Special Issue

Computational and Data-Driven Modeling of Turbulent Combustion and Engine Combustion Dynamics

Message from the Guest Editor

With the ever-increasing demand for higher fuel economy and reduction of pollutant emissions, the combustion community is striving toward the development of advanced combustion engines. Occurrence of stochastic combustion phenomena, governed by complex combustion dynamics, poses a severe challenge to engine performance and durability. Computational and data-driven approaches enable a better understanding of combustion dynamics and development of reduced-order models to aid engine design. This Special Issue is dedicated to combustion research advances, in the area of numerical as well as data-driven modeling/analysis of combustion dynamics in reacting flow-based energy systems. Topics of interest include but are not limited to the application of CFD and/or machine learning techniques for the investigation of cycle-to-cycle variability and knock in reciprocating engines, lean blow-out and combustion instabilities in gas turbine engines and rocket motors, and detonation engines.

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Deadline for manuscript submissions

closed (30 September 2021)

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

mdpi.com/si/64828

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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