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978-1-107-40806-7 - Materials Research Needs to Advance Nuclear Energy: Materials
Research Society Symposium Proceedings: Volume 1215

Editors: Gianguido Baldinozzi, Yanwen Zhang, Katherine L. Smith and Kazuhiro Yasuda
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**MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1215**

Materials Research Needs to Advance Nuclear Energy

Symposium held November 30–December 4, Boston, Massachusetts, U.S.A.

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PREFACE

This volume contains papers presented in Symposium V, "Materials Research Needs to Advance Nuclear Energy," held on November 30–December 4 at the 2009 MRS Fall Meeting in Boston, Massachusetts. The purpose of this symposium was to bring together experimenters, theoreticians and modelers to discuss the innovations needed to develop the next generation of nuclear materials, and to understand the performance of existing materials under extreme operating conditions. The symposium included cross-cutting sessions on radiation effects, complex microstructures, metallic materials, ceramic materials and waste forms, modeling of complex materials, chemical and structural complexity of advanced fuels, and complex materials and devices. Over 130 vibrant cutting-edge presentations were given by researchers from universities, national laboratories and industries from 14 countries for a period of four and half days, including 19 invited talks and 71 contributed talks together with over 40 posters. This volume contains 27 papers presented in this symposium. These presentations explored the fabrication (melting, rolling sol gel, sintering, hot-pressing), characterization (microscopy, diffraction, thermal and electrical property measurements), modeling (ranging from nano- to mesoscale, and spanning timeframes ranging from fractions of femtoseconds to hundreds or millions of years), and performance prediction of various nuclear fuel cycle materials.

The organizers and editors of these symposium proceedings would like to thank all the people who have contributed towards making this symposium happen, the session chairs, the symposium technical and editorial staff and, above all, the participants and the authors for helping to make this symposium successful and fruitful.

Gianguido Baldinozzi
Yanwen Zhang
Katherine Smith
Kazuhiro Yasuda

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