

SPECIAL SECTION: 6TH SINO-AUSTRALIAN SYMPOSIUM ON ADVANCED COAL AND BIOMASS UTILISATION TECHNOLOGIES

Editorial

4065

DOI: 10.1021/acs.energyfuels.8b00914

6th Sino-Australian Symposium on Advanced Coal and Biomass Utilisation Technologies

Hongwei Wu,* Yun Yu, Xiangpeng Gao, Minghou Xu, and Xiaowei Liu

Reviews

4069

DOI: 10.1021/acs.energyfuels.7b03258

Review of Pulverized Combustion of Non-Woody Residues

Miriam Rabaçal, Sandrina Pereira, and Mário Costa*

4096

DOI: 10.1021/acs.energyfuels.7b03003

Distinctive Hydrodynamics of a Micro Fluidized Bed and Its Application to Gas–Solid Reaction Analysis

Fang Wang, Xi Zeng,* Sulong Geng, Junrong Yue, Shibai Tang, Yanbin Cui, Jian Yu, and Guangwen Xu

4107

DOI: 10.1021/acs.energyfuels.7b03164

Electrochemical Oxidation of Carbon at High Temperature: Principles and Applications

Jiang Liu,* Mingyang Zhou, Yapeng Zhang, Peipei Liu, Zhijun Liu, Yongmin Xie, Weizi Cai, Fangyong Yu, Qian Zhou, Xiaoqiang Wang, Meng Ni, and Meilin Liu

Articles

4118

5

DOI: 10.1021/acs.energyfuels.7b03144

Metals and Other Elements in Biocrude from Fast and Isothermal Hydrothermal Liquefaction of Microalgae

Jimeng Jiang and Phillip, E. Savage*

4127

5

DOI: 10.1021/acs.energyfuels.7b02994

Decomposition of Cellulose in Hot-Compressed Water: Detailed Analysis of the Products and Effect of Operating Conditions

Felipe Buendia-Kandia, Guillaumin Mauviel, Emmanuel Guedon, Emmanuel Rondags, Dominique Pettjean, and Anthony Dufour*

- 4139 **5** DOI: 10.1021/acs.energyfuels.7b03239
Acid-Catalyzed Ring Opening of Furan in Aqueous Solution
 Xiao Liang, Brian S. Haynes, and Alejandro Montoya*
- 4149 **5** DOI: 10.1021/acs.energyfuels.7b03125
Effect of Hydrothermal Carbonization on the Combustion and Gasification Behavior of Agricultural Residues and Macroalgae: Devolatilization Characteristics and Char Reactivity
 Daniel J. Lane, Ewan Truong, Francesca Larizza, Precilla Chiew, Rocky de Nys, and Philip J. van Eyk*
- 4160 DOI: 10.1021/acs.energyfuels.7b03038
Effect of Torrefaction on the Structure and Pyrolysis Behavior of Lignin
 Gongxin Dai, Qun Zou, Shurong Wang,* Yuan Zhao, Lingjun Zhu, and Qunxing Huang*
- 4167 DOI: 10.1021/acs.energyfuels.7b03221
Characterization of Biochars Derived from Pyrolysis of Biomass and Calcium Oxide Mixtures
 Frances Wilson, Priscilla Tremain, and Behdad Moghtaderi*
- 4178 DOI: 10.1021/acs.energyfuels.7b03172
Mobile Autothermal Pyrolysis System for Local Biomass Conversion: Process Simulation and Techno-Economic Analysis
 Xing Chen, Huiyan Zhang, and Rui Xiao*
- 4189 DOI: 10.1021/acs.energyfuels.7b03224
Numerical Study of the Pyrolysis of Ellipsoidal Low-Rank Coal Briquettes
 Yuting Zhuo, Tianyu Wang, Changxing Li, and Yansong Shen*
- 4202 DOI: 10.1021/acs.energyfuels.7b03158
Comparative Study of the MILD Combustion Characteristics of Biomass and Brown Coal
 Manabendra Saha,* Giovanni Gitto, Alfonso Chinnici, and Bassam B. Dally
- 4212 DOI: 10.1021/acs.energyfuels.7b03152
Influence of Primary and Secondary Air Supply on Gaseous Emissions from a Small-Scale Staged Solid Biomass Fuel Combustor
 Thomas Kirch,* Cristian H. Birzer, Philip J. van Eyk, and Paul R. Medwell
- 4221 DOI: 10.1021/acs.energyfuels.7b03145
Experimental Study of Ignition and Combustion Characteristics of Single Particles of Zhundong Lignite
 Zhezi Zhang,* Mingming Zhu, Jianbo Li, Kai Zhang, Gang Xu, and Dongke Zhang

- 4227 DOI: 10.1021/acs.energyfuels.7b03167
Self-Heating of Agricultural Residues During Storage and Its Impact on Fuel Properties
 Xiaofang Tian, Hui Zhang, and Changdong Sheng*
- 4237 DOI: 10.1021/acs.energyfuels.7b03143
Chlorine-Induced High-Temperature Corrosion of Boiler Steels Combusting Sha Erhu Coal Compared to Biomass
 Yacheng Liu, Weidong Fan,* Xiaofeng Wu, and Xiang Zhang
- 4248 DOI: 10.1021/acs.energyfuels.7b03227
X-ray Computed Tomography Visualization of the Woody Char Intraparticle Pore Structure and Its Role on Anisotropic Evolution during Char Gasification
 Hirotatsu Watanabe*
- 4255 **5** DOI: 10.1021/acs.energyfuels.7b03147
CO₂ Gasification of Sugar Cane Bagasse: Quantitative Understanding of Kinetics and Catalytic Roles of Inherent Metallic Species
 Zayda Faizah Zahara, Shinji Kudo, Daniyanto, U. P. M. Ashik, Koyo Norinaga, Arief Budiman, and Jun-ichiro Hayashi*
- 4269 DOI: 10.1021/acs.energyfuels.7b03201
An Experimental Investigation of the Catalytic Activity of Natural Calcium-Rich Minerals and a Novel Dual-Supported CaO–Ca₃Al₂O₃/Al₂O₃ Catalyst for Biotar Steam Reforming
 Fengkui Yin, Priscilla Tremain, Jianglong Yu, Elham Doroodchi, and Behdad Moghtaderi*
- 4278 DOI: 10.1021/acs.energyfuels.7b03129
Ash–Bed Material Interaction during the Combustion and Steam Gasification of Australian Agricultural Residues
 Zimeng He,* Daniel J. Lane, Woel L. Saw, Philip J. van Eyk, Graham J. Nathan, and Peter J. Ashman
- 4291 DOI: 10.1021/acs.energyfuels.7b03111
Chemical Looping Gasification of Coal in a 5 kW_{th} Interconnected Fluidized Bed with a Two-Stage Fuel Reactor
 Tianxu Shen,* Jian Wu, Laihong Shen, Jingchun Yan, and Shouxi Jiang
- 4300 **5** DOI: 10.1021/acs.energyfuels.7b03126
Particle Size Distributions of Fly Ash Arising from Vaporized Components of Coal Combustion: A Comparison of Theory and Experiment
 Huimin Liu, Yueming Wang, and Jost O. L. Wendt*
- 4308 DOI: 10.1021/acs.energyfuels.7b03189
Effect of CO₂/H₂O on the Incipient Ultrafine Particulate Matter Formation in Oxy-fuel Combustion of High-Sodium Lignite
 Qi Gao, Shuiqing Li,* Yang Xu, and Qiang Yao

