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## SPECIAL SECTION: IN HONOR OF PROFESSOR BRIAN HAYNES ON THE OCCASION OF HIS 65TH BIRTHDAY

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## Environmental and Carbon Dioxide Issues

2996 DOI: 10.1021/acs.energyfuels.6b02529  
2-Ethyl-4-methylimidazolium Alaninate Ionic Liquid: Properties and Mechanism of SO<sub>2</sub> Absorption  
Xiaocai Meng, Jianying Wang, Haichao Jiang, Xinle Shi, and Yongqi Hu\*

3002 DOI: 10.1021/acs.energyfuels.6b02777  
Utility of Immobilized Recombinant Carbonic Anhydrase of *Bacillus halodurans* TSLV1 on the Surface of Modified Iron Magnetic Nanoparticles in Carbon Sequestration  
Shazia Faridi, Himadri Bose, and T. Satyanarayana\*

3010 DOI: 10.1021/acs.energyfuels.6b02827  
Intrinsic Reduction Kinetics Investigation on a Hematite Oxygen Carrier by CO in Chemical Looping Combustion  
Mingze Su,\* Halbo Zhao, Xin Tian, Pengfei Zhang, Baozhou Du, and Zhigang Liu\*

3019 DOI: 10.1021/acs.energyfuels.6b02872  
**Co-combustion of Bituminous Coal and Pickling Sludge in a Drop-Tube Furnace: Thermodynamic Study and Experimental Data on the Distribution of Cr, Ni, Mn, As, Cu, Sb, Pb, Cd, Zn, and Sn**  
 Shaorui Zhang, Xuguang Jiang,\* Baoxuan Liu, Guojun Lv, Yuqi Jin, and Jianhua Yan

3029 DOI: 10.1021/acs.energyfuels.6b03008  
**Catalytic Conversion of Model Oxygenates in X Oil from Caprolactam Manufacture**  
 Naixin Wang,\* Xieqing Wang, Zelong Liu, and Yuxia Zhu

3038 DOI: 10.1021/acs.energyfuels.6b03017  
**Electrochemical CO<sub>2</sub> Reduction to Fuels Using Pt/CNT Catalysts Synthesized in Supercritical Medium**  
 Carlos Jiménez, Jesús García, Rafael Camarillo, Fabiola Martínez,\* and Jesusa Rincón

3047 DOI: 10.1021/acs.energyfuels.6b03062  
**New Experimental Results of NO Removal from Simulated Flue Gas by Wet Scrubbing Using NaClO Solution**  
 Zhitao Han,\* Shaolong Yang, Xinxiang Pan, Dongsheng Zhao, Jingqi Yu, Yutang Zhou, Pengfei Xia, Dekang Zheng, Yonghui Song, and Zhijun Yan

3055 DOI: 10.1021/acs.energyfuels.6b03177  
**Tetraethylenepentamine-Modified Activated Semicoke for CO<sub>2</sub> Capture from Flue Gas**  
 Xia Wang,\* Dongying Wang, Mingjun Song, Chunling Xin, and Wulan Zeng

3062 DOI: 10.1021/acs.energyfuels.6b03301  
**Performance of 1,8-Diazabicyclo[5.4.0]undec-7-ene-Modified SBA-15 for Selective Adsorption of CO<sub>2</sub>**  
 Lu Zhang,\* Yuan Li, Hongcang Zhou, and Mindong Chen

3069 DOI: 10.1021/acs.energyfuels.6b03320  
**Development of Ion Speciation Plots for Three Promising Tertiary Amine-CO<sub>2</sub>-H<sub>2</sub>O Systems Using the pH Method and the <sup>13</sup>C NMR Method**  
 Moxia Li, Helei Liu,\* Xiao Luo, Paltoon Tontiwachwuthikul, and Zhiwu Liang\*

## Efficiency and Sustainability

3081 DOI: 10.1021/acs.energyfuels.6b02641  
**Polycyclic Aromatic Hydrocarbons in Fine Particulate Matter Emitted from Burning Kerosene, Liquid Petroleum Gas, and Wood Fuels in Household Cookstoves**  
 Guofeng Shen, William Preston, Seth M. Ebersviller, Craig Williams, Jerroll W. Faircloth, James J. Jetter,\* and Michael D. Hays

