



Instrumental Development for the Characterization of Nuclear Materials

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Message from the Guest Editor

The characterization of nuclear material is a true challenge for researchers for two main reasons. Firstly, nuclear materials are radioactive and contaminating, and thus, they cannot be handled without safe protection of both users and instrumentation. Secondly, the understanding of the phenomena occurring during the operation of nuclear fuel requires experiments that can provide information at the atomic scale in extreme conditions, because irradiation produces damage at the atomic scale under huge thermal gradient and mechanical loading. Up to the 2000s, usual metallographic methods such as optical microscopy provided most of the characterization results about nuclear materials. Since then, following the improvement of scientific instrumentation, many new experimental apparatus have been implemented in hot labs, with two main trends: multi-instrumentation and miniaturization of the samples.

The purpose of this Special Issue is to provide an overview of the achievements made in the last 20 years. Potential topics of this Special Issue include but are not limited to:

- instrumentation
- irradiation
- contamination
- nuclear materials
- hot lab





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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.

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