

## Special Issue

# Modeling and Analysis of Turbulent Premixed Combustion

### Message from the Guest Editors

Modern combustion devices for power generation and propulsion need to be simultaneously energy-efficient and environmentally friendly. This has increased the importance of premixed combustion because thermal NO<sub>x</sub> formation can be controlled by homogeneously mixing fuel and oxidiser before the combustion process. Further, combustion often takes place in turbulent premixed combustion (TPC) mode, where the underlying flow is significantly affected by thermal expansion. This close coupling between fluid-dynamics and chemistry poses a major challenge in the simulation and modelling of TPC. These aspects become increasingly important in the presence of (i) thermo-diffusive instability in the case of alternative, lean high hydrogen content, fuels, and (ii) hydrodynamic instabilities which are more likely to occur under elevated pressures. All the aforementioned challenges make the analysis and modelling of TPC a topic of significant intellectual and industrial interest. We invite high-quality original analytical, experimental, numerical contributions, and technical reviews in the interest of contributing to the global challenges of energy economy and environmental safety.

---

### Guest Editors

Prof. Dr. Nilanjan Chakraborty

School of Engineering, Newcastle University, Newcastle-upon-Tyne NE1 7RU, UK

Prof. Dr. Markus Klein

Department of Aerospace Engineering, Institute for Applied Mathematics and Scientific Computing, University of the Bundeswehr Munich, 85577 Neubiberg, Germany

---

### 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/55772](https://mdpi.com/si/55772)

*Energies*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[energies@mdpi.com](mailto:energies@mdpi.com)

[mdpi.com/journal/  
energies](https://mdpi.com/journal/energies)





# Energies

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.2  
CiteScore 7.3



[mdpi.com/journal/  
energies](https://mdpi.com/journal/energies)



## About the Journal

### Message from the Editor-in-Chief

*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.

---

### Editor-in-Chief

Prof. Dr. Enrico Sciubba  
Department of Mechanical and Industrial Engineering, University  
Niccolò Cusano, 00166 Roma, Italy

---

### Author Benefits

#### Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

#### High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, RePEc, Inspec, CAPlus / SciFinder, and other databases.

#### Journal Rank:

CiteScore - Q1 (Control and Optimization)