

## SPECIAL SECTION: SEED17

### Editorial

5665

DOI: 10.1021/acs.energyfuels.8b00632

**2nd International Conference on the Sustainable Energy and Environmental Development**  
Mariusz Filipowicz, Łukasz Uruski, and Marta Marczak\*

### Articles

5666

DOI: 10.1021/acs.energyfuels.7b03473

**Studies on the Possibility of Extending Coal Resources for Coke Production through the Application of Coal Predrying**  
Piotr Zarczyński\* and Andrzej Strugała

5677

DOI: 10.1021/acs.energyfuels.7b03512

**Mercury in Polish Coking Bituminous Coals**  
Piotr Burmistrz, Krzysztof Kogut,\* Marta Marczak, Tadeusz Dziok, and Jerzy Górecki

5684

DOI: 10.1021/acs.energyfuels.7b03562

**Comparison of Catalysts Based on Individual Alkali and Alkaline Earth Metals with Their Composites Used for Steam Gasification of Coal**  
Katarzyna Zubek,\* Grzegorz Czerski, and Stanisław Porada




5693



DOI: 10.1021/acs.energyfuels.7b03557

**Effect of Using Coke Dust as a Sorbent for Removing Mercury from Flue Gases on the Contents of Selected Ecotoxic Elements in Fly Ash**  
Faustyna Wierońska,\* Piotr Burmistrz, Andrzej Strugała, Dorota Makowska, and Sebastian Lech

## Articles

### Fossil Fuels

- 5701  DOI: 10.1021/acs.energyfuels.7b02870  
**Comparison of Linear and Branched Molecular Structures of Two Fluorocarbon Organosilane Surfactants for the Alteration of Sandstone Wettability**  
Ivan Moncayo-Riascos\* and Bibian A. Hoyos
- 5711  DOI: 10.1021/acs.energyfuels.7b03358  
**Ultrahigh-Purity Vanadyl Petroporphyrins**  
B. McKay Rytting, I. D. Singh, Peter K. Kilpatrick,\* Michael R. Harper, Anthony S. Mennito, and Yunlong Zhang\*
- 5725 DOI: 10.1021/acs.energyfuels.7b03516  
**Impact of Salinity and Mineralogy on Slick Water Spontaneous Imbibition and Formation Strength in Shale**  
Mohamed Mehana, Mohamed Al Salman, and Mashhad Fahes\*
- 5736 DOI: 10.1021/acs.energyfuels.8b00041  
**Effect of Porous Media and Sodium Dodecyl Sulphate Complex System on Methane Hydrate Formation**  
Zhiming Liu, Zhen Pan,\* Zhien Zhang,\* Peisheng Liu, Liyan Shang, and Bingfan Li
- 5750  DOI: 10.1021/acs.energyfuels.8b00200  
**Combined Experimental, Theoretical, and Molecular Simulation Approach for the Description of the Fluid-Phase Behavior of Hydrocarbon Mixtures within Shale Rocks**  
Carmelo Herdes, Camille Petit, Andres Mejia, and Erich A. Müller\*
- 5763 DOI: 10.1021/acs.energyfuels.8b00309  
**Coalescence of Crude Oil Droplets in Brine Systems: Effect of Individual Electrolytes**  
Subhash C. Ayirala,\* Ali A. Yousef, Zuoli Li, and Zhenghe Xu\*
- 5772 DOI: 10.1021/acs.energyfuels.8b00367  
**As Green As It Gets: An Abundant Kinetic Hydrate Inhibitor from Nature**  
Carlos Magnusson, Eirin Abrahamsen, Malcolm A. Kelland,\* Alexandra Cely, Keijo Kinnari, Xiaoyun Li, and Kjell M. Askvik
- 5779 DOI: 10.1021/acs.energyfuels.8b00470  
**Correlating Asphaltene Dimerization with Its Molecular Structure by Potential of Mean Force Calculation and Data Mining**  
Xinze Zhu, Guozhong Wu, Frédéric Coulon, Lvwen Wu, and Daoyi Chen\*


- 5789 DOI: 10.1021/acs.energyfuels.8b00536  
**Further Investigation of Effects of Injection Pressure and Imbibition Water on CO<sub>2</sub> Huff-n-Puff Performance in Liquid-Rich Shale Reservoirs**  
Lei Li,\* James J. Sheng, Yuliang Su, and Shiyuan Zhan
- 5799 DOI: 10.1021/acs.energyfuels.8b00577  
**Experimental Investigation on the Mechanical Behavior of Victorian Brown Coal under Brine Saturation**  
K. H. S. M. Sampath, M. S. A. Perera,\* D. Elsworth, P. G. Ranjith, S. K. Matthal, and T. Rathnaweera
- 5812  DOI: 10.1021/acs.energyfuels.8b00656  
**Cracked Naphtha Reactivity: Effect of Free Radical Reactions**  
Giselle Uzcátegui,\* Shirley Y. Fong, and Arno de Klerk
- 5824 DOI: 10.1021/acs.energyfuels.8b00665  
**Effects of Surface Acidity and Polarity of SiO<sub>2</sub> Nanoparticles on the Foam Stabilization Applied to Natural Gas Flooding in Tight Gas-Condensate Reservoirs**  
Yira Hurtado, Cristian Beltrán, Richard D. Zabala, Sergio H. Lopera, Camilo A. Franco,\* Nashaat N. Nassar, and Farid B. Cortés\*
- 5834  DOI: 10.1021/acs.energyfuels.8b00720  
**Ethylene-Vinyl Acetate Copolymer and Resin-Stabilized Asphaltenes Synergistically Improve the Flow Behavior of Model Waxy Oils. 2. Effect of Asphaltene Content**  
Bo Yao, Chuanxian Li, Fei Yang,\* Xiaoping Zhang, Zhonghua Mu, Guangyu Sun, Gang Liu, and Yansong Zhao
- 5846 DOI: 10.1021/acs.energyfuels.8b00741  
**Enhancing Sodium Bis(2-ethylhexyl) Sulfosuccinate Injectivity for CO<sub>2</sub> Foam Formation in Low-Permeability Cores: Dissolving in CO<sub>2</sub> with Ethanol**  
Chao Zhang, Zhaomin Li,\* Songyan Li, Qichao Lv, Peng Wang, Jiquan Liu, and Jianlin Liu\*
- 5857 DOI: 10.1021/acs.energyfuels.8b00774  
**Influence of Microcrystalline Wax on the Properties of Model Wax-Oil Gels**  
Muh Kurniawan,\* Sreedhar Subramanian, Jens Norrman, and Kristofer Paso
- 5868 DOI: 10.1021/acs.energyfuels.8b00785  
**Effect of Oleic Acid on the Dynamic Interfacial Tensions of Surfactant Solutions**  
Miao Liu, Xu-long Cao, Yang-wen Zhu, Ying Tong, Lei Zhang, Lu Zhang,\* and Sui Zhao\*
- 5877 DOI: 10.1021/acs.energyfuels.8b00795  
**Rheology of Hydrate-Forming Emulsions Stabilized by Surfactant and Hydrophobic Silica Nanoparticles**  
Amit Ahuja,\* Anam Iqbal, Mohsin Iqbal, Jae W. Lee, and Jeffrey F. Morris




- 5885  DOI: 10.1021/acs.energyfuels.8b00812  
**Polymer-Assisted Microbial-Enhanced Oil Recovery**  
 Cong-Yu Ke, Wu-Juan Sun,\* Yong-Bin Li, Jun-Feng Hui, Guo-Min Lu, Xiao-Yan Zheng, Qun-Zheng Zhang, and Xun-Li Zhang\*

## Biofuels and Biomass

- 5893 DOI: 10.1021/acs.energyfuels.7b03960  
**Co-gasification of Acid Hydrolysis Residues and Sewage Sludge in a Downdraft Fixed Gasifier with CaO as an In-Bed Additive**  
 Guanyi Chen, Fang Liu, Xiang Guo, Yanru Zhang, BeiBei Yan,\* Zhanjun Cheng, Lin Xiao, Wenchao Ma, and Li'an Hou


- 5901  DOI: 10.1021/acs.energyfuels.7b04050  
**Fly Ash Characterization from *Cynara cardunculus* L. Gasification**  
 Daniel Serrano,\* Marzena Kwapinska,\* Sergio Sánchez-Delgado, and James J. Leahy