4315 DOI: 10.1021/acs.energyfuels.7b03161
Impact of Oxy-fuel Combustion on Ash Properties and Sintering Strength Development
Jianqun Wu, Dunxi Yu,* Fangqi Liu, Xin Yu, Xianpeng Zeng, Jingkun Han, Ge Yu, and Minghou Xu*

4323 DOI: 10.1021/acs.energyfuels.7b03171
Modeling the Vaporization of Inorganic Matter from a Single Coal Char Particle Burning in an O₂/CO₂ Atmosphere
Yuan Chen, Lyuxiao Jiang, Hui Zhang, and Changdong Sheng*

4334 DOI: 10.1021/acs.energyfuels.7b03105
Effect of Acid Gases on Elemental Mercury Removal in an Oxy-fuel CO₂ Compression Process
Xiaoshan Li, Qiang Huang, Cong Luo, Dong Zhou, Yongqing Xu, Liqi Zhang,* and Chuguang Zheng

4341 DOI: 10.1021/acs.energyfuels.7b02977
Waste to Energy Conversion of Chicken Litter through a Solar-Driven Pyrolysis Process
Haftom Weldekidan, Vladimir Strezov, Tao Kan,* and Graham Town

4350 DOI: 10.1021/acs.energyfuels.7b03091
Solar-Thermal Pyrolysis of Mallee Wood at High Temperatures
Hongwei Wu,* Daniel Gauthier, Yun Yu, Xiangpeng Gao, and Gilles Flamant

4357 DOI: 10.1021/acs.energyfuels.7b03234
Worm-like FeS₂/TiO₂ Nanotubes for Photoelectrocatalytic Reduction of CO₂ to Methanol under Visible Light
Ershuan Han, Fengyun Hu, Shuai Zhang, Bo Luan, Peiqiang Li,* Hongqi Sun, and Shaobin Wang*

4364 DOI: 10.1021/acs.energyfuels.7b03155
Characteristic Properties of Lignite To Be Converted to High-Strength Coke by Hot Briquetting and Carbonization
Shinji Kudo,* Aska Mori, Gentaro Hayashi, Takuya Yoshida, Noriyuki Okuyama, Koyo Norinaga, and Jun-ichiro Hayashi

4372 DOI: 10.1021/acs.energyfuels.7b03150
Computational Fluid Dynamics Study of Biomass Combustion in a Simulated Ironmaking Blast Furnace: Effect of the Particle Shape
Yiran Liu and Yansong Shen*

4382 DOI: 10.1021/acs.energyfuels.7b03232
Impact of Coal Pyrolysis Products as a Rheological Additive on Thermoplasticity of a Coking Coal
Wei Xie,* Rohan Stanger, Quang Anh Tran, Nathan Smith, Terry Wall, and John Lucas

4391 DOI: 10.1021/acs.energyfuels.7b03127
Ash Aerosol and Deposition Formation Mechanisms during Air/Oxy-combustion of Rice Husks in a 100 kW Combustor
Yueming Wang, Xiaolong Li, and Jost O. L. Wendt*

4399 DOI: 10.1021/acs.energyfuels.7b03050
Behavior of Slagging Deposits during Coal and Biomass Co-combustion in a 300 kW Down-Fired Furnace
Weichen Ma, Hao Zhou,* Jiakai Zhang, Kun Zhang, Dan Liu, Chenying Zhou, and Kefa Cen

4410 DOI: 10.1021/acs.energyfuels.7b03106
Effects of Air Pollution Control Devices on the Chlorine Emission from 410 t/h Circulating Fluidized Bed Boilers Co-firing Petroleum Coke and Coal
Jian Cui, Lunbo Duan,* Linfei Zhou, and Changsui Zhao

4417 DOI: 10.1021/acs.energyfuels.7b03001
Behavior of Alkali Metals in Fly Ash during Waste Heat Recovery for Municipal Solid Waste Incineration
Jing Zhao, Xiaolin Wei,* Teng Li, Huixin Li, and Feng Bin

4424 DOI: 10.1021/acs.energyfuels.7b03208
In Situ Diagnostics on the Dynamic Processes of Ash Deposit Formation, Shedding, and Heat Transfer in a Self-Sustained Down-Fired Furnace
Qian Huang, Yang Xu, Qiang Yao, and Shuiqing Li*

4432 DOI: 10.1021/acs.energyfuels.7b03114
Tensile Adhesion Strength of Biomass Ash Deposits: Effect of the Temperature Gradient and Ash Chemistry
Yashasvi Laxminarayan,* Akhilesh Balachandran Nair, Peter Arendt Jensen, Hao Wu, Flemming Jappe Frandsen, Bo Sander, and Peter Glarborg

4442 DOI: 10.1021/acs.energyfuels.7b03173
Investigation on Ash Slagging Characteristics During Combustion of Biomass Pellets and Effect of Additives
Liang Wang,* Geir Skjevrak, Øyvind Skreiberg, Hongwei Wu, Henrik Kofoed Nielsen, and Johan E. Hustad

4453 DOI: 10.1021/acs.energyfuels.7b03092
Effect of the Mechanism of H₂S on Elemental Mercury Removal Using the MnO₂ Sorbent during Coal Gasification
Zhen Wang, Jing Liu,* Yingju Yang, Sen Miao, and Fenghua Shen

4461 DOI: 10.1021/acs.energyfuels.7b03094
Enhanced Hg(II) Adsorption by Monocarboxylic-Acid-Modified Microalgae Residuals in Simulated and Practical Industrial Wastewater
Yang Peng, Xiangjiang Liu, Xun Gong,* Xiaomin Li, Yifu Liu, Erwei Leng, and Yang Zhang*

4469 DOI: 10.1021/acs.energyfuels.7b03159
Evaluation and Prediction of Cadmium Removal from Aqueous Solution by Phosphate-Modified Activated Bamboo Biochar
Shihong Zhang, Han Zhang, Jian Cai, Xiong Zhang, Junjie Zhang, and Jingai Shao*

4478 DOI: 10.1021/acs.energyfuels.7b03162
Optimal Equivalence Ratio to Minimize NO Emission during Moderate or Intense Low-Oxygen Dilution Combustion
Fan Hu, Pengfei Li,* Junjun Guo, Feifei Wang, Kai Wang, Xudong Jiang, Zhaohui Liu,* and Chuguang Zheng

4493 DOI: 10.1021/acs.energyfuels.7b03149
Sulfur Fate during the Lignite Pyrolysis Process in a Chemical Looping Combustion Environment
Jinchen Ma, Chaoquan Wang, Haibo Zhao,* and Xin Tian

4502 DOI: 10.1021/acs.energyfuels.7b03240
Enhanced CO₂ Adsorption and Selectivity of CO₂/N₂ on Amino-MIL-53(Al) Synthesized by Polar Co-solvents
Hussein Rasool Abid, Zana Hassan Rada, Xiaoguang Duan, Hongqi Sun, and Shaobin Wang*

4511 DOI: 10.1021/acs.energyfuels.7b03160
Thermal Chemical Conversion of High-Density Polyethylene for the Production of Valuable Carbon Nanotubes Using Ni/AAO Membrane Catalyst
Xiaotong Liu, Hongman Sun, Chunfei Wu,* Dipesh Patel, and Jun Huang*

4521 DOI: 10.1021/acs.energyfuels.7b03051
Preparation of Li₄SiO₄ Sorbents for Carbon Dioxide Capture via a Spray-Drying Technique
Yingchao Hu, Wenqiang Liu,* Zijian Zhou, and Yuandong Yang

