

MRS

Advances

Scientific Basis for Nuclear Waste Management XXXIX

<https://doi.org/10.1557/adv.2017.253> Published online by Cambridge University Press

MRS

MATERIALS
RESEARCH
SOCIETY®

CAMBRIDGE
UNIVERSITY PRESS

MRS Advances: Scientific Basis for Nuclear Waste Management XXXIX

Associate Editor:

David F. Bahr, *Purdue University*

Principal Editors:

Nicolas Dacheux, *Université de Montpellier*

Nicolas Clavier, *CNRS*

Christophe Poinsot, *CEA Marcoule*

MRS Advances Editorial Board:

Chair: David F. Bahr, *Purdue University*

Asa Barber, *University of Portsmouth,*

United Kingdom

Elizabeth L. Fleischer, *Materials Research Society*

Marian Kennedy, *Clemson University*

Marilyn L. Minus, *Northeastern University*

Roger J. Narayan, *University of North*

Carolina/North Carolina State University

Materials Research Society Editorial Office, Warrendale, PA:

Ellen W. Kracht, *Publications Manager*

Susan Dittrich, *Journals Editorial Assistant*

Kirby L. Morris, *Journals Production Assistant*

Eileen M. Kiley, *Director of Communications*

Disclaimer

Authors of each article appearing in this Journal are solely responsible for all contents in their article(s) including accuracy of the facts, statements, and citing resources. Facts and opinions are solely the personal statements of the respective authors and do not necessarily represent the views of the editors, the Materials Research Society, or Cambridge University Press.

MRS Advances (EISSN: 2059-8521) is published by Cambridge University Press, One Liberty Plaza, Floor 20, New York, NY 10006 for the Materials Research Society.

Copyright © 2016, Materials Research Society. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms and contacts are available at: <http://www.cambridge.org/rights/permissions/permission.htm>. Permission to copy (for users in the USA) is available from Copyright Clearance Center at: <http://