- 5910 DOI: 10.1021/acs.energyfuels.7b04150  
**Production of Light Olefins from Catalytic Cracking Bio-oil Model Compounds over La<sub>2</sub>O<sub>3</sub>-Modified ZSM-5 Zeolite**  
 Fuwei Li, Shilei Ding, Zhaohe Wang, Zhixia Li,\* Lin Li, Chong Gao, Ze Zhong, Hongfei Lin, and Congjin Chen


- 5923  DOI: 10.1021/acs.energyfuels.8b00068  
**Hydrothermal Liquefaction of Kraft Lignin in Subcritical Water: Influence of Phenol as Capping Agent**  
 Tallal Belkheiri,\* Sven-Ingvar Andersson, Cecilia Mattsson, Lars Olausson, Hans Theliander, and Lennart Vamling

- 5933 DOI: 10.1021/acs.energyfuels.8b00088  
**Upscaling Effects on Char Conversion in Dual Fluidized Bed Gasification**  
 Louise Lundberg,\* David Pallarès, and Henrik Thunman


- 5944  DOI: 10.1021/acs.energyfuels.8b00134  
**Low-Temperature Electrochemical Upgrading of Bio-oils Using Polymer Electrolyte Membranes**  
 Tedd E. Lister,\* Luis A. Diaz, Michael A. Lilga, Asanga B. Padmaperuma, YuPo Lin, Varada Menon Palakkal, and Christopher G. Arges


- 5951  DOI: 10.1021/acs.energyfuels.8b00225  
**Dual Effect of Nonionic Surfactants on Improving the Enzymatic Hydrolysis of Lignocellulose**  
 Wen Wang, Xinchu Zhuang, Xuesong Tan, Qiong Wang, Xiaoyan Chen, Qiang Yu,\* Wei Qi, Zhongming Wang, and Zhenhong Yuan

- 5960  DOI: 10.1021/acs.energyfuels.8b00415  
**Complementary Analysis of the Water-Soluble and Water-Insoluble Fraction of Catalytic Fast Pyrolysis Biocrudes by Two-Dimensional Gas Chromatography**  
 Mette Kristensen,\* Asger B. Hansen, Ofel D. Mante, David C. Dayton, Sylvain Verdier, Peter Christensen, and Jan H. Christensen

- 5969  DOI: 10.1021/acs.energyfuels.8b00383  
**Fast, Easy, and Economical Quantification of Lignin Phenolic Hydroxyl Groups: Comparison with Classical Techniques**  
 Luis Serrano,\* Esakkiammal Sudha Esakkimuthu, Nathalie Marlin, Marie-Christine Brochier-Salon, Gerard Mortha, and Frederique Bertaud

- 5978 DOI: 10.1021/acs.energyfuels.8b00503  
**Trace Elements in Various Individual and Mixed Biofuels: Abundance and Release in Particulate Matter during Combustion**  
 Chao Feng, Mingming Zhang, and Hongwei Wu\*

- 5990  DOI: 10.1021/acs.energyfuels.8b00559  
**Application of Chloride Adduct Ionization Tandem Mass Spectrometry for Characterizing and Sequencing Synthetic Lignin Model Compounds**  
 Shadrack O. Asare, Poorya Kamali, Fan Huang, and Bert C. Lynn\*

- 5999  DOI: 10.1021/acs.energyfuels.8b00589  
**Gasification of Char Derived from Catalytic Hydrothermal Liquefaction of Pine Sawdust under a CO<sub>2</sub> Atmosphere**  
 Flabianus Hardi,\* Akihisa Imal, Sarut Theppitak, Kawnish Kirtania, Erik Furusjö, Kentaro Umeki, and Kunio Yoshikawa

- 6008  DOI: 10.1021/acs.energyfuels.8b00852  
**Effect of Temperature and Transport on the Yield and Composition of Pyrolysis-Derived Bio-Oil from Glucose**  
 Khursheed B. Ansari, Jyotsna S. Arora, Jia Wei Chew, Paul J. Dauenhauer, and Samir H. Mushrif\*

- 6022 DOI: 10.1021/acs.energyfuels.8b00951  
**Structural Characterization of Corn Stover Lignin after Hydrogen Peroxide Presoaking Prior to Ammonia Fiber Expansion Pretreatment**  
 Xianliang Qiao, Chao Zhao,\* Qianjun Shao, and Muhammad Hassan

## Environmental and Carbon Dioxide Issues

- 6031 DOI: 10.1021/acs.energyfuels.7b04057  
**Experimental Study on Removal Characteristics of SO<sub>2</sub> by Wet Flue Gas Desulfurization Absorber**  
 Chenghang Zheng, Yipan Hong, Zhewei Xu, Cunjie Li, Li Wang, Zhengda Yang, Yongxin Zhang, and Xiang Gao\*

- 6039 DOI: 10.1021/acs.energyfuels.8b00154  
**NO Removal from Flue Gas Using Conventional Imidazolium-Based Ionic Liquids at High Pressures**  
 Xiaoshan Li, Liqi Zhang,\* Liwei Li, Yi Hu, Ji Liu, Yongqing Xu, Cong Luo,\* and Chuguang Zheng

- 6049 DOI: 10.1021/acs.energyfuels.8b00472  
**Distribution and Speciation Transformation of Hazardous Trace Element Arsenic in Particulate Matter of a Coal-Fired Power Plant**  
 Shilin Zhao, Yufeng Duan,\* Cong Chen, Hao Wu, Deye Liu, Meng Liu, Jianhong Lu, and Xiaobing Gu



6056 DOI: 10.1021/acs.energyfuels.8b00484  
Removal of Elemental Mercury in Flue Gas with H<sub>2</sub>O<sub>2</sub> Solution Catalyzed by Zn-Doped BiFeO<sub>3</sub>  
Yi Zhao,\* Xiaoying Ma, and Peiyao Xu

6064 DOI: 10.1021/acs.energyfuels.8b00532  
Activated Carbon-Assisted Fabrication of Cost-Efficient ZnO/SiO<sub>2</sub> Desulfurizer with Characteristic of High Loadings and High Dispersion  
Chao Yang, Jian Wang, Hailing Fan,\* Yongfeng Hu, Jiasheng Shen, Ju Shangguan, and Baojun Wang

6073 DOI: 10.1021/acs.energyfuels.8b00551  
Influence of Supercritical CO<sub>2</sub> Exposure on CH<sub>4</sub> and CO<sub>2</sub> Adsorption Behaviors of Shale: Implications for CO<sub>2</sub> Sequestration  
Junping Zhou,\* Shuang Xie, Yongdong Jiang, Xuefu Xian, Qili Liu, Zhaohui Lu, and Qiao Lyu

6090 DOI: 10.1021/acs.energyfuels.8b00649  
Adsorptive Separation of CO<sub>2</sub> from Multicomponent Mixtures of Flue Gas in Carbon Nanotube Arrays: A Grand Canonical Monte Carlo Study  
Sauradeep Majumdar, Manish Maurya, and Jayant K. Singh\*

6098 DOI: 10.1021/acs.energyfuels.8b00685  
Effect of Stoichiometric Ratio on Char-Nitrogen Conversion under High-Temperature Entrained Flow Combustion Conditions  
Yupeng Li, Rui Sun,\* Min Wang, Zhuozhi Wang, Jie Xu, and Xiaohan Ren

6111 DOI: 10.1021/acs.energyfuels.8b00686  
Characteristics and Inhibition of Hg<sup>0</sup> Re-emission in a Wet Flue Gas Desulfurization System  
Jialing Xu, Jingjing Bao,\* Jiguo Tang,\* Min Du, Hongtao Liu, Guo Xie, and Hongmin Yang

6119 DOI: 10.1021/acs.energyfuels.8b00778  
Study of Main Solutes on Evaporation and Crystallization Processes of the Desulfurization Wastewater Droplet  
Zhengxing Liang, Xining Cheng, Li Zhang,\* Zhongqing Yang,\* Jingyu Ran, and Lin Ding

6130 DOI: 10.1021/acs.energyfuels.8b00879  
Efficient Absorption of CO<sub>2</sub> by Introduction of Intramolecular Hydrogen Bonding in Chiral Amino Acid Ionic Liquids  
Mingguang Pan,\* Yongsheng Zhao, Xiaoqin Zeng, and Jianxin Zou\*

