

Special Issue

Advanced Coatings and Alloys for Enhanced Nuclear Accident Tolerance

Message from the Guest Editors

Among the popular strategies of accident tolerant fuel (ATF), surface coatings, or novel alloys have been regarded as promising techniques to enhance the performance of zirconium widely under accidental conditions as well as normal conditions. The substitute is expected to enhance the accident tolerance of fuel claddings in the case of severe accidents, e.g., loss of coolant accident (LOCA). Special focus will be on the benefits of coatings and alloys on properties, e.g., anti-oxidation, mechanical strength and failure, irradiation effects, lead-bismuth corrosion, etc. In particular, the topics of interest include but are not limited to:

- Advanced coatings for nuclear applications;
- Fabrication techniques of ATF coatings;
- Microstructure characterization of ATF coatings;
- High-temperature alloys;
- High-entropy alloys;
- Metallic and ceramic coatings;
- Multilayer coatings;
- High-temperature oxidation;
- Corrosion;
- Irradiation effects;
- Mechanical properties;
- Failure mechanism and prevention
- deformation, fatigue and fracture.

Guest Editors

Prof. Dr. Xianfeng Ma

Dr. Xiujie He

Dr. Jishen Jiang

Dr. Kan Ma

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

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About the Journal

Message from the Editorial Board

Now more than ever, research is asked to deliver knowledge and technologies to solve the major challenges faced by our society. The development of new materials and devices for (without the ambition to be exhaustive) energy, health and food technology, together with the need for establishing processes that reduce the impact on critical resources and the environment, is indeed in the spotlight of most contemporary research. Surface science and engineering play a key role in this regard, with an incredible potential in delivering new and deep scientific understanding and technical solutions essential to solve most of the major societal challenges.

Coatings is a well-established, peerreviewed, online journal dedicated to the vibrant field of surface science and engineering. Coatings publishes original research articles that report cutting-edge results and review papers that make the point on the hottest research topics.

Editors-in-Chief

Prof. Dr. Wei Pan

State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science & Engineering, Tsinghua University, Beijing 100084, China

Dr. Emerson Coy

NanoBioMedical Centre, Adam Mickiewicz University in Poznań, ul. Wszechnicy Piastowskiej 3, 61-614 Poznań, Poland

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