in Aqueous Oilfield Polymer Solutions (Polyacrylamide, Xanthan Gum, and Guar Gum) and Their Performance Evaluation as Low-Dosage Kinetic Hydrate Inhibitors (LDHI)
Pawan Gupta and Jitendra S. Sangwai*

6350 DOI: 10.1021/acs.energyfuels.9b01212
Investigation of the Antifouling Mechanism of Electroless Nickel–Phosphorus Coating against Sand and Bitumen
Xingwei Shi, Jingyi Wang, Lu Gong, Hong Luo, Jiankuan Li, Vahidoddin Fattahpour, Mahdi Mahmoudi, Morteza Roostaei, Brent Fermaniuk, Jing-Li Luo, and Hongbo Zeng*

6361 DOI: 10.1021/acs.energyfuels.9b01317
Characterization of Shale Pore Size Distribution by NMR Considering the Influence of Shale Skeleton Signals
Jinbu Li, Shuangfang Lu,* Chunqing Jiang, Min Wang,* Zhuoheng Chen, Guohui Chen, Jijun Li, and Shudong Lu

6373 DOI: 10.1021/acs.energyfuels.9b01439
Influence of Parameters of Delayed Coking Process and Subsequent Calculation on the Properties and Morphology of Petroleum Needle Coke from Decant Oil Mixture of West Siberian Oil
Natalia K. Kondrasheva, Viacheslav A. Rudko,* Maxim Yu. Nazarenko, Vladimir G. Povarov, Ivan O. Derkunsii, Rostislav R. Konoplin, and Renat R. Gabdulhakov

Biofuels and Biomass

6380 DOI: 10.1021/acs.energyfuels.9b00494
Characterization of Anthracite-Degrading Methanogenic Microflora Enriched from Qinshui Basin in China
Hongguang Guo, Yiwen Zhang, Jinlong Zhang, Zaixing Huang, Michael A. Urynowicz, Weiguo Liang,* Zuoying Han, and Jian Liu

6390 DOI: 10.1021/acs.energyfuels.9b00808
Effects of Temperature and Salt Catalysts on Depolymerization of Kraft Lignin to Aromatic Phenolic Compounds
Masud Rana, Golam Taki, Mohammad Nazrul Islam, Ashutosh Agarwal, Young-Tae Jo, and Jeong-Hun Park*

6405 DOI: 10.1021/acs.energyfuels.9b00906
Deoxygenation of Wheat Straw Fast Pyrolysis Vapors using HZSM-5, Al₂O₃, HZSM-5/Al₂O₃ Extrudates, and Desilicated HZSM-5/Al₂O₃ Extrudates
Andreas Eschenbacher, Peter Arendt Jensen, Ulrik Birk Henriksen, Jesper Ahrenfeldt, Chengxin Li, Jens Øllgaard Duus, Uffe Vie Mentzel, and Anker Degn Jensen*

6421 DOI: 10.1021/acs.energyfuels.9b00954
Hydrothermal Liquefaction of Concentrated Acid Hydrolysis Lignin in a Bench-Scale Continuous Stirred Tank Reactor
Ivan Kristianto, Susan Olivia Limarta, Young-Kwon Park, Jeong-Myeong Ha, Dong Jin Suh, Youngdo Jeong, and Junggho Jae*

6429 DOI: 10.1021/acs.energyfuels.9b00983
Fenton Reaction-Modified Corn Stover To Produce Value-Added Chemicals by Ultralow Enzyme Hydrolysis and Maleic Acid and Aluminum Chloride Catalytic Conversion
Ming Yang, Caidi Jin, Shuang E, Jianglong Liu, Shen Zhang, Qingyu Liu, Kuichuan Sheng, and Ximing Zhang*

6436 DOI: 10.1021/acs.energyfuels.9b00994
Effect of Hydrothermal Carbonization Conditions on the Physicochemical Properties and Gasification Reactivity of Energy Grass
Nasim Qadi,* Keiji Takeno, Alexander Mosqueda, Makoto Kobayashi, Yukihiro Motoyama, and Kunio Yoshikawa

6444 DOI: 10.1021/acs.energyfuels.9b00996
Renewable Jet Fuel from Kerosene/Coconut Oil Mixtures with Catalytic Hydrogenation
Zoltán Eller, Zoltán Varga, and Jenő Hancsók*