## Efficiency and Sustainability

6136 DOI: 10.1021/acs.energyfuels.8b00261  
Modified with Transition Metals (Cu, Fe, Ni, Co) as Efficient Deoxidizers for O<sub>2</sub> Removal from Low-Concentration Coal Bed Methane  
Pingfeng Hu, Hongyan Pan,\* Qian Lin,\* Jianxin Cao, Yuhua Zhang, and Min Zhao

## Catalysis and Kinetics

6144 DOI: 10.1021/acs.energyfuels.7b03601  
Influence of Temperature on Aggregation and Stability of Asphaltenes. II. Orthokinetic Aggregation  
Mohammad Torkaman, Masoud Bahrami,\* and Mohammad Reza Dehghani

6155 DOI: 10.1021/acs.energyfuels.8b00072  
Study on CO<sub>2</sub> Gasification Reactivity and Structure Characteristics of Carbonaceous Materials from the Corex Furnace  
Zhengjian Liu, Guangwei Wang,\* Jianliang Zhang, Jui-Yuan Lee, Haiyang Wang, Minmin Sun, and Chuan Wang

6167 DOI: 10.1021/acs.energyfuels.8b00344  
Hydrogenation of Olefins in Bitumen-Derived Naphtha over a Commercial Hydrotreating Catalyst  
Qin Xin, Anton Alvarez-Majmutov, Heather D. Dettman, and Jinwen Chen\*

6176 DOI: 10.1021/acs.energyfuels.8b00624  
Statistical Approach on Ethanol Reforming  
Isabela Dancini-Pontes,\* Vanderly Janeiro, Fernando A. Silva, Rodrigo M. Pontes, Marcos De Souza, and Nádia R. C. Fernandes

6189 DOI: 10.1021/acs.energyfuels.8b00691  
Catalytic Cracking of Light Crude Oil to Light Olefins and Naphtha over E-Cat and MF1: Microactivity Test versus Advanced Cracking Evaluation and the Effect of High Reaction Temperature  
Sulaiman Al-Khattaf,\* Mian Rahat Saeed, Abdullah Aitani, and Michael T. Klein

6200 DOI: 10.1021/acs.energyfuels.8b00700  
Formate Ester Is Not a Decisive Intermediate in the Low-Temperature Synthesis of Methanol from Carbon Dioxide Dissolved in Diethylaminoethanol  
Felix Hemmann, Stefan Frölich, Andreas Lißner, and Florian O. R. L. Mertens\*

6204 DOI: 10.1021/acs.energyfuels.8b00708  
Optimal Synthesis of Hierarchical Porous Composite ZSM-5/SBA-16 for Ultradeep Hydrodesulfurization of Dibenzothiophene and 4,6-Dimethyldibenzothiophene. Part 1: The Influence of Inorganic Salt on the Properties of NiMo Catalysts  
Xilong Wang, Yuyang Li, Kebin Chi, Zhen Zhao, Peng Du, Jinlin Mei, Peng Zheng, Jiyuan Fan, Aijun Duan,\* and Chunming Xu\*

6213 DOI: 10.1021/acs.energyfuels.8b00791  
Catalyst Deactivation and Reactor Fouling during Hydrogenation of Conjugated Cyclic Olefins over a Commercial Ni-Mo-S $\gamma$ -Al<sub>2</sub>O<sub>3</sub> Catalyst  
Ali Alzaid, Jason Wiens, John Adjaye, and Kevin J. Smith\*

6224 DOI: 10.1021/acs.energyfuels.8b00804  
Microwave-Assisted Template-Free Synthesis of Ni<sub>3</sub>(BO<sub>3</sub>)<sub>2</sub>(NOB) Hierarchical Nanoflowers for Electrocatalytic Oxygen Evolution  
Sivasankara Rao Ede, Sengenil Anantharaj, Balasubramanian Subramanian, Arumugam Rathishkumar, and Subrata Kundu\*

- 6234 DOI: 10.1021/acs.energyfuels.8b00859  
 Extension of the Delplot Analysis for Experiments with Non-zero Initial Product Concentrations  
 Nabeel S. Abo-Ghander and Michael T. Klein\*

## Combustion

- 6239 DOI: 10.1021/acs.energyfuels.7b02127  
 Influence of Blending *n*-Butanol with Isooctane and *n*-Heptane on Ignition Delay Times in a Fuel Ignition Tester  
 Quanhong Xu, Richard Leathers,\* Dillon Savage, Kamal Kumar, and Chih-Jen Sung