4528 DOI: 10.1021/acs.energyfuels.7b03192
Evaluating the Thermal Extrusion Behavior of a Coking Coal for Direct Carbon Fiber Production
Rohan Stanger,* Quang Anh Tran, Mariah Browne, John Lucas, Minoo Naebe, Murray Height, and Terry Wall

4538 DOI: 10.1021/acs.energyfuels.7b03068
Effect of Ash Components on the Performance of Solid Oxide Electrolyte-Based Carbon Fuel Cells
Kai Xu, Jizhou Dong, Hongyun Hu, Xianqing Zhu, and Hong Yao*

4547 DOI: 10.1021/acs.energyfuels.7b02968
Direct Operation of Solid Oxide Fuel Cells on Low-Concentration Oxygen-Bearing Coal-Bed Methane with High Stability
Yong Jiao, Liyang Wang, Liqin Zhang, Wenting An, Wei Wang, Wei Zhou, Moses O. Tadé, Zongping Shao,* Jianping Bai, and Si-Dian Li

4559 DOI: 10.1021/acs.energyfuels.7b03131
Inherently Catalyzed Boudouard Reaction of Bamboo Biochar for Solid Oxide Fuel Cells with Improved Performance
Wenting An, Xiaojie Sun, Yong Jiao, Songbai Wang, Wei Wang, Moses O. Tadé, Zongping Shao,* Si-Dian Li, and Shaomin Shuang

4569 DOI: 10.1021/acs.energyfuels.7b03137
Insights into Carbonation Kinetics of Fly Ash from Victorian Lignite for CO₂ Sequestration
Long Ji, Hai Yu,* Bing Yu, Ruijie Zhang, David French, Mihaela Grigore, Xiaolong Wang, Zuliang Chen, and Shuaifei Zhao*

4579 DOI: 10.1021/acs.energyfuels.7b03197
Thermodynamic Assessment of Heat Recovery from a Fluidized-Bed Ventilation Air Methane Abatement Unit
Francis J. Nadaraju, Andrew R. Maddocks, Jafar Zanganeh, and Behdad Moghtaderi*

4586 DOI: 10.1021/acs.energyfuels.7b03153
Study on Effects of Different Carrier Gases on Characteristics of the Supersaturated Environment in the One-/Multi-section Growth Tube
Yan Yu, Junchao Xu, Jun Zhang,* Guangchuan Chen, and Hui Zhong

Reviews

4593 DOI: 10.1021/acs.energyfuels.7b03218
Molecular Fingerprints and Speciation of Crude Oils and Heavy Fractions Revealed by Molecular and Elemental Mass Spectrometry: Keystone between Petroleomics, Metallopetroleomics, and Petrointeractomics
Sara Gutiérrez Sama, Mathilde Farenc, Caroline Barrère-Mangote, Ryszard Lobinski, Carlos Afonso, Brice Bouyssière, and Pierre Giusti*

Articles

Fossil Fuels



4606 DOI: 10.1021/acs.energyfuels.7b03356
Release of Nitrogenous Volatile Species from South African Bituminous Coals during Pyrolysis
Zebron Phiri,* Raymond C. Everson, Hein W. J. P. Neomagus, André D. Engelbrecht, Barry J. Wood, and Bonny Nyangwa

4617 DOI: 10.1021/acs.energyfuels.7b03410
Occurrence and Transformation Characteristics of Recoverable Soluble Sodium in High Alkali, High Carbon Fly Ash during Zhundong Coal Gasification in a Circulating Fluidized Bed
Guoliang Song,* Shaobo Yang, Xiaobin Qi, and Zhao Yang

4628 DOI: 10.1021/acs.energyfuels.7b03442
Effect of Pressure on Ethane Dehydrogenation in MFI Zeolite Membrane Reactor
Shailesh Dangwal, Ruochen Liu, Savannah Vaughn Kirk, and Seok-Jhin Kim*

4638 DOI: 10.1021/acs.energyfuels.7b03488
Fractionation of Pyrrolic Nitrogen Compounds Compounds during Primary Migration of Petroleum within the Barnett Shale Sequence of Marathon 1 Mesquite Well, Texas
Yuanjia Han, Stefanie Poetz,* Nicolaj Mahlstedt, Cornelia Karger, and Brian Horsfield

- 4651  DOI: 10.1021/acs.energyfuels.7b03566
Role of Minerals in Hydrogen Sulfide Generation during Steam-Assisted Recovery of Heavy Oil
 Wren Montgomery,* Jonathan S. Watson, James M. T. Lewis, Huang Zeng, and Mark A. Sephton
- 4655  DOI: 10.1021/acs.energyfuels.7b03586
Effects of Cleaning Treatments on the Surface Composition of Porous Materials
 S. Jelavić,* A. R. Nielsen, M. Blažanović, N. Bovet, K. Bechgaard, and S. L. S. Stipp
- 4662  DOI: 10.1021/acs.energyfuels.7b03630
Separation and Molecular Characterization of Ketones in a Low-Temperature Coal Tar
 Xiu Chen, Chunming Xu, Weilai Zhang, Chao Ma, Xuxia Liu, Suoqi Zhao, and Quan Shi*
- 4671 DOI: 10.1021/acs.energyfuels.7b03686
Microscopic Mechanism of Clay Minerals on Reservoir Damage during Steam Injection in Unconsolidated Sandstone
 Yan Zhuang, Xiangjun Liu,* Hanqiao Xiong, and Lixi Liang
- 4682 DOI: 10.1021/acs.energyfuels.7b03930
Evaluation of Accessible Porosity Using Mercury Injection Capillary Pressure Data in Shale Samples
 Davud Davudov,* Rouzbeh Ghanbarnezhad Moghanloo, and Yuzheng Lan
- 4695 DOI: 10.1021/acs.energyfuels.7b03955
Effects of Dissolved Oxygen on Water Imbibition in Gas Shales
 Mingxiang Xu, Mojtaba Binazadeh, Ashkan Zolfaghari, and Hassan Dehghanpour*
- 4705 DOI: 10.1021/acs.energyfuels.7b03975
Impact of Capillary Pressure and Nanopore Confinement on Phase Behaviors of Shale Gas and Oil
 Julian Y. Zuo,* Xuqiang Guo, Yansheng Liu, Shu Pan, Jesus Canas, and Oliver C. Mullins
- 4715  DOI: 10.1021/acs.energyfuels.7b03947
Rational Design of Hydrogen-Donor Solvents for Direct Coal Liquefaction
 Peidong Hou, Yuwei Zhou, Wenping Guo, Pengju Ren, Qiang Guo, Hongwei Xiang, Yong-Wang Li, Xiao-Dong Wen, and Yong Yang*
- 4724 DOI: 10.1021/acs.energyfuels.7b04036
Downhole Kinetics of Reactions Involving Alcohol-Based Hydraulic Fracturing Additives with Implications in Delayed H₂S Production
 Juan J. Marrugo-Hernandez, Rohen Prinsloo, Saud Sunba, and Robert A. Marriott*

