

# energy&fuels

FEBRUARY 2018

VOLUME 32 ISSUE 2

ENFLUEM 32(2) 963–2640 (2018)

ISSN 0887-0624

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- 1893 DOI: 10.1021/acs.energyfuels.7b03823  
Catalytic Upgrading of Water-Soluble Biocrude from Hydrothermal Liquefaction of Chlorella  
Zhen He, Donghai Xu,\* Shuzhong Wang, Hanfeng Zhang, and Zefeng Jing
- Environmental and Carbon Dioxide Issues**
- 1900 DOI: 10.1021/acs.energyfuels.7b03380  
Activated Carbon for Capturing Hg in Flue Gas under O<sub>2</sub>/CO<sub>2</sub> Combustion Conditions. Part 1: Experimental and Kinetic Study  
Hui Wang,\* Shen Wang, Yufeng Duan,\* Ya-ning Li, Yuan Xue, and Zhanfeng Ying
- 1907 DOI: 10.1021/acs.energyfuels.7b03381  
Activated Carbon for Capturing Hg in Flue Gas under O<sub>2</sub>/CO<sub>2</sub> Combustion Conditions. Part 2: Modeling Study and Adsorption Mechanism  
Hui Wang,\* Shen Wang, Yufeng Duan,\* Ya-ning Li, and Zhanfeng Ying
- 1914 DOI: 10.1021/acs.energyfuels.7b01147  
CO<sub>2</sub> and CH<sub>4</sub> Wettabilities of Organic-Rich Shale  
Bin Pan, Yajun Li,\* Hongqian Wang, Franca Jones, and Stefan Iglauer
- 1923 DOI: 10.1021/acs.energyfuels.7b02188  
Reduction and Oxidation Kinetics of Fe–Mn-Based Minerals from Southwestern Colombia for Chemical Looping Combustion  
Francisco J. Velasco-Sarria, Carmen R. Forero,\* Eduardo Arango, and Juan Adánez

1934

**Molecular Dynamics Simulation of *n*-Alkanes and CO<sub>2</sub> Confined by Calcite Nanopores**  
Mirella S. Santos, Luis F. M. Franco, Marcelo Castler, and Ioannis G. Economou\*

DOI: 10.1021/acs.energyfuels.7b02451

1942

**Modeling CH<sub>4</sub> Displacement by CO<sub>2</sub> in Deformed Coalbeds during Enhanced Coalbed Methane Recovery**  
Quanshu Zeng, Zhilming Wang,\* Liangqian Liu, Jianping Ye, Brian J. McPherson, and John D. McLennan

DOI: 10.1021/acs.energyfuels.7b02830

1956

**Structure and SO<sub>2</sub> Absorption Properties of Guanidinium-Based Dicarboxylic Acid Ionic Liquids**  
Xiaocai Meng, Jianying Wang, Pengtao Xie, Haichao Jiang, Yongqi Hu,\* and Tao Chang\*

DOI: 10.1021/acs.energyfuels.7b02962

1963

**Experimental Investigation of the Geochemical Interactions between Supercritical CO<sub>2</sub> and Shale: Implications for CO<sub>2</sub> Storage in Gas-Bearing Shale Formations**  
Yi Pan, Dong Hui,\* Pingya Luo,\* Yan Zhang, Lei Sun, and Ke Wang

DOI: 10.1021/acs.energyfuels.7b03074

1979

**Anisotropic Adsorption Swelling and Permeability Characteristics with Injecting CO<sub>2</sub> in Coal**  
Qinghe Niu, Liwen Cao,\* Shuxun Sang,\* Xiaozhi Zhou, and Zhenzhi Wang

DOI: 10.1021/acs.energyfuels.7b03087

1992

**Transformation of Organically Bound Chromium during Oxy-coal Combustion: The Influence of Steam and Mineral**  
Xiaoyu Li, Hui Dong, Juan Chen,\* Chunmei Lu, Guangqian Luo, and Hong Yao

DOI: 10.1021/acs.energyfuels.7b03123

1999

**Oxidation Removal of Nitric Oxide from Flue Gas Using an Ultraviolet Light and Heat Coactivated Oxone System**  
Yangxian Liu,\* Yan Wang, Yanshan Yin, Jianfeng Pan, and Jun Zhang

DOI: 10.1021/acs.energyfuels.7b03165

2009

**Performance Evaluation of a Gypsum-Based Desulfurizer for Sulfur Recovery from the Smelter Off-Gas: Experimental Analysis and Thermodynamic Performance**  
Hongjing Tian, Fuqi Yuan, Jingwen Xu, Jing Chang,\* and Qingjie Guo