- 6252 DOI: 10.1021/acs.energyfuels.7b04069  
 Experimental and Numerical Investigations of Soot Formation in Laminar Coflow Ethylene Flames Burning in O<sub>2</sub>/N<sub>2</sub> and O<sub>2</sub>/CO<sub>2</sub> Atmospheres at Different O<sub>2</sub> Mole Fractions  
 Yindi Zhang, Fengshan Liu,\* and Chun Lou\*


- 6264 DOI: 10.1021/acs.energyfuels.7b04128  
 Ignition Characteristics of Methane/*n*-Heptane Fuel Blends under Engine-Like Conditions  
 Haiqiao Wei,\* Jiayue Qi, Lei Zhou,\* Wanhui Zhao, and Gequn Shu

- 6278 DOI: 10.1021/acs.energyfuels.8b00003  
 Experimental and Kinetic Study of Component Volumetric Effects on Laminar Flame Speed of Acetone–Butanol–Ethanol (ABE)  
 Saifei Zhang, Timothy H. Lee, Han Wu,\* Junyu Pei, Wei Wu, and Fushui Liu

- 6293 DOI: 10.1021/acs.energyfuels.8b00417  
 Combustion Characteristics of Tight Sandstone  
 Yu Zhou, Wei Chen,\* and Yafeng Lei

- 6300  DOI: 10.1021/acs.energyfuels.8b00511  
 Study of Sewage Sludge/Coal Co-Combustion by Thermogravimetric Analysis and Single Particle Co-Combustion Method  
 Kai Lei, Rui Zhang,\* Bu Q. Ye, Jin Cao, and Dong Liu\*

- 6309  DOI: 10.1021/acs.energyfuels.8b00556  
 Predicting Octane Number Using Nuclear Magnetic Resonance Spectroscopy and Artificial Neural Networks  
 Abdul Gani Abdul Jameel,\* Vincent Van Oudenhoven, Abdul-Hamid Emwas, and S. Mani Sarathy\*


- 6330  DOI: 10.1021/acs.energyfuels.8b00640  
 Primary Fragmentation Behavior of Indian Coals and Biomass during Chemical Looping Combustion  
 K. Sekar Pragadeesh and D. Ruben Sudhakar\*

- 6347 DOI: 10.1021/acs.energyfuels.8b00739  
 Insert Gas Dilution and Temperature Effects on Laminar Burning Velocity of DME + Air Mixtures  
 Akram Mohammad\* and Khalid A. Juhany


- 6355 DOI: 10.1021/acs.energyfuels.8b00944  
 NO<sub>x</sub> Emissions from Regenerator of Calcium Looping Process  
 Jaroslaw Krzywanski,\* Tomasz Czakiert, Tadaaki Shimizu, Izabela Majchrzak-Kuceba, Yuuto Shimazaki, Anna Zylka, Karolina Grabowska, and Marcin Sosnowski

- 6363 DOI: 10.1021/acs.energyfuels.8b00997  
 Laminar Burning Velocity of *n*-Propanol and Air Mixtures at Elevated Mixture Temperatures  
 Amit Katoch,\* Ayush Chauhan, and Sudarshan Kumar


## Batteries and Energy Storage

- 6371  DOI: 10.1021/acs.energyfuels.8b00454  
 Semimetallic 1T' WTe<sub>2</sub> Nanorods as Anode Material for the Sodium Ion Battery  
 Meiling Hong, Jie Li, Wenfeng Zhang, Shantang Liu,\* and Haixin Chang\*

## Process Engineering

- 6378  DOI: 10.1021/acs.energyfuels.7b03897  
 Modeling a Reaction Section of a Commercial Continuous Catalytic Reformer  
 Saša Polovina, Merva Vojtech, Igor Dejanović, Aleksandar Grujić, and Mirko Stijepović\*

## Communications

- 6397  DOI: 10.1021/acs.energyfuels.7b03915  
 Characterization and Comparison of Trace Metal Compositions in Natural Gas, Biogas, and Biomethane  
 M. Cachia, B. Bouyssiere, H. Carrier, H. Garraud, G. Caumette,\* and I. Le Hécho\*