Special Issue

Advanced Simulations for Nuclear Fusion Energy Systems

Message from the Guest Editors

As the global demand for clean, sustainable, and reliable energy sources continues to rise, advancing research in fusion nuclear energy and thermal energy systems has become increasingly important. A major challenge in the development of these technologies lies in optimizing their design and performance under extreme operational conditions, such as high temperatures and complex thermal management requirements. The integration of advanced materials and components, along with the need for enhanced efficiency, calls for innovative engineering and design strategies.

Numerical simulation plays a critical role in addressing these challenges, enabling researchers to model and predict the thermal, mechanical, and multiphysical behavior of nuclear energy systems under a wide range of conditions. Through simulation, it is possible to test new designs, optimize performance, and develop more efficient solutions without the need for extensive physical prototyping. These methods, combined with analytical and computational approaches, are essential for advancing the design and optimization of next-generation fusion nuclear energy systems.

Guest Editors

Dr. Andrea Chiappa

Department of Enterprise Engineering, University of Rome Tor Vergata, Via del Politecnico, 1, 00133 Rome, Italy

Dr. Corrado Groth

Department of Enterprise Engineering, University of Rome Tor Vergata, Via del Politecnico, 1, 00133 Rome, Italy

Deadline for manuscript submissions

31 October 2025

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

mdpi.com/si/219066

Energies
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
energies@mdpi.com

mdpi.com/journal/energies

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

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)

MDPI