Journal of Energy Resources Technology

Guest Editorial

Special Issue: Selected Papers From the 40th International Technical Conference on Clean Coal and Fuel Systems

Special Issue for peer-reviewed papers published from the 40th International Technical Conference on Clean Coal and Fuel Systems held during May 31–June 4, 2015.

The special issue contains selected papers presented at the 40th International Technical Conference on Clean Coal and Fuel Systems. The conference was held at the Sheraton Sand Keys Hotel, Clearwater, FL during May 31–June 4, 2015. The endorsing organizations for this conference included: American Institute of Chemical Engineers, USA; American Public Power association, USA; CANMET Natural Resources, Canada; China Coal Research Institute, China; Ministry of Coal, China; Edison Electric Institute, USA; Export Assistance Center, USA; U.S. Commercial Service; International Energy Agency: Coal Research; Japan Coal Energy Center (JCOAL), Japan; National Mining Association, USA; National Rural Electric Cooperative Association, USA; Ohio Coal Development Office, USA; and U.S. Geological Survey.

The selected papers from the conference cover a broad range of topics that are of fundamental and practical importance for clean energy conversion using coal and solid fuels as well as other hydrocarbon fuels. The papers were contributed at the conference from some 13 different countries, and all the authors were encouraged to consider submitting their contribution for possible publication in the ASME *Journal of Energy Resources and Technology* (JERT) after their peer reviews and recommendation for publication in this journal. All the papers submitted were peer reviewed from lead experts in the field worldwide according to the ASME Journal standard, and the guest editors handled the reviews. The submitted papers reveal that the development and application of new and innovative and advanced technologies using state-of-the-art experimental and computational methods are urgently needed for clean and efficient combustion of coal and other hydrocarbon fuels. Significant advances in diagnostics and modeling now allow one to examine the spatial and temporal behavior of flames and reaction progress at a much shorter time scales and much higher resolution than ever before. Validation of the results between modeling and experiments has allowed engineers and researchers to develop correlations that can be extended to develop prototype systems for commercial successes. The papers in this special issue are concerned with: (1) Optimizing Slag, Fouling, and SO_3 Control for Boilers; (2) Indirectly Heated Carbonate Looping Process for CO_2 Capture; (3) Premium Coal Fuels With Advanced Coal Beneficiation; (4) Model for Char Particles Gasification in Fixed and Fluidized Bed Gasifiers; (5) Aerodynamically Stabilized Pulverized Coal Swirl Flames Under Air and Oxy-Fuel Conditions; (6) Gasification of Pulverized Char Under N_2/CO_2 Atmosphere in a Fluidized Bed Reactor; (7) Chemical-Looping Combustion of Hard Coal: Autothermal Operation of a 1 MWth Pilot Plant; (8) CFD Simulation of a Test 5 MW Pressurized Entrained Flow Coal Gasifier; (9) Thermal Treatment of Hematite Ore for Chemical Looping Combustion of Methane; (10) Temperature Measurement Using Infrared Spectral Band Emissions From H_2O; (11) Reactor Configurations for Chemical Looping Combustion and Chemical Looping With Oxygen Uncoupling; (12) Dual Location Fuel Injection Effects on Emissions in a High Intensity Combustor; (13) Challenge of Energy Storage in Europe: Focus on Power to Fuel; (14) Technical and Economical Assessment of Indirectly Heated Carbonate Looping; (15) Online Monitoring of Total Tar in Gasification; and (16) Current Trends in Conventional Power Plant Technology on Two Continents. The papers in this special issue are showcase examples of representative work presented using coal, solid fuel, and other fuels used for cleaner energy conversion.

The guest editors would like to express their great appreciation to all the authors who contributed to the success of the 40th International Technical Conference on Clean Coal and Fuel Systems and to this special issue. The organizing committee who made the recommendation and the reviewers who assisted in reviewing the papers in a timely fashion are highly appreciated. We would like to express our special gratitude to Professor Hameed Metghalchi, Editor-in-Chief, of the JERT journal for accepting our proposal on publishing a special issue in JERT and his continued support during the entire process. We would also like to take this opportunity to give our sincere thanks to Mrs. Christina McNeil, Journal Secretary, and Mrs. Tara Collins Smith at ASME for their help and support in publication of this special issue. Last but not least, the assistance and diligent hard work of Ms. Barbara A. Sakkestad and her team during the entire conference event are much appreciated.

Special issue from the 41st International Technical Conference on Clean Coal and Fuel Systems held during June 5–9, 2016 is planned to be published sometime during 2017 after peer review of all the papers submitted for consideration to publication in the special issue of JERT. Note that the 42nd International Technical Conference on Clean Energy Conversion will be held in Clearwater, FL during June 11–15, 2017.

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