- 4732 DOI: 10.1021/acs.energyfuels.7b04076
Investigation into the Influence of the Ethanol Concentration on the Flame Structure and Soot Precursor Formation of the n-Heptane/Ethanol Premixed Laminar Flame
 Runzhao Li, Zhongchang Liu, Yongqiang Han,* Manzhi Tan, Yun Xu, Jing Tian, Jiayao Yan, Xiangfeng Yu, Jiahui Liu, and Jiahong Chai
- 4747  DOI: 10.1021/acs.energyfuels.7b03931
Synthesis of an Amphiphobic Nanofluid with a Novel Structure and Its Wettability Alteration on Low-Permeability Sandstone Reservoirs
 Xiaoxiao Ni, Guancheng Jiang,* Fan Liu, and Zhengqiang Deng
- 4754  DOI: 10.1021/acs.energyfuels.7b04142
Effect of Carbonization Temperature on the Product Distributions and Characteristics for Integrated Mild Liquefaction and Carbonization of Low-Rank Coals
 Sheng Huang, Xuhui Zhou, Shiyong Wu,* Youqing Wu,* and Jinsheng Gao
- 4763  DOI: 10.1021/acs.energyfuels.8b00017
Comparison of Temperature-Dependent Gas Adsorption Models and Their Application to Shale Gas Reservoirs
 John Fianu,* Jebraeel Gholinezhad, and Mohamad Hassan
- 4772 DOI: 10.1021/acs.energyfuels.8b00059
Influence of Fatty-Alkylamine Amphiphile on the Asphaltene Adsorption/Deposition at the Solid/Liquid Interface under Precipitating Conditions
 Sreedhar Subramanian, Lola Buscetti, Sébastien Simon,* Marion Sacré, and Johan Sjöblom
- 4783  DOI: 10.1021/acs.energyfuels.8b00070
Molecular Simulations of Methane Adsorption Behavior in Illite Nanopores Considering Basal and Edge Surfaces
 Youzhi Hao, Lanfeng Yuan, Peichao Li, Wenhui Zhao, Daolun Li, and Detang Lu*
- 4797 DOI: 10.1021/acs.energyfuels.8b00057
Multifractal Study of Three-Dimensional Pore Structure of Sand-Conglomerate Reservoir Based on CT Images
 You Zhou, Songtao Wu,* Zhiping Li, Rukai Zhu, Shuyun Xie, Cheng Jing, and Lei Lei
- 4808  DOI: 10.1021/acs.energyfuels.8b00019
Long-Time-Period, Low-Temperature Reactions of Green River Oil Shale
 Yi Fei, Marc Marshall, W. Roy Jackson, Ying Qi, Anthony R. Auxilio, Alan L. Chaffee,* Martin L. Gorbaty, Gerald J. Daub, and Peter J. Cassidy
- 4823 DOI: 10.1021/acs.energyfuels.8b00098
Influence of Conversion Conditions on Heavy-Oil Coking During in Situ Combustion Process
 Dong Liu, Lijuan Chen, Long Chen, Ruonan Zheng, Qiang Song,* and Gang Cai

- 4833 DOI: 10.1021/acs.energyfuels.8b00107
Slurring Property and Mechanism of Coal–Coal Gasification Wastewater–Slurry
Jinqian Wang, Jianzhong Liu,* Shuangli Wang, and Jun Cheng
- 4841 DOI: 10.1021/acs.energyfuels.8b00110
Synergism of *tert*-Heptylated Quaternary Ammonium Salts with Poly(*N*-vinyl caprolactam) Kinetic Hydrate Inhibitor in High-Pressure and Oil-Based Systems
Mohamed F. Mady* and Malcolm A. Kelland*
- 4850 DOI: 10.1021/acs.energyfuels.8b00181
Experimental Study on Aquathermolysis of Different Viscosity Heavy Oil with Superheated Steam
Shijun Huang, Meng Cao,* and Linsong Cheng
- 4859 DOI: 10.1021/acs.energyfuels.8b00189
Chemical, Molecular, and Microstructural Evolution of Kerogen during Thermal Maturation: Case Study from the Woodford Shale of Oklahoma
Paul R. Craddock,* Kyle D. Bake, and Andrew E. Pomerantz
- 4873 DOI: 10.1021/acs.energyfuels.8b00165
Synthesis and Application of Amphiphilic Poly(ionic liquid) Dendron from Cashew Nut Shell Oil as a Green Oilfield Chemical for Heavy Petroleum Crude Oil Emulsion
Ayman M. Atta,* Mahmood M. S. Abdullah, Hamad A. Al-Lohedan, and Amany K. Gaffer
- 4885 DOI: 10.1021/acs.energyfuels.8b00174
Determining the Occurrence of Oil in Micro/Nanopores of Tight Sand: A New Approach Using Environmental Scanning Electron Microscopy Combined with Energy-Dispersive Spectrometry
Yanjie Gong,* Keyu Liu, and Shaobo Liu
- 4894 DOI: 10.1021/acs.energyfuels.8b00235
Separation of Viscous Oil Emulsions Using Three-Dimensional Nanotetrapodal ZnO Membranes
Thomas E. O'Loughlin, Frank-Eric Ngamassi, Patrick McKay, and Sarbjit Banerjee*
- 4903 DOI: 10.1021/acs.energyfuels.8b00249
Microfluidic Investigation of Asphaltenes-Stabilized Water-in-Oil Emulsions
Yu-Jiun Lin, Alyssa Perrard, Sibani Lisa Biswal, Randal M. Hill, and Siwar Trabelsi*
- 4911 DOI: 10.1021/acs.energyfuels.8b00256
Gravitational Gradient of Asphaltene Molecules in an Oilfield Reservoir with Light Oil
Soraya S. Betancourt, Yngve Bolstad Johansen, Julia C. Forsythe, Joachim Rinna, Kjell Christoffersen, Pål Skillingstad, Vladislav Achourov, Jesus Canas, Li Chen, Andrew E. Pomerantz, Julian Y. Zuo, and Oliver C. Mullins*

- 4925 DOI: 10.1021/acs.energyfuels.8b00251
Optimizing the Kinetic Hydrate Inhibition Performance of *N*-Alkyl-*N*-vinylamide Copolymers
Qian Zhang, Ryo Kawatani, Hiroharu Ajiro, and Malcolm A. Kelland*
- 4932 DOI: 10.1021/acs.energyfuels.8b00294
Synergetic Performance of the Mixture of Poly(*N*-vinylcaprolactam) and a Pyrrolidinium-Based Ionic Liquid for Kinetic Hydrate Inhibition in the Presence of the Mineral Oil Phase
Wonhee Lee, Ki-Sub Kim,* Seong-Pil Kang,* and Jong-Nam Kim
- 4942 DOI: 10.1021/acs.energyfuels.8b00302
A Novel Air Flooding Technology for Light Crude Oil Reservoirs Applied under Reservoir Conditions
Tengfei Wang,* Jiexiang Wang, Weipeng Yang, Shem Kalitaani, and Zhiyu Deng
- 4951 DOI: 10.1021/acs.energyfuels.8b00308
Analysis of Adsorption and Desorption of Ethylene on Hard Coals
Agnieszka Dudzińska*
- 4959 DOI: 10.1021/acs.energyfuels.8b00420
Mechanism Study of Disproportionate Permeability Reduction Using Nuclear Magnetic Resonance T2
Bin Liang,* Hanqiao Jiang, Junjian Li,* Fuzhen Chen, Wenpei Miao, Hanxu Yang, Yan Qiao, and Wenbin Chen
- 4969 DOI: 10.1021/acs.energyfuels.8b00435
Computational Evaluation of Mg–Salen Compounds as Subsurface Fluid Tracers: Molecular Dynamics Simulations in Toluene–Water Mixtures and Clay Mineral Nanopores
Jeffery A. Greathouse,* Timothy J. Boyle, and Richard A. Kemp
- 4979 DOI: 10.1021/acs.energyfuels.8b00436
Combined Hydrotreating and Fluid Catalytic Cracking Processing for the Conversion of Inferior Coker Gas Oil: Effect on Nitrogen Compounds and Condensed Aromatics
Qiang Sheng, Gang Wang,* Yongjiang Liu, Maen M. Husein, Chengdi Gao, Quan Shi, and Jinsen Gao
- 4988 DOI: 10.1021/acs.energyfuels.8b00447
Membrane Performance Analysis for Smart Water Production for Enhanced Oil Recovery in Carbonate and Sandstone Reservoirs
Remya R. Nair,* Evgenia Protasova, Skule Strand, and Torleiv Bilstad
- 4996 DOI: 10.1021/acs.energyfuels.8b00471
Higher Ethanodiamondoids in Petroleum
Guangyou Zhu,* Meng Wang, Ying Zhang, and Zhiyao Zhang

5001 DOI: 10.1021/acs.energyfuels.8b00477
New Insights from Supercritical Methane Adsorption in Coal: Gas Resource Estimation, Thermodynamics, and Engineering Application
Zhaofeng Wang and Xu Tang*

5010 DOI: 10.1021/acs.energyfuels.8b00535
Improving the Conductivity and Porosity of Coal with NaCl Solution for High-Voltage Electrical Fragmentation
Baiquan Lin, Xiangliang Zhang,* Fazhi Yan, Chuanjie Zhu, and Chang Guo

5020 DOI: 10.1021/acs.energyfuels.8b00626
Study on the Parametric Regression of a Multiparameter Thixotropic Model for Waxy Crude Oil
Qing Yuan, Hongfei Liu, Jingfa Li, Bo Yu,* and Changchun Wu

5033 DOI: 10.1021/acs.energyfuels.8b00638
Pyrolysis and Oxidation of Asphaltene-Born Coke-like Residue Formed onto In Situ Prepared NiO Nanoparticles toward Advanced In Situ Combustion Enhanced Oil Recovery Processes
Azadeh Amrollahi Biyouki, Negahdar Hosseinpour,* and Nashaat N. Nassar

5045 DOI: 10.1021/acs.energyfuels.8b00643
Impact of Paleosalinity, Dilution, Redox, and Paleoproductivity on Organic Matter Enrichment in a Saline Lacustrine Rift Basin: A Case Study of Paleogene Organic-Rich Shale in Dongpu Depression, Bohai Bay Basin, Eastern China
Tao Hu,* Xiongqi Pang,* Shu Jiang,* Qifeng Wang, Tianwu Xu, Kun Lu, Chuang Huang, Yuanyuan Chen, and Xiaowei Zheng

5062 DOI: 10.1021/acs.energyfuels.8b00661
Investigation on the Occurrences and Interactions of Corrosive Species during Pyrolysis of Zhundong Coal Using SSNMR and HT-XRD
Xiongchao Lin,* Yuanping Yang, Xujun Chen, Caihong Wang, Jun-ichiro Hayashi, and Yonggang Wang

5072 DOI: 10.1021/acs.energyfuels.8b00722
Compositional Effect of Gasoline on Fuel Economy and Emissions
Yongqiang Han, Shicheng Hu, Yuncai Sun, Xingyu Sun, Manzhi Tan,* Yun Xu, Jing Tian, Runzhao Li, and Zhuji Shao

Biofuels and Biomass

5081 DOI: 10.1021/acs.energyfuels.7b01977
Effect of Compression Ratio on Combustion Performance and Emission Characteristic of a Direct Injection Diesel Engine Fueled with Upgraded Biogas–Karanja Methyl Ester–Diethyl Ether Port Injection
Debabrata Barik,* Asit Kumar, and S. Murugan

5090 DOI: 10.1021/acs.energyfuels.7b03339
2D and 3D Spectrum Graphics of the Chemical-Morphological Domains of Complex Biomass by Low Field Proton NMR Energy Relaxation Signal Analysis
Z. Wiesman,* C. Linder, M. T. Resende, N. Ayalon, O. Levi, O. D. Bernardinelli, L. A. Colnago, C. I. N. Mitre, and R. Jackman

5103 DOI: 10.1021/acs.energyfuels.7b03467
High-Accuracy, Temperature Dependent Density and Viscosity Measurements of a 50/50 JP-10 + Terpene Mixture
Stephanie L. Outcalt* and Tara J. Fortin

5109 DOI: 10.1021/acs.energyfuels.7b03067
Comparative Characterization of a Torrefied Wood Pellet under Steam and Nitrogen Atmospheres
Yongwoon Lee, Won Yang,* Taeyoung Chae, Byeol Kang, Jinje Park, and Changkook Ryu*

5115 DOI: 10.1021/acs.energyfuels.7b03658
Bio-Oil Viscosity of Sisal Residue: Process and Temperature Influence
Luis G. G. Pereira* and Carlos A. M. Pires

5125 DOI: 10.1021/acs.energyfuels.7b03779
Influence on Performance and Emissions of an Automotive Diesel Engine Fueled with Biodiesel and Paraffinic Fuels: GTL and Biojet Fuel Farnesane
José Antonio Soriano, Reyes García-Contreras,* David Leiva-Candía, and Felipe Soto


5134 DOI: 10.1021/acs.energyfuels.7b03851
The Effects of Temperature and Gas Species on Ammonia Removal in the Simulated Producer Gas of Biomass Gasification by H₂-Reduced Titanomagnetite
Yanjie Wang* and Shusheng Pang


5145 DOI: 10.1021/acs.energyfuels.7b04034
Study of Corrosion Effects of Oxidized Ethanol–Gasoline Blends on Metallic Materials
Lukáš Matějovský, Jan Macák, Milan Pospíšil, Martin Staš,* Petr Baroš, and Aneta Krausová

5157 DOI: 10.1021/acs.energyfuels.7b04042
Biogas Production and Microbial Community Dynamics during the Anaerobic Digestion of Rice Straw at 39–50 °C: A Pilot Study
Qing Yu, Zhenzhen Tian, Jingyuan Liu, Jun Zhou,* Zhiying Yan, Xiaoyu Yong, Honghua Jia, Xiyuan Wu, and Ping Wei

5164 DOI: 10.1021/acs.energyfuels.7b04070
Role of CO₂ in the Conversion of Toluene as a Tar Surrogate in a Nonthermal Plasma Dielectric Barrier Discharge Reactor
Faisal Saleem,* Kui Zhang, and Adam Harvey


5171 DOI: 10.1021/acs.energyfuels.8b00015
Influence of the Feedstock Ratio and Organic Loading Rate on the Co-digestion Performance of *Pennisetum hybrid* and Cow Manure
Lianhua Li, Ying Li, Yongming Sun,* Zhenhong Yuan, Pengmei Lv, Xihui Kang, Yi Zhang, and Gaixiu Yang*

5181  DOI: 10.1021/acs.energyfuels.8b00078
Reducing Volatile Organic Compound Off-Gassing during the Production of Pelletized Steam-Exploded Bark: Impact of Storage Time and Controlled Ventilation
Eleonora Borén, Sylvia H. Larsson, Andreas Averheim, Mikael Thyrel, and Markus Broström*

5187  DOI: 10.1021/acs.energyfuels.8b00162
Assessment of Chopped Corn Straw Lengths for Combustion in a Fixed Bed Using a Numerical Model
Xiaoxiao Meng, Rui Sun,* Xiang Liu, Tamer M. Ismail,* Wei Zhou, M. Abd El-Salam, and Xiaohan Ren