DOI: 10.1021/acs.energyfuels.7b03276

2019

**Evaluation of Zeolite/Backfill Blend for Acid Mine Drainage Remediation in Coal Mine**  
Vera L. V. Fallavena,\* Marçal Pires, Suzana Frighetto Ferrarin, and Ana Paula Buss Silveira

DOI: 10.1021/acs.energyfuels.7b03322

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**Simultaneous Removal of SO<sub>2</sub> and NO<sub>x</sub> from Coal-Fired Flue Gas Using Steel Slag Slurry**  
Ziheng Meng, Chenye Wang, Xingrui Wang, Yan Chen, and Huiquan Li\*

DOI: 10.1021/acs.energyfuels.7b03385

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**Experimental Investigation of the Effect of Nano Heavy Metal Oxide Particles in Piperazine Solution on CO<sub>2</sub> Absorption Using a Stirrer Bubble Column**  
Hassan Pashaei, Ahad Ghaemi,\* Masoud Nasiri, and Mohammad Heydarifard

DOI: 10.1021/acs.energyfuels.7b03481

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**A New Model of and Insight into Hydrate Film Lateral Growth along the Gas–Liquid Interface Considering Natural Convection Heat Transfer**  
Zheng Liu, Hao Li,\* Litao Chen, and Baojiang Sun\*

DOI: 10.1021/acs.energyfuels.7b03530

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**Hydrate-Based CO<sub>2</sub> Capture from Integrated Gasification Combined Cycle Syngas with Tetra-*n*-butylammonium Bromide and Nano-Al<sub>2</sub>O<sub>3</sub>**  
Ze-Yu Li, Zhi-Ming Xia, Xiao-Sen Li,\* Zhao-Yang Chen, Jing Cai, Gang Li, and Tao Lv

DOI: 10.1021/acs.energyfuels.7b03605

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**Phase-Change Absorption of SO<sub>2</sub> by *N,N,N',N'*-Tetramethyl-*p*-phenylenediamine in Organic Solvents and Utilization of Absorption Product**  
Qian Zhao, Wenbo Zhao,\* Muyuan Chai, Ling Chen, Yang Wang, Qingming Jia, and Yuan Chen

DOI: 10.1021/acs.energyfuels.7b03626

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**Enhanced CO<sub>2</sub> Adsorption on Nitrogen-Doped Porous Carbons Derived from Commercial Phenolic Resin \***  
Limin Yue, Linli Rao, Linlin Wang, Yan Sun, Zhenzhen Wu, Herbert DaCosta, and Xin Hu\*

DOI: 10.1021/acs.energyfuels.7b03646

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**Influence of Polyethylene Glycol on the Deep Desulfurization of Catalytic Cracking Gasoline by Polyurethane Membranes via Pervaporation**  
Yingfei Hou,\* Haiping Li, Yang Xu, Qingshan Niu, and Wenlei Wu

DOI: 10.1021/acs.energyfuels.7b03654

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**The Role of Supercritical/Dense CO<sub>2</sub> Gas in Altering Aqueous/Oil Interfacial Properties: A Molecular Dynamics Study**  
Sohaib Mohammed\* and G.Ali Mansoori

DOI: 10.1021/acs.energyfuels.7b03863

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**Syngas Production from Carbon Dioxide Reforming of Ethanol over Ir/Ce<sub>0.75</sub>Zr<sub>0.25</sub>O<sub>2</sub> Catalyst: Effect of Calcination Temperatures**  
Fengzuo Qu, Yichen Wei, Weijie Cai,\* Hao Yu, Yi Li, Shaoyin Zhang, and Congming Li\*

DOI: 10.1021/acs.energyfuels.7b03945

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Andrey M. Chibiryakov,\* Ivan V. Kozhevnikov, Anton S. Shalygin, and Oleg N. Martyanov

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DOI: 10.1021/acs.energyfuels.7b03712

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Ramachandra Chakravarthy, Manjula Paramati, Anilkumar Savalia, Anurag Verma, Asit Kumar Das, Chandra Saravanan, and Kalagouda B. Gudasi\*

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DOI: 10.1021/acs.energyfuels.7b03332

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Tong Zhao,\* Tan Li, Zhe Xin, Liang Zou, and Li Zhang

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DOI: 10.1021/acs.energyfuels.7b03342

**Ignition and Combustion Performances of High-Energy-Density Jet Fuels Catalyzed by Pt and Pd Nanoparticles**

Xiu-tian-feng E, Xiaomin Zhi, Xiangwen Zhang, Li Wang, Shengli Xu, and Ji-Jun Zou\*

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DOI: 10.1021/acs.energyfuels.7b03405

