

## Special Issue

# Breeding Blanket: Design, Technology and Performance

### Message from the Guest Editors

The future DEMONstration fusion power plant should be the first to show that, with a breeding blanket system, it is possible to deliver several hundred megawatts of electrical energy in net and operate in a closed fuel cycle.

New material developments and novel manufacturing processes have made their way into blanket design. The presence of the test blanket modules (TBM) program in ITER has also brought about a paradigm change in the way the breeding blanket concepts are developed and nuclear licensing, with quality and qualification requirements now being an important part of the process.

This Special Issue aims to provide an overview of the current status of breeding blanket designs as well as the main related technological aspects. Such as:

Breeding blanket concepts; Specific material development and qualification including both functional and structural materials; Blanket manufacturing technologies; Modelling in terms of thermal-hydraulic aspects, material behavior and electromagnetic effects; Tritium production and control. SI Link:

[https://www.mdpi.com/journal/applsci/special\\_issues/Breeding\\_Blanket](https://www.mdpi.com/journal/applsci/special_issues/Breeding_Blanket)

---

### Guest Editors

Dr. Bradut E. Ghidersa

Karlsruher Institut für Technologie (KIT), Institut für Neutronenphysik und Reaktortechnik (INR), Postfach 3640, D-76021 Karlsruhe, Germany

Dr. Lorenzo Boccaccini

Karlsruher Institut für Technologie (KIT), Institut für Neutronenphysik und Reaktortechnik (INR), Postfach 3640, D-76021 Karlsruhe, Germany

---

### Deadline for manuscript submissions

closed (10 November 2021)



## Applied Sciences

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.5  
CiteScore 5.5



[mdpi.com/si/79434](https://mdpi.com/si/79434)

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

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





# Applied Sciences

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.5  
CiteScore 5.5



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



## About the Journal

### Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

---

### Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo  
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32,  
20133 Milano, 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, Inspec, CAPlus / SciFinder, and other databases.

#### Journal Rank:

JCR - Q2 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering )