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978-1-605-11721-8 — Scientific Basis for Nuclear Waste Management XXXVIII

Edited by Josef Matyáš , Stéphane Gin , Robert Jubin , Eric Vance

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**Scientific Basis for Nuclear Waste Management
XXXVIII**

**MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1744**

Scientific Basis for Nuclear Waste Management XXXVIII

Symposium held November 30-December 5, 2014, Boston, Massachusetts, U.S.A.

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Cambridge University Press & Assessment
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103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

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www.cambridge.org

Information on this title: www.cambridge.org/9781605117218

Materials Research Society
506 Keystone Drive, Warrendale, PA 15086
<http://www.mrs.org>

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First published 2015

CODEN: MRSPDH

A catalogue record for this publication is available from the British Library

ISBN 978-1-605-11721-8 Hardback

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PREFACE

The Materials Research Society's Symposium EE, entitled "Scientific Basis for Nuclear Waste Management XXXVIII," was held November 30th through December 5th, 2014, at the MRS Fall Meeting in Boston, Massachusetts. The symposium discussed the key scientific challenges for the safe and effective management of spent nuclear fuel and radioactive waste and provided an overview of the international research and waste management programs around the world. Waste forms and engineered barrier system properties, interactions between engineered and geological systems, radiation effects, chemistry and transport of radionuclides, and long-term predictions of repository performance were just some of the topics presented at the symposium by internationally renowned speakers and leading researchers in the field.

The symposium attracted 85 abstracts. This proceedings volume contains 31 papers from the meeting. The papers were divided into four sections: (1) Capture and Immobilization of Radionuclides, (2) Development and Characterization of Waste Forms, (3) Corrosion Behavior of Materials, and (4) Storage and Disposal of Nuclear Waste. Each paper provides a glimpse of the recent advances in nuclear waste management, which presents a global challenge for further development of the nuclear power industry. In spite of significant opposition worldwide after the accident at the Fukushima Daiichi nuclear power plant, we hope that over the next few decades, current and future generations of scientists and technologists will design, implement, and communicate an integrated understanding of the multi-scale processes involved in the processing, packaging, disposal, and regulation of the wide variety of materials designated as nuclear waste.

Josef Matyáš
Stéphane Gin
Robert Jubin
Eric Vance

June 2015

Acknowledgments

The organizers of this symposium sincerely thank all of the oral and poster presenters who contributed to this proceedings volume. We also thank the reviewers for valuable feedback to the editors and to the authors. The organizers of Symposium are grateful to the United States Department of Energy Office of River Protection for its financial support.

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