5199 DOI: 10.1021/acs.energyfuels.8b00196
Elemental Migration and Transformation from Sewage Sludge to Residual Products during the Pyrolysis Process
Marius Praspaliauskas,* Nerijus Pedišius,* and Nerijus Striūgas*

5209 DOI: 10.1021/acs.energyfuels.8b00278
Production of Biodiesel from Broiler Chicken Rendering Fat and Investigation of Its Effects on Combustion, Performance, and Emissions of a Diesel Engine
M. Şen, A. Osman Emiroğlu,* and A. Keskin

5218  DOI: 10.1021/acs.energyfuels.8b00297
Fractionating Wheat Straw via Phosphoric Acid with Hydrogen Peroxide Pretreatment and Structural Elucidation of the Derived Lignin
Xue Wan, Dong Tian,* Fei Shen,* Jinguang Hu, Gang Yang, Yanzong Zhang, Shihuai Deng, Jing Zhang, and Yongmei Zeng

5226 DOI: 10.1021/acs.energyfuels.8b00343
Ethanol Production from Brewers' Spent Grain Pretreated by Dilute Phosphoric Acid
José A. Rojas-Chamorro, Cristóbal Cara, Inmaculada Romero,* Encarnación Ruiz, Juan M. Romero-García, Solange I. Mussatto, and Eulogio Castro

5234 DOI: 10.1021/acs.energyfuels.8b00365
Thermal Characteristics of Biomass Pyrolysis Oil and Potential Hydrogen Production by Catalytic Steam Reforming
Ningbo Gao, Cui Quan,* Zhengzhao Ma, and Chunfei Wu


5244 DOI: 10.1021/acs.energyfuels.8b00371
Ash Fusion Characteristics and Transformation Behaviors during Bamboo Combustion in Comparison with Straw and Poplar
Youjian Zhu, Junhao Hu, Wei Yang, Wennan Zhang, Kuo Zeng, Haiping Yang,* Shenglei Du, and Hanping Chen

5252  DOI: 10.1021/acs.energyfuels.8b00491
Prediction of Carboxylic and Polyphenolic Chemical Feedstock Quantities in Sweet Sorghum
Minoru Uchimiya* and Joseph E. Knoll

5264 DOI: 10.1021/acs.energyfuels.8b00647
Molecular-Level Kinetic Modeling of Methyl Laurate: The Intrinsic Kinetics of Triglyceride Hydroprocessing
Pratyush Agarwal, Nicholas Evenepoel, Sulaiman S. Al-Khattaf, and Michael T. Klein*

Environmental and Carbon Dioxide Issues

5271 DOI: 10.1021/acs.energyfuels.7b03634
Dewatering of Oil Sands Tailings with Novel Chitosan-Based Flocculants
Leonardo Pennetta de Oliveira, Sarang P. Gumfekar, Fernanda Lopes Motta, and João B. P. Soares*


5279  DOI: 10.1021/acs.energyfuels.7b03964
Removal of NO_x from Flue Gas Using Yellow Phosphorus and Phosphate Slurry as Adsorbent
Shuai Li, Jiaqiang Yang, Chi Wang, Delong Xie, Yongming Luo, Kai Li, Dedong He,* and Yi Mei*

5289 DOI: 10.1021/acs.energyfuels.7b03970
Dissolution Evaluation of Coquina, Part 1: Carbonated-Brine Continuous Injection Using Computed Tomography and PHREEQC
Eric Y. Yasuda, Erika T. Koroishi, Janeth A. Vidal Vargas,* and Osvaldo V. Trevisan

5302 DOI: 10.1021/acs.energyfuels.7b04133
CO₂ Gasification of Municipal Solid Waste in a Drop-Tube Reactor: Experimental Study and Thermodynamic Analysis of Syngas
Xiaoyuan Zheng, Zhi Ying,* Bo Wang, and Chong Chen

5313 DOI: 10.1021/acs.energyfuels.8b00024
Adsorption of CO₂ on MgAl-CO₃ LDHs-Derived Sorbents with 3D Nanoflower-like Structure
Xiaochen Kou, Hongxia Guo, Etsegenet Gossa Ayele, Shan Li, Yujun Zhao, Shengping Wang,* and Xinbin Ma

5321 DOI: 10.1021/acs.energyfuels.8b00074
Effect of Pore Size Distribution on Dissociation Temperature Depression and Phase Boundary Shift of Gas Hydrate in Various Fine-Grained Sediments
Taehyung Park, Joo Yong Lee, and Tae-Hyuk Kwon*

5331  DOI: 10.1021/acs.energyfuels.8b00062
Unveiling Adsorption Mechanisms of Elemental Mercury on Defective Boron Nitride Monolayer: A Computational Study
Xiaoping Gao, Yanan Zhou, Yujia Tan, Zhiwen Cheng, Qingli Tang, Jinping Jia, and Zheming Shen*

5338 DOI: 10.1021/acs.energyfuels.8b00099
Integrated Dynamic and Steady State Method and Its Application on the Screening of MoS₂ Nanosheet-Containing Adsorbents for Hg⁰ Capture
Haitao Zhao, Hua Fan, Gang Yang, Lu Lu, Chenghang Zheng, Xiang Gao,* and Tao Wu*

5345 **5** DOI: 10.1021/acs.energyfuels.8b00190
Roles of Cation and Anion of Amino Acid Anion-Functionalized Ionic Liquids Immobilized into a Porous Support for CO₂ Capture
Yusuke Uehara, Davood Karami, and Nader Mahinpey*

5355 DOI: 10.1021/acs.energyfuels.8b00213
Impact of Surfactant on the Retention of CO₂ and Methane in Carbonate Reservoirs
Mohammed Eliebid, Mohamed Mahmoud,* Ibtisam Al-Husseini, Salaheldin Elkatatny, Reyad Shawabkeh, Abdullah Sultan, and Mohammed J. Al-Marri

5364 DOI: 10.1021/acs.energyfuels.8b00274
SO₂ Removal from Flue Gas with Ca(OH)₂ in Entrained Flow Reactors
Hui Wang, Denggao Chen, Zhenshan Li,* Dinghai Zhang, Ningsheng Cai, Jin Yang, and Geng Wei

5374 **5** DOI: 10.1021/acs.energyfuels.8b00318
A Novel Mesoporous SiO₂ Material with MCM-41 Structure from Coal Gangue: Preparation, Ethylenediamine Modification, and Adsorption Properties for CO₂ Capture
Hong Du, Liang Ma, Xiaoyao Liu, Fei Zhang, Xinyu Yang, Yu Wu, and Jianbin Zhang*

5386 **5** DOI: 10.1021/acs.energyfuels.8b00391
CO₂ Uptake Potential of Ca-Based Air Pollution Control Residues over Repeated Carbonation–Calcination Cycles
Alessandro Dal Pozzo, Andaç Armutlulu, Margarita Rekhtina, Christoph R. Müller, and Valerio Cozzani*

5396 DOI: 10.1021/acs.energyfuels.8b00408
Emission Characteristics of Polychlorinated Dibenzo-*p*-dioxins and Dibenzofurans from the Co-combustion of Municipal Solid Waste in a Lab-Scale Drop-Tube Furnace
Xiaoqing Lin, Zhiliang Chen, Shengyong Lu,* Shaorui Zhang, Mengmei Zhang, Xiaodong Li, and Jianhua Yan

5405 DOI: 10.1021/acs.energyfuels.8b00468
Mercury Interaction on Modified Activated Carbons under Oxyfuel Combustion Conditions
M. Quirós-Álvarez, M. Díaz Somoano,* W. Bongartz, and S. Vinjarapu

