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Accident-Tolerant Fuels: Advanced Coatings and Cladding Technologies

Guest Editor:

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Deadline for manuscript submissions:
closed (31 May 2022)

Message from the Guest Editor

Dear Colleagues,

Light water reactors (LWRs) are the dominant reactor type in the current reactor fleet worldwide. After the 2011 Fukushima Daiichi nuclear accident, a series of new concepts and technologies related to accident-tolerant fuels (ATFs) have been proposed to enhance the safety of commercial nuclear power plants and significantly increase the coping time under accident scenarios. The aim of this Special Issue is to advance the development of ATF technologies by providing a platform for new insights and perspectives. We would like to invite you to submit your work to this Special Issue on “Accident-Tolerant Fuels: Advanced Coating and Cladding Technologies”.

In particular, the topics of interest include but are not limited to:

- ATF coating and cladding materials;
- Characterization of ATF coatings/claddings;
- Performance of ATF coatings/claddings, such as corrosion resistance and radiation resistance;
- ATF fuel materials;
- ATF fuel performance including both in-pile and out-of-pile tests;
- Modeling and simulation on ATF coating/cladding and/or fuels.

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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.

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