



FIB Preparation and TEM Characterization of Materials for Nuclear Industry

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Message from the Guest Editors

Dear Colleagues,

As of today, UO₂ represents the most commonly used fuel material in nuclear power reactors, and since nuclear fuels must operate safely for years exposed to severe radiation damage conditions, the ability to fully understand the impact of defect creation on their physicochemical properties is fundamental. Sample preparation is a critical step for any successful TEM analysis, in particular when the aim is to detect and characterize defects on a scale within the nanometer range, and although focused ion beam (FIB) milling is a well-established technique in this sense, its efficiency is strongly material dependent. Uranium-based materials are particularly challenging, due to their physical characteristics rendering the thinning process extremely time consuming and delicate.

Here, we present a collection of research works and review papers exhibiting new results, dealing with experimental challenges and proposing original solutions.

I am delighted to invite you to submit original research papers, short communications and state-of-the-art reviews for this Special Issue.





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Message from the Editor-in-Chief

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