5409 DOI: 10.1021/acs.energyfuels.8b00488
Effect of CO₂ on the Interfacial and Transport Properties of Water/Binary and Asphaltenic Oils: Insights from Molecular Dynamics
Sohalb Mohammed* and G. Ali Mansoori

5418 DOI: 10.1021/acs.energyfuels.8b00545
An Investigation on Gas Transport Properties of Cross-Linked Poly(ethylene glycol diacrylate) (XLPEGDA) and XLPEGDA/TiO₂ Membranes with a Focus on CO₂ Separation
Ali Ghadimi,* Somayeh Norouzbahari, Vahid Vatanpour, and Fereidoon Mohammadi

5433 DOI: 10.1021/acs.energyfuels.8b00620
Synergistic Mechanisms of CaCl₂ and CaO on the Vaporization of Cs from Cs-Doped Ash during Thermal Treatment
Facun Jiao, Norikazu Kinoshita, Masato Kawaguchi, Motoyuki Asada, Maki Honda, Keisuke Sueki, Yoshihiko Ninomiya,* Dmitry Sergeev, Marc Blasing, and Michael Müller

5443 **5** DOI: 10.1021/acs.energyfuels.8b00648
Demonstration of Polymorphic Spacing Strategy against Sintering: Synthesis of Stabilized Calcium Looping Absorbents for High-Temperature CO₂ Sorption
Ming Zhao, Yinqiang Song, Guozhao Ji, and Xiao Zhao*

Efficiency and Sustainability

5453 DOI: 10.1021/acs.energyfuels.7b03933
Preparation and Characterization of Modified Porous Wood Flour/Lauric-Myristic Acid Eutectic Mixture as a Form-Stable Phase Change Material
Liyun Ma, Chuigen Guo, Rongxian Ou, Lichao Sun, Qingwen Wang,* and Liping Li*

5462 DOI: 10.1021/acs.energyfuels.7b04109
Effects of Temperature and Equivalence Ratio on Carbon Nanotubes and Hydrogen Production from Waste Plastic Gasification in Fluidized Bed
Ren-Xuan Yang, Kui-Hao Chuang, and Ming-Yen Wey*

Catalysis and Kinetics

5471 **5** DOI: 10.1021/acs.energyfuels.7b03710
Producing Aromatic-Enriched Oil from Mixed Plastics Using Activated Biochar as Catalyst
Kai Sun, Qunxing Huang,* Mujahid Ali, Yong Chi, and Jianhua Yan

5480 **5** DOI: 10.1021/acs.energyfuels.7b04058
Predicted Effects of Heavy Feeds on the Deactivation of a Commercial Atmospheric Residue Desulfurization Catalyst System
Dduha Chehadeh, Hamza Albazzaz,* and Dawoud Bahzad

5489 **5** DOI: 10.1021/acs.energyfuels.8b00069
Chemistry of Alkylaromatics Reconsidered
Lawrence Lai, Soumya Gudiyella, Mengjie Liu, and William H. Green*

5501 DOI: 10.1021/acs.energyfuels.8b00087
Hydrothermal Stabilization of Rich Al–BEA Zeolite by Post-Synthesis Addition of Zr for Steam Catalytic Cracking of *n*-Dodecane
Mohamed H. M. Ahmed, Oki Muraza,* Ahmad Galadima, Anas K. Jamil, Emad N. Shafel, Zain H. Yamani, and Ki-Hyoun Choi

5509 5

Low-Temperature Pyrolysis–Catalysis Coupled System for Efficient Tetrachlorobenzene Removal: Condition Optimization and Decomposition Mechanism

Pingping Liu, Xiaosheng Yuan, Huarui Ren, Yanke Yu, Ning Xu, Jinglian Zhao, and Chi He*

DOI: 10.1021/acs.energyfuels.8b00095

5518 5

Dicationic Ionic Liquid: A Novel Method for Improving the Isomerization Degree of *n*-Pentane

Jinshe Chen, Lingbin Yang, Wenbo Zhou, Lijun Zhu,* Yulu Zhou, Yuzhi Xiang, and Daohong Xia*

DOI: 10.1021/acs.energyfuels.8b00267

5527 5

Efficient Catalytic Hydrogenation of Butyl Levulinate to γ -Valerolactone over a Stable and Magnetic CuNiCoB Amorphous Alloy Catalyst

Bo Chen, Haijun Guo, Zhe Wan, Xiaocheng Xu, Hairong Zhang, Dan Zhao,* Xinde Chen,* and Ning Zhang

DOI: 10.1021/acs.energyfuels.8b00378

Combustion

5536

Quantitative Measurements of Chemiluminescence in a Laminar Methane–Air Premixed Flame and Comparison to Numerical Methods

Kuanliang Wang, Fei Li,* Yi Wu, and Xilong Yu

DOI: 10.1021/acs.energyfuels.7b03484

5544

What Differences Does Large Eddy Simulation Find among Traditional, High-Temperature, and Moderate or Intense Low Oxygen Dilution Combustion Processes of a CH_4/H_2 Jet Flame in Hot Oxidizer Coflow?

Guochang Wang and Jianchun Mi*

DOI: 10.1021/acs.energyfuels.7b03874

5559

Dilution, Thermal, and Chemical Effects of Carbon Dioxide on the Exergy Destruction in *n*-Heptane and Iso-octane Autoignition Processes: A Numerical Study

Jiabo Zhang, Zhen Huang, Kyoungdoug Min, and Dong Han*

DOI: 10.1021/acs.energyfuels.7b04018

5571 5

Oxidation Behavior and Kinetics of Light, Medium, and Heavy Crude Oils Characterized by Thermogravimetry Coupled with Fourier Transform Infrared Spectroscopy

Chengdong Yuan, Dmitrii A. Emelianov, and Mikhail A. Varfolomeev*

DOI: 10.1021/acs.energyfuels.8b00428

5581 5

Reaction between $i\text{-C}_4\text{H}_9$ Radical and Acetylene (C_2H_2): Is Phenyl (C_6H_5) the Primary Product?

Endong Wang, Junxia Ding,* and Keli Han*

DOI: 10.1021/acs.energyfuels.8b00474

5588 5

Shock-Tube Experiments and Chemical Kinetic Modeling Study of CH_4 Sensitized by CH_3NHCH_3

J. C. Shi, Y. L. Shang, W. Ye, R. T. Zhang,* and S. N. Luo*

DOI: 10.1021/acs.energyfuels.8b00860

Process Engineering

5596

Hybrid Modeling of the Electrocoalescence Process in Water-in-Oil Emulsions

All Khajehesamedini, Thiago K. Anzal, Carlos Alberto Castor Jr., Márcio Nele,* and José Carlos Pinto

DOI: 10.1021/acs.energyfuels.7b03602

5611

Process Modeling of a Biomass Torrefaction Plant

Yousef Haseli*

DOI: 10.1021/acs.energyfuels.7b03956

5623

Comparing Kriging, Spline, and MLR in Product Properties Modelization: Application to Cloud Point Prediction

J. J. Da Costa, F. Chahnet, B. Celse,* M. Lacoue-Nègre, C. Ruckebusch, and D. Espinat

DOI: 10.1021/acs.energyfuels.7b04067

5635

Effect of the Surfactant on Asphaltene Deposition on Stainless-Steel and Glass Surfaces

