

Special Issue

Advanced Multi-physics Modelling and Simulation for Nuclear Technology

Message from the Guest Editors

The modelling and simulation of nuclear systems, with their complex geometry, coupling of various and different physics and scales, and increased safety and economic requirements, represent one of the key challenges for safer design development and operation in nuclear power plants. The design of a new reactor, whether fission or fusion, requires the development of new and better approaches to properly address the key issues of safe design and its optimization and understanding and enhance material behaviour predictions and understanding. Efficient and/or new multiscale/multiphysics modelling and high-performance computing and simulation tools are seen as necessary to predict complex nuclear system behaviour, accounting for the synergy between mechanical, thermal, chemical, and radioactive conditions during steady-state operation and transients. Submissions on the following topics are welcome:

- Multiscale/multiphysics M&S of fission and fusion nuclear systems;
- Design by analysis and safety analysis of NPPs (including SMRs);
- Material ageing and LTO assessments;
- Computational fluid dynamics and applications;

Guest Editors

Dr. Rosa Lo Frano

Department of Civil and Industrial Engineering, University of Pisa, 56126 Pisa, Italy

Dr. Rodrigue Largenton

EDF R&D Lab Les Renardières Av. des Renardières, 77250 Écuelles, France

Deadline for manuscript submissions

31 March 2025



Energies

an Open Access Journal
by MDPI

Impact Factor 3.0
CiteScore 6.2



mdpi.com/si/204640

Energies

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

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





Energies

an Open Access Journal
by MDPI

Impact Factor 3.0
CiteScore 6.2



[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 Aerospace Engineering, University of Roma Sapienza, Via Eudossiana 18, 00184 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)