6454 DOI: 10.1021/acs.energyfuels.9b01071
Hydrothermal Liquefaction and Photocatalytic Reforming of Pinewood (*Pinus ponderosa*)-Derived Acid Hydrolysis Residue for Hydrogen and Bio-oil Production
Rajneesh Jaswal, Anuradha Shende, Wei Nan, Vinod Amar, and Rajesh Shende*

6463 DOI: 10.1021/acs.energyfuels.9b01089
Ignition and Kinetic Studies: The Influence of Lignin on Biomass Combustion
Yuxin Yan, Yang Meng, Luyao Tang, Emily Tsambika Kostas, Edward Lester, Tao Wu, and Cheng Heng Pang*

6473 DOI: 10.1021/acs.energyfuels.9b01133
Hydrogen Transfer between Hydrocarbons and Oxygenated Compounds in Coprocessing Bio-Oils in Fluid Catalytic Cracking
Richard Pujro, Melisa Panero, Melisa Bertero, Ulises Sedran, and Marisa Falco*

6483 DOI: 10.1021/acs.energyfuels.9b01175
Highly Efficient Lignin Depolymerization via Effective Inhibition of Condensation during Polyoxometalate-Mediated Oxidation
Weisheng Yang, Xu Du, Wei Liu, Andrew W. Tricker, Hongqi Dai,* and Yulin Deng*

6491 DOI: 10.1021/acs.energyfuels.9b01218
Novel Nonprecious Metal Loading Multi-Metal Oxide Catalysts for Lignin Depolymerization
Lei Pu, Xing Wang, Qiping Cao, Bingyang Liu, Huan Liu, Ying Han, Guangwei Sun, Yao Li,* and Jinghui Zhou*

6501 DOI: 10.1021/acs.energyfuels.9b01259
Comprehensive Modeling of Heat Transfer in Cellulose Pyrolysis with Detailed Kinetic Schemes
Xiaoxiao Yang, Yuying Zhao, Qingru Shen, Chunli Yao,* and Rui Li*

6509 DOI: 10.1021/acs.energyfuels.9b01264

Energy Conversion Efficiency of Pyrolysis of Chicken Litter and Rice Husk Biomass
Haftom Weldekidan,* Vladimir Strezov,* Jing He, Ravinder Kumar, Samuel Asumadu-Sarkodie, Israel N. Y. Doyi, Sayka Jahan, Tao Kan, and Graham Town

Environmental and Carbon Dioxide Issues

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High-Pressure CO₂ Excess Sorption Measurements on Powdered and Core Samples of High-Rank Coals from Different Depths and Locations of the South Wales Coalfield
Renato Zagorščak* and Hywel R. Thomas

6527 DOI: 10.1021/acs.energyfuels.9b00518

Hydromechanical Response and Impact of Gas Mixing Behavior in Subsurface CH₄ Storage with CO₂-Based Cushion Gas
Jianli Ma, Qi Li,* Thomas Kempka, and Michael Kühn

6542 **S** DOI: 10.1021/acs.energyfuels.9b00539

Adsorption Mechanism of CO₂/CH₄ in Kaolinite Clay: Insight from Molecular Simulation
Wenning Zhou,* Hapbo Wang, Yuying Yan, and Xunliang Liu

6552 **S** DOI: 10.1021/acs.energyfuels.9b00765

CO₂O₄ Nanorods with a Great Amount of Oxygen Vacancies for Highly Efficient Hg⁰ Oxidation from Coal Combustion Flue Gas
Xiaopeng Zhang, Hang Zhang, Hongda Zhu, Chengfeng Li, Ning Zhang, Junjiang Bao,* and Gaohong He*

6562 **S** DOI: 10.1021/acs.energyfuels.9b00863

Moisture Swing Ion-Exchange Resin-PO₄ Sorbent for Reversible CO₂ Capture from Ambient Air
Juzheng Song, Liangliang Zhu, Xiaoyang Shi, Yilun Liu,* Hang Xiao,* and Xi Chen

6568 **S** DOI: 10.1021/acs.energyfuels.9b00886

Nitrogen-Doped Porous Carbons from Lotus Leaf for CO₂ Capture and Supercapacitor Electrodes
Shenfeng Liu, Pupu Yang, Linlin Wang, Yuliang Li, Zhenzhen Wu, Rui Ma,* Jiayi Wu, and Xin Hu*