Abdulaziz Al Sultan, Mohsen Zirrahi, Hassan Hassanzadeh,* and Jalal Abedi

DOI: 10.1021/acs.energyfuels.8b00215

5643

Characterization, Pressure–Volume–Temperature Properties, and Phase Behavior of a Condensate Gas and Crude Oil

F. A. V. Ferreira,* T. C. S. Barbalho, I. R. S. Araújo, H. N. M. Oliveira, and O. Chivone-Filho

DOI: 10.1021/acs.energyfuels.8b00469

5650 5

Novel Process to Reduce Benzene, Thiophene, and Pyrrole in Gasoline Based on [4bmppyl][TCM] Ionic Liquid

Marcos Larriba, Noemi Delgado-Mellado, Pablo Navarro, Roberto Alcover, Cristian Moya, José Palomar, Julián García,* and Francisco Rodríguez

DOI: 10.1021/acs.energyfuels.8b00529

Communications

5659

Effects of In-Process Hydrogenation on Mesophase Development during the Thermal Condensation of Petroleum Aromatic-Rich Fraction

Ming Li, Yadong Zhang, Shitao Yu,* Junwei Ding, Bing Bian, and Dong Liu

DOI: 10.1021/acs.energyfuels.7b03908

Correction to The Effect of Swirl Number and Oxidizer Composition on Combustion Characteristics of Non-Premixed Methane Flames

Sherif S. Rashwan,* Mohamed A. Habib, Rached Ben-Mansour, Medhat A. Nemitalah, and Ahmed Abdelhafez

6th Sino-Australian Symposium on Advanced Coal and Biomass Utilisation Technologies

This series of Sino-Australian Symposia was initiated by the Australian partner Curtin University (Curtin) and Chinese partner Huazhong University of Science and Technology (HUST) in 2006. The objectives have always been providing a regular platform for research exchange among Australian, Chinese, and other international researchers in the field of coal and biomass utilization technologies. These were successfully achieved in the first five symposia held in Wuhan, China, resulting in five special sections^{1–5} in *Energy & Fuels*. Upon the conclusion of the fifth symposium⁵ in 2015, both Australian and Chinese teams unanimously agreed to hold the next symposium in Australia.

The sixth symposium was successfully held at the Hyatt Regency, Perth, Western Australia, from December 4 to 8, 2017. It was a great success and received a large number of full paper submissions in the themes of the symposium. All submissions were subjected to the screening process of the editorial office and the subsequent rigorous peer review process, with the following papers being included in the special section.

Topic Review. This special section includes three topic reviews. Rabaçal et al. (10.1021/acs.energyfuels.7b03258)⁶ review the recent development in the combustion of pulverized non-woody residues, including both experimental and numerical studies. Wang et al. (10.1021/acs.energyfuels.7b03003)⁷ provide an overview on the recent advance in a micro fluidized bed and its application to gas–solid reaction analysis. Liu et al. (10.1021/acs.energyfuels.7b03164)⁸ summarize some recent progress in electrochemical oxidation of carbon through a solid oxide fuel cell at a high temperature.

Hydrothermal Processing. There are four contributions on this topic. Jiang and Savage (10.1021/acs.energyfuels.7b03144)⁹ determine the effects of process variables on 13 elements in biocrude and the aqueous product during hydrothermal liquefaction of microalgae. Buendia-Kandia et al. (10.1021/acs.energyfuels.7b02994)¹⁰ employ advanced analytical strategies to understand the reaction pathways of cellulose hydrolysis in hot-compressed water. Liang et al. (10.1021/acs.energyfuels.7b03239)¹¹ use density Car–Parrinello molecular dynamics combined with metadynamic simulations to understand the acid-catalyzed ring opening of furan in aqueous solution. Lane et al. (10.1021/acs.energyfuels.7b03125)¹² report the effect of hydrothermal carbonization on the devolatilization behavior and char reactivity of agricultural residues and macroalgae.

Pyrolysis. There are four papers on this topic. Dai et al. (10.1021/acs.energyfuels.7b03038)¹³ investigate the influence of torrefaction on the structure and pyrolysis behavior of lignin. Wilson et al. (10.1021/acs.energyfuels.7b03221)¹⁴ characterize the functionalized biochars produced from pyrolysis of biomass and calcium oxide mixtures. Chen et al. (10.1021/acs.energyfuels.7b03172)¹⁵ carry out a process simulation and techno-economic analysis on a mobile autothermal pyrolysis system. Zhuo et al. (10.1021/acs.energyfuels.7b03224)¹⁶

develop an integrated numerical model to predict the pyrolysis of ellipsoidal low-rank coal briquettes in a packed-bed pyrolyzer.

Combustion. This special section includes five papers on this topic. Saha et al. (10.1021/acs.energyfuels.7b03158)¹⁷ compare the burning characteristics of pulverized biomass and coal under moderate or intense low-oxygen diluted combustion conditions. Kirch et al. (10.1021/acs.energyfuels.7b03152)¹⁸ investigate the influence of primary and secondary air supply on gaseous emission from biomass combustion in a small-scale staged combustor. Zhang et al. (10.1021/acs.energyfuels.7b03145)¹⁹ study the ignition and combustion behavior of single particles of Zhundong lignite. Tian et al. (10.1021/acs.energyfuels.7b03167)²⁰ report the self-heating of agricultural residues during storage and evaluate its impact on fuel properties. Liu et al. (10.1021/acs.energyfuels.7b03143)²¹ compare the high-temperature corrosion characteristics of boiler steels when firing coal and biomass.

Gasification. There are five papers on gasification. Watanabe (10.1021/acs.energyfuels.7b03227)²² uses the X-ray computed tomography to visualize the intraparticle structure of woody biomass and its chars and further studies its impact on gasification characteristics. Zahara et al. (10.1021/acs.energyfuels.7b03147)²³ develop a quantitative model to describe the gasification rate catalyzed by inherent metallic species. Yin et al. (10.1021/acs.energyfuels.7b03201)²⁴ investigate the catalytic activity of natural calcium-rich minerals and a novel dual-supported CaO–Ca₁₂Al₁₄O₃₃/Al₂O₃ catalyst for tar removal. He et al. (10.1021/acs.energyfuels.7b03129)²⁵ identify the ash–bed material interaction mechanisms during the combustion and steam gasification of agricultural residues. Shen et al. (10.1021/acs.energyfuels.7b03111)²⁶ investigate the chemical looping gasification of coal in a 5 kW_{th} interconnected fluidized bed with a two-stage fuel reactor.

Oxy-fuel Technologies. There are five papers related to oxy-fuel technologies. Liu et al. (10.1021/acs.energyfuels.7b03126)²⁷ explore the formation of sub-micrometer aerosol from the combustion of two coals under various air and oxy-combustion atmospheres, using a 100 kW down-fired combustor. Gao et al. (10.1021/acs.energyfuels.7b03189)²⁸ employ an optically accessible flat-flame burner to reveal the effect of CO₂ and H₂O on the formation of incipient ultrafine particulate matter (PM) from the combustion of a high-sodium lignite under oxy-fuel conditions. Wu et al. (10.1021/acs.energyfuels.7b03161)²⁹ study the impacts of oxy-fuel conditions on ash properties and sintering behavior from the combustion of a pulverized sub-bituminous coal at 1300 °C in a drop-tube furnace. Chen et al. (10.1021/acs.energyfuels.7b03171)³⁰ simulate the vaporization of inorganic matter

Special Issue: 6th Sino-Australian Symposium on Advanced Coal and Biomass Utilisation Technologies

Published: March 23, 2018