**N<sub>2</sub>O Formation Pathways over Zeolite-Supported Cu and Fe Catalysts in NH<sub>3</sub>-SCR**

Dong Zhang and Ralph T. Yang\*

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DOI: 10.1021/acs.energyfuels.7b03407

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Yogendra Nath Prajapati and Nishith Verma\*

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DOI: 10.1021/acs.energyfuels.7b03457

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S. R. Derkach, D. S. Kolotova,\* G. Simonsen, S. C. Simon, J. Sjöblom, A. V. Andrianov, and A. Ya. Malkin

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DOI: 10.1021/acs.energyfuels.7b03461

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Amir Atabak Asadi, Seyed Mahdi Alavi,\* Sayed Javid Royaei, and Mansour Bazmi

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Nkiru L. Ezeonyeka, Abdolhossein Hemmati-Sarapardeh, and Maen M. Husein\*

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DOI: 10.1021/acs.energyfuels.7b03754

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Thomas Kaminski, Shaheen Fatima Anis, Maen M. Husein,\* and Raed Hashaikeh\*

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DOI: 10.1021/acs.energyfuels.7b04045

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Sulaiman S. Al-Khattaf\* and Syed A. Ali

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DOI: 10.1021/acs.energyfuels.7b02564

**Catalytic Exhaust Gas Recirculation-Loop Reforming for High Efficiency in a Stoichiometric Spark-Ignited Engine through Thermochemical Recuperation and Dilution Limit Extension, Part 1: Catalyst Performance**

Yan Chang, James P. Szybist,\* Josh A. Pihl, and D. William Brookshear

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DOI: 10.1021/acs.energyfuels.7b02565

**Catalytic Exhaust Gas Recirculation-Loop Reforming for High Efficiency in a Stoichiometric Spark-Ignited Engine through Thermochemical Recuperation and Dilution Limit Extension, Part 2: Engine Performance**

Yan Chang, James P. Szybist,\* Josh A. Pihl, and D. William Brookshear

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DOI: 10.1021/acs.energyfuels.7b00893

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DOI: 10.1021/acs.energyfuels.7b02296

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Yanzhao An,\* Mohammed Jaasim, Vallinayagam Raman, Hong G. Im, and Bengt Johansson

DOI: 10.1021/acs.energyfuels.7b02535

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Rikard Edland,\* Fredrik Normann, and Klas Andersson

DOI: 10.1021/acs.energyfuels.7b02707

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DOI: 10.1021/acs.energyfuels.7b02731

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DOI: 10.1021/acs.energyfuels.7b02858

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DOI: 10.1021/acs.energyfuels.7b02908

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DOI: 10.1021/acs.energyfuels.7b03055

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DOI: 10.1021/acs.energyfuels.7b03063

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DOI: 10.1021/acs.energyfuels.7b03089

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DOI: 10.1021/acs.energyfuels.7b03185

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DOI: 10.1021/acs.energyfuels.7b03271

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Gitika Rani Saha, Tonkeswar Das, Pranjal Handique, Dipankar Kalita, and Binoy K. Saikia\*

DOI: 10.1021/acs.energyfuels.7b03298

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Li-Ming Shao, Yang Li, Hua Zhang,\* and Pin-Jing He

DOI: 10.1021/acs.energyfuels.7b03387

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**Potassium Catalytic Effect on Gasification Reactions of Coal and Coal/Biomass Blends under Oxy-combustion Conditions: An Isotopic Study Using <sup>13</sup>C/<sup>18</sup>O<sub>2</sub>**  
Yuli Betancur, Astrid Sánchez, Agustín Bueno-López, and Diana López\*

DOI: 10.1021/acs.energyfuels.7b03399

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DOI: 10.1021/acs.energyfuels.7b03404

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Xianhe Chen, Zhixun Xia, Liya Huang,\* Xudong Na, and Jianxin Hu

DOI: 10.1021/acs.energyfuels.7b03412

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Gan Cui,\* Zili Li,\* Hongbo Li, Zhenlao Bi, and Shun Wang

DOI: 10.1021/acs.energyfuels.7b03433

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DOI: 10.1021/acs.energyfuels.7b03745

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DOI: 10.1021/acs.energyfuels.7b03871

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DOI: 10.1021/acs.energyfuels.7b03880

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**Online Corrosion Measurements in Combination with Deposit and Aerosol Analysis during the Co-firing of Straw with Coal in Electrically Heated, Small-Scale Pulverized Fuel and Circulating Fluidized Bed Systems**  
Christian Wolf,\* Timo J. Leino, Andreas R. Stephan, Martti J. Aho, and Hartmut Spleithoff