3091 DOI: 10.1021/acs.energyfuels.6b03016  
**Ethanol Steam Reforming on Ni-Based Catalysts: Effect of Cu and Fe Addition on the Catalytic Activity and Resistance to Deactivation**  
 Ziliang Zheng, Chen Sun, Rong Dai, Shiyao Wang, Xu Wu, Xia An, Zhonghua Wu, and Xianmei Xie\*

3101 DOI: 10.1021/acs.energyfuels.6b03306  
**Simultaneous Determination of Boiling Range Distribution of Hydrocarbon, Sulfur, and Nitrogen in Petroleum Crude Oil by Gas Chromatography with Flame Ionization and Chemiluminescence Detections**  
 Ramachandra Chakravarthy, Ganesh N. Naik, Anilkumar Savalia, Jagdish Kedia, Chandra Saravanan, Asit Kumar Das, Unnikrishnan Sreedharan, and Kalagouda B. Gudasi\*

## Catalysis and Kinetics

3111 DOI: 10.1021/acs.energyfuels.6b02660  
**Role of the Catalyst in the Pyrolysis of Polyolefin Mixtures and Used Tires**  
 Humberto Palza, Cristian Aravena, and Madeleine Colet\*

3121 DOI: 10.1021/acs.energyfuels.6b03004  
**Catalytic Steam Cracking of a Deasphalted Vacuum Residue Using a Ni/K Ultradispersed Catalyst**  
 Fredy A. Cabrales-Navarro\* and Pedro Pereira-Almao

3132 DOI: 10.1021/acs.energyfuels.6b03322  
**Kinetics of Promotional Effects of Oil-Soluble Dispersed Metal (Mo, Co, and Fe) Catalysts on Slurry Phase Hydrocracking of Vacuum Gas Oil**  
 Emad A. S. Bdwi, Syed A. Ali, Mohammad R. Quddus, Saad A. Al-Bogami, Shaikh A. Razzak, and Mohammad M. Hossain\*

3143 DOI: 10.1021/acs.energyfuels.6b03423  
**Washcoating of Ni/MgAl<sub>2</sub>O<sub>4</sub> Catalyst on FeCralloy Monoliths for Steam Reforming of Methane**  
 Sanjay Katheria, Goutam Deo, and Deepak Kunzru\*

## Combustion

3154 DOI: 10.1021/acs.energyfuels.6b02434  
**Effects of CH<sub>4</sub> Content on NO Formation in One-Dimensional Adiabatic Flames Investigated by Saturated Laser-Induced Fluorescence and CHEMKIN Modeling**  
 Yajun Zhou, Zhihua Wang,\* Yong He, Ronald Whiddon, Dongxiang Xu, Zhongshan Li, and Kefa Cen

3164 DOI: 10.1021/acs.energyfuels.6b02832  
**Partially Homogenous Charge Compression Ignition Engine Development for Low Volatility Fuels**  
 Akhilendra Pratap Singh and Avinash Kumar Agarwal\*

3182 DOI: 10.1021/acs.energyfuels.6b03431  
**Effect of the Primary Air Velocity on Ignition Characteristics of Bias Pulverized Coal Jets**  
 Guang Zeng, Shaozeng Sun, Xuefen Yang, Yijun Zhao,\* Zhiqiang Zhao, Zhenqi Ye, and Jianmin Gao

3196 DOI: 10.1021/acs.energyfuels.6b02941  
**Experimental Measurement of Laminar Burning Velocity and Flammability Limits of Landfill Gas at Atmospheric and Elevated Pressures**  
Mohammad Hossein Askari\* and Mehdi Ashjaee

3206 DOI: 10.1021/acs.energyfuels.6b03053  
**Experimental and Modeling Study of the Oxidation of Two Branched Aldehydes in a Jet-Stirred Reactor: 2-Methylbutanal and 3-Methylbutanal**  
Zeynep Serinyel,\* Casimir Togbé, Guillaume Dayma, and Philippe Dagaut

3219 DOI: 10.1021/acs.energyfuels.6b03069  
**Abatement of Fine Particle Emissions from a Coal-Fired Power Plant Based on the Condensation of SO<sub>3</sub> and Water Vapor**  
Hao Wu, Danping Pan, Rui Zhang, Linjun Yang,\* Ziming Peng, and Bing Yang

3227 DOI: 10.1021/acs.energyfuels.6b03094  
**Experimental Characterization and Modeling for Equivalence Ratio Sensing in Non-premixed Flames Using Chemiluminescence and Laser-Induced Breakdown Spectroscopy Techniques**  
Laura Merotto,\* Mariano Sirignano, Mario Commodo, Andrea D'Anna, Roberto Dondè, and Silvana De Iulio

3234 DOI: 10.1021/acs.energyfuels.6b03141  
**Nitrogenous Gas Emissions from Coal/Biomass Co-combustion under a High Oxygen Concentration in a Circulating Fluidized Bed**  
Xin Wang, Qiangqiang Ren,\* Wei Li, Haoyu Li, Shiyuan Li, and Qinggang Lu

3243 DOI: 10.1021/acs.energyfuels.6b03137  
**Kinetic Study on Coal Char Combustion in a Microfluidized Bed**  
Yuan Fang, Renjie Zou, Guangqian Luo, Juan Chen, Zehua Li, Zhengjiang Mao, Xianqing Zhu, Fulei Peng, Shengqiang Guo, Xian Li, and Hong Yao\*

3253 DOI: 10.1021/acs.energyfuels.6b03205  
**Implications of Fuel Choice and Burner Settings for Combustion Efficiency and NO<sub>x</sub> Formation in PF-Fired Iron Ore Rotary Kilns**  
Rikard Edland,\* Fredrik Normann, Christian Fredriksson, and Klas Andersson

3262 DOI: 10.1021/acs.energyfuels.6b03242  
**Experimental Measurement of Ignition Delay Times of Thermally Cracked *n*-Decane in a Shock Tube**  
Shanshan Pei, Hongyan Wang, Xiangwen Zhang, Shengli Xu, and Guozhu Liu\*

3270 DOI: 10.1021/acs.energyfuels.6b03246  
**Flame Characteristics of CH<sub>4</sub>/H<sub>2</sub> on a Jet-in-Hot-Coflow Burner Diluted by N<sub>2</sub>, CO<sub>2</sub>, and H<sub>2</sub>O**  
Yaojie Tu, Hao Liu,\* and Wenming Yang

3281 DOI: 10.1021/acs.energyfuels.6b03353  
**Effect of HCl on NO Formation during CO/NH<sub>3</sub> Combustion in an Entrained Flow Reactor at 1023–1223 K**  
Yang Wang, Jing Zhao, Xiaolin Wei,\* and Sen Li

## Process Engineering

3288 DOI: 10.1021/acs.energyfuels.6b01526  
**Applications of Pulsed Electron Paramagnetic Resonance Spectroscopy to the Identification of Vanadyl Complexes in Asphaltene Molecules. Part 2: Hydrotreatment Monitoring**  
Karima Ben Tayeb,\* Olivier Delpoux, Jérémie Barbier, Pascal Chatron-Michaud, Mathieu Digne, and Hervé Vezin

3295 DOI: 10.1021/acs.energyfuels.6b02674  
**Manipulation of Surface Hydrophobicity and Charge of Demulsifying Bacteria Using Functional Magnetic Nanoparticles: A Mechanistic Study of Demulsification Performance**  
Xiangfeng Huang, Yongjiao Xiong, Liju Lu, Jia Liu, and Kaiming Peng\*

3305 DOI: 10.1021/acs.energyfuels.6b02856  
**Interaction Forces between Paraffin/Stearic Acid and Fresh/Oxidized Coal Particles Measured by Atomic Force Microscopy**  
Yaowen Xing, Chenwei Li, Xiahui Gui,\* and Yijun Cao

3313 DOI: 10.1021/acs.energyfuels.6b03328  
**Prediction of Gas Injection Effect on Asphaltene Precipitation Onset Using the Cubic and Cubic-Plus-Association Equations of State**  
Alay Arya, Xiaodong Liang, Nicolas von Solms, and Georgios M. Kontogeorgis\*

\* Supporting Information available via online article