6577 **S** DOI: 10.1021/acs.energyfuels.9b00952

Enhancement of CO₂ Desorption from Reinforced 2-(2-Aminoethylamine) Ethanol Aqueous Solution by Multi-walled Carbon Nanotubes
Xiaojing Li, Yongchun Zhang,* and Shaoyun Chen*

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Complete Reduction of Ilmenite by CO in Chemical Looping Combustion—Multistep Kinetic Model Approach
V. Prabaharan and Sreenivas Jayanti*

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Simultaneous Removal of NO and SO₂ from Exhaust Gas by Cyclic Scrubbing and Online Supplementing pH-Buffered NaClO₂ Solution
Zhitao Han,* Tian Lan, Zhiwei Han, Shaolong Yang,* Jingming Dong, Deping Sun, Zhijun Yan, Xinxiang Pan, and Ligu Song

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Experimental Study on the NO_x Removal by Scrubbing with Urea–H₂O₂ Solution after NO Partial Preoxidation
Zhengcheng Wen,* Hongzhe Shen, Yuan Li, Zhihua Wang, Guangqin Wang, and Kefa Cen

6606 DOI: 10.1021/acs.energyfuels.9b01190

Analysis of Effects of CO₂ Injection on Coalbed Permeability: Implications for Coal Seam CO₂ Sequestration
Erlei Su, Yunpei Liang,* Quanle Zou,* Fanfan Niu, and Lei Li

6616 **S** DOI: 10.1021/acs.energyfuels.9b01193

Main and Interactive Effects of Four Factors on CO₂ Storage in Fractured Nanopores
Kaiqiang Zhang,* Na Jia,* Lirong Liu, and Songyan Li

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Enhancement of CO₂ Absorption into K₂CO₃ Solution by Cyclohexane in a High-Shear Reactor
Qi Feng, Baochang Sun, Lei Wang, and Lei Shao*

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Swapping and Enhancement of Guest Occupancies in Hydroquinone Clathrates Using CH₄ and CO₂
Sang Jun Yoon, Dongwon Lee, Ji-Ho Yoon,* and Jong-Won Lee*

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Zeolite X Adsorbent with High Stability Synthesized from Bauxite Tailings for Cyclic Adsorption of CO₂
Zhiqin Qiang, Rui Li, Zhiqiang Yang, Min Guo, Fangqin Cheng, and Mei Zhang*

Efficiency and Sustainability

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Performance of Bimetallic Additives (Fe–Co, Mn–Co, Cu–Co, and Zn–Co) Modified Na₂S/AC Deoxidizers in Removal of O₂ from Low-Concentration Coalbed Gas
Yuhua Zhang, Hongyan Pan, Qian Lin,* Fuxin Liu, Guoxiang Zhang, and Pingfeng Hu

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Characterization of Organic Nitrogen Compounds and Their Impact on the Stability of Marginally Stable Diesel Fuels
Rachel D. Deese,* Robert E. Morris, Alison E. Metz, Kristina M. Myers, Kevin Johnson, and Thomas N. Loegel

6670

Study of Mercury-Removal Performance of Mechanical–Chemical-Brominated Coal-Fired Fly Ash
Xinze Geng, Yufeng Duan,* Shilin Zhao, Yifan Xu, Tianfan Li,

6767 **S**

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Study of Mercury-Removal Performance of Mechanical–Chemical-Brominated Coal-Fired Fly Ash
Xinze Geng, Yufeng Duan,* Shilin Zhao, Yifan Xu, Tianfang Huang, Jiwei Hu, and Shaojun Ren

6678 DOI: 10.1021/acs.energyfuels.9b01740
Effect of Surfactant Headgroup, Salts, and Temperature on Interfacial Properties: Dissipative Particle Dynamics and Experiment for the Water/Octane/Surfactant System
Hassan S. Alasiri,* Abdullah S. Sultan, and Walter G. Chapman

Catalysis and Kinetics

6689 DOI: 10.1021/acs.energyfuels.9b00692
Dry Reforming of Methane over Ni-Cu/Al₂O₃ Catalyst Coatings in a Microchannel Reactor: Modeling and Optimization Using Design of Experiments
Raziye Rezaei, Gholamreza Moradi,* and Shahram Sharifnia

6707 DOI: 10.1021/acs.energyfuels.9b00881
Removal of NO_x and SO₂ from the Coal-Fired Flue Gas Using a Rotating Packed Bed Pilot Reactor with Peroxymonosulfate Activated by Fe(II) and Heating
Xiaojiao Chen and Xiaomin Hu*

6717 DOI: 10.1021/acs.energyfuels.9b01088
Analysis of the Combined Ammonia Production and Cyclohexane Dehydrogenation by a Novel Bifunctional Reactor
Roozbeh Ghani, Fatemeh Boostani, and Davood Iranshahi*

6727 DOI: 10.1021/acs.energyfuels.9b01122
Kinetic Measurements on CO₂ Adsorption and Release Using TBAB-38H₂O Hydrates as Adsorbents
Xuebing Zhou, LiHua Wan, Zhen Long, Dongliang Li, and Deqing Liang*

6734 DOI: 10.1021/acs.energyfuels.9b01173
Characterization of Delayed Coke and Fluid Coke Gasification Using Blast Furnace Slag as a Disposable Catalyst
Rongxuan Linghu, Yindong Liu,* Yuming Zhang,* Yongmin Zhang, Jinsen Gao, and Yiwei Zhong

6742 DOI: 10.1021/acs.energyfuels.9b01398
Hydrogen Production via the Catalytic Partial Oxidation of Ethanol on a Platinum–Rhodium Catalyst: Effect of the Oxygen-to-Ethanol Molar Ratio and the Addition of Steam
B. Sawatmongkhon,* K. Theinnoi, T. Wongchang, C. Haoharn, C. Wongkhorsub, and A. Tsolakis

Combustion

6754 DOI: 10.1021/acs.energyfuels.9b00215
Structure Responses of *n*-Heptane/Air Counterflow Flames to Air-Side Partial Premixing of Dimethyl Ether
Xiaoqin Lu, Ge Hu,* Yituan He, Shiyong Liao,* Xiaochun Jian, and Yiming Shao

6767 DOI: 10.1021/acs.energyfuels.9b00344
Analysis of Combustion Characteristics When Adding Hydrogen and Short-Chain Hydrocarbons to RP-3 Aviation Kerosene Based on the Variation Disturbance Method
Shuhao Li, Junjiang Guo, Zhenghe Wang, Shuanghui Xi, Junxing Hou, and Zhenhua Wen*

6775 DOI: 10.1021/acs.energyfuels.9b00571
Autoignition Characteristics of Ethers Blended with Low Cetane Distillates
André Nicolle,* Nimal Naser, Tamour Javed, Nicolas Rankovic, and S. Mani Sarathy

6788 DOI: 10.1021/acs.energyfuels.9b01077
Composition–Structure Relationship of Skeletal–Dendritic Ferrospheres Formed during Industrial Combustion of Lignite and Coal
Natalia N. Anshits, Marina A. Fedorchak, Anatolij M. Zhizhaev, and Alexander G. Anshits*

6797 DOI: 10.1021/acs.energyfuels.9b01117
Experimental and Numerical Study of the Fuel-NO_x Formation at High CO₂ Concentrations in a Jet-Stirred Reactor
Pengfei Li,* Kai Wang, Wenhao Li, Fan Hu, Cuijiao Ding, and Zhaohui Liu

6809 DOI: 10.1021/acs.energyfuels.9b01297
Oxidation Kinetic Analysis of Diesel Particulate Matter using Single- and Multistage Methods
Jianbing Gao,* Haibo Chen, Guohong Tian, Chaochen Ma,* and Fei Zhu

Process Engineering

6817 DOI: 10.1021/acs.energyfuels.9b00511
Formation of Metallurgical Coke within Minutes through Coal Densification and Microwave Energy
Orla Williams,* Alex Ure, Lee Stevens, Eleanor Binner, Chris Dodds, Samuel Kingman, Bidyut Das, Pratik Swarup Dash, and Edward Lester

6829 DOI: 10.1021/acs.energyfuels.9b00974
Investigation of the Rheological Properties of Nanosilica-Reinforced Polyacrylamide/Polyethyleneimine Gels for Wellbore Strengthening at High Reservoir Temperatures
Mohamed Shamlooh, Ahmed Hamza, Ibelwaleed A. Hussein,* Mustafa S. Nasser, Musaab Magzoub, and Saeed Salehi*

Communications

6837 DOI: 10.1021/acs.energyfuels.9b01376
Impact of Common Plastics on Cellulose Pyrolysis
Shogo Kumagai,* Miki Yamamoto, Yusuke Takahashi, Tomohito Kameda, Yuko Saito, and Toshiaki Yoshioka

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