DOI: 10.1021/acs.energyfuels.7b03976

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**The Effect of Swirl Number and Oxidizer Composition on Combustion Characteristics of Non-Premixed Methane Flames**  
Sherif S. Rashwan\*

DOI: 10.1021/acs.energyfuels.8b00233

## Process Engineering

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**Solid Catalyst Alkylation of C<sub>2</sub>–C<sub>3</sub> Olefins with Isobutane in the Presence of Hydrogen Using a Slurry Transport Reactor–Hydrocyclone–Regenerator System and PtSO<sub>4</sub>TiZr/SiO<sub>2</sub> Catalyst: Part 1. Alkylation in Continuous Pilot Plant Operation and Simulation of a Slurry Transport Reactor–Hydrocyclone Settler System**  
Roberto Gallasso Tailleur,\* Sergio Rodriguez, Carlos Farina, and Sylvana Derjani-Bayeh

DOI: 10.1021/acs.energyfuels.7b03015

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**Solid Catalyst Alkylation of C<sub>2</sub>–C<sub>3</sub> Olefins with Isobutane in the Presence of Hydrogen Using a Slurry Transport Reactor–Hydrocyclone–Regenerator System and PtSO<sub>4</sub>TiZr/SiO<sub>2</sub> Catalyst: Part 2. Regeneration of Spent Catalysts in Pilot Plants and a Simulation of a Fluidized Bed Reactor**  
Roberto Gallasso Tailleur,\* Carlos Farina, Sergio Rodriguez, and Sylvana Derjani-Bayeh

DOI: 10.1021/acs.energyfuels.7b03477

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**Direct Separation of Olefins from Aromatics or Sulfides: Influence of the Structure and Content of Olefins and Aromatics**  
Yongtao Wang, Yuhao Zhang, Feng Chen, Meng Zheng, Liang Zhao,\* Jinsen Gao, Tianzhen Hao, and Chunming Xu

DOI: 10.1021/acs.energyfuels.7b03079

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**Release Behavior of Se from Coal into Aqueous Solution**  
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DOI: 10.1021/acs.energyfuels.7b03249

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**Kriging Modeling to Predict Viscosity Index of Base Oils**  
J. J. Da Costa,\* F. Chainet, B. Celse, M. Lacoue-Nègre, C. Ruckebusch, N. Caillol, and D. Espinat

DOI: 10.1021/acs.energyfuels.7b03266

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**Side Reactions of Coal Tar Pyrolysis Products with Different Reduction States of Iron-Based Oxygen Carriers**  
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DOI: 10.1021/acs.energyfuels.7b03450

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**Emission Characteristics of Organic Pollutants during Coprocessing of Coal Liquefaction Residue in Texaco Coal–Water Slurry Gasifier**  
Xuebing Li, Li Li,\* Zechun Huang, Dahai Yan, Hongjin Yu, and Jie He

DOI: 10.1021/acs.energyfuels.7b03395

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**Study on the Electrochemical Oxidation Desulfurization Behavior of Model Diesel on Anodic Alumina Oxide and Ceria Nanotubes**  
Xiaoqing Du, Jiao Liu, Hong Chen, and Zhao Zhang\*

DOI: 10.1021/acs.energyfuels.7b03629

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**Models for Estimating the Viscosity of Paraffinic–Naphthenic Live Crude Oils**  
Luciana L. P. R. Andrade and Krishnaswamy Rajagopal\*

DOI: 10.1021/acs.energyfuels.7b03903

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**Heavy Metal Control by Natural and Modified Limestone during Wood Sawdust Combustion in a CO<sub>2</sub>/O<sub>2</sub> Atmosphere**  
Weihsua Zheng, Xiaoqian Ma, Yuting Tang,\* Chuncheng Ke, and Zhendong Wu

DOI: 10.1021/acs.energyfuels.7b03365

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**Correction to Experimental Measurement of Laminar Burning Velocity and Flammability Limits of Landfill Gas at Atmospheric and Elevated Pressures**  
Mohammad Hossein Askari\* and Mehdi Ashjaee

DOI: 10.1021/acs.energyfuels.8b00330

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**Correction to Experimental and Numerical Investigation of the Laminar Burning Velocity and Combustion Characteristics of Biogas at High Pressures**  
Mohammad Hossein Askari,\* Mehdi Ashjaee, and Sadrollah Karaminejad

DOI: 10.1021/acs.energyfuels.8b00329

## Retractions

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**Retraction of "Stability Analysis of Xanthan–Cr(III)–Clay Nanocomposite Gel: An Experimental Investigation"**  
Mahdi Abdi-Khangah,\* Hossien Barati, and Zhiwen Zhang\*

DOI: 10.1021/acs.energyfuels.7b03860

\* Supporting Information available via online article