



Guest Editorial

Special Issue: Selected Papers From the 43rd International Technical Conference on Clean Energy

Special issue for the peer reviewed papers published from the 43rd International Clearwater Clean Energy Conference held during June 3–8, 2018 Clearwater, FL.

The special issue contains selected papers presented at the 43rd International Clearwater Clean Energy Conference. The conference was held at Sheraton Sand Keys Hotel Clearwater FL during June 3–8, 2018. The organizers of the conference provided ample networking opportunities throughout the entire conference. The themed luncheon organized at the conference provided outstanding opportunities to meet other researchers and engineers working in similar area that encouraged free exchange of information and networking with many international colleagues. The beach social organized provided additional opportunities of networking with many researchers working around the goal on similar topics and share some information of common interest. The panel sessions organized provided much insightful information from various panel members covering Australia, Europe, China, and the USA. The endorsing organization 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; Energy & Environment Research Center, University of North Dakota, USA; Export Assistance Center, USA; U.S. Commercial Service, USA; 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, USA.

The selected papers from the conference, after peer review, cover a broad range of topics that are of fundamental and industrial importance for clean energy conversion using all types of hydrocarbon resources in gas, liquid, and solid phase, including municipal solid wastes and biomass. Papers dealing with fuel reforming, alternative fuels, and renewable fuels were also presented at the conference with the goal of clean fuel utilization at higher efficiency without any impact to the environment to support energy and environment sustainability. The papers were contributed at the conference from some 15 different countries around the globe (from far-east, Australia to far-west, Canada, and many countries between them). All the authors were encouraged to consider submitting their technical paper contribution for publication in the ASME Journal of Energy Resources 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 editor handled the reviews. The submitted papers reveal that the development and application of the new, innovative, and advanced technologies using state-of-the art experimental and computational methods are urgently needed now than ever before for clean and efficient energy utilization from all kinds of hydrocarbon gas, liquid, and solid fuels. Significant advances in diagnostics and modeling now allow one to examine the spatial and temporal behavior of flames and reaction

progress at much shorter time scales and much higher resolution than ever before. This is primarily due to continuous development of new diagnostic tools and model development that are validated with experiments. The validation of results between modeling and experiments has allowed engineers and scientists to develop correlations that can be extended to develop prototype systems for commercial successes in wide range of applications. The papers in this special issue are concerned with: (1) staged thermal conversion of sewage sludge in the presence of oxygen; (2) mathematical modeling of fluid flow to unconventional oil wells with radial fractures and its testing with filed data; (3) ammonia as a transport fuel in internal combustion engines: a technical review; (4) evaluating laser-induced breakdown spectroscopy sensor technology for rapid source characterization of rare earth elements; (5) effect of heat treatment on the combustion characteristics of a lignite; (6) oxy-combustion modeling for direct fired supercritical carbon dioxide power cycles; (7) numerical approaches for modeling gas-solid fluidized bed reactors: comparison of models and application to different technical problems; (8) simultaneous extraction of clean coal and rare earth elements from coal tailings using alkali-acid leaching process; (9) rheological properties and stability characteristics of biochar–algae–water slurry fuels prepared by wet milling; (10) development of a continuous fluidized bed reactor for thermochemical energy storage application. The papers in this special issue are showcase examples of the representative work presented using gas, liquid fuel, coal, and other solid fuels used for cleaner energy conversion. The conference also organized topics on renewable energy that attracted much attention from the audience as we seek cleaner and cost effective solutions for energy sustainability.

The guest editor would like to express his great appreciation to all the authors who contributed to the success of the 43rd International Clearwater Clean Energy Conference 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 much appreciated. It is through the reviewers and the organizing committee dedicated efforts that helped us to maintain high quality of this special issue. The guest editor would like to thank his special gratitude to Professor Hameed Metghalchi, Editor-in-Chief of the JERT for accepting our proposal on publishing a special issue in JERT and his continued support during the entire process. The guest Editor would also like to take this opportunity to his sincere thanks to Christina McNeil, Journal Secretary, and Tara Collins Smith at ASME for their help and unconditional support in publication of this special issue. The guest editor would also like to thank Dr. Ronald W. Breault for his unconditional support throughout the process with submissions, identification of reviewers, and help tracking of all the papers. Last but not least, the assistance and diligent hard work of Barbara A. Sakkestad and her team during the entire conference are much appreciated. She helped with the announcement of journal paper submission option in JERT during and immediately after the conference, and keeping a good log of all papers submitted from the conference.

Special issue from the 44th International Clearwater Clean Energy Conference held during June 16–21, 2019 is planned to be published in the July 2020 issue of ASME Journal of Energy Resources and Technology (JERT) after peer review of all the papers submitted to JERT. Authors are encouraged to submit their papers on the ASME JERT website under the pull down menu on Special issue “2019 Clearwater Clean Energy.” In case of any difficulty please contact Barbara Sakkestad. Note that the 45th International Clearwater Clean Energy Conference will be held at

the Sheraton Sand Keys Hotel, Clearwater, FL during June 7–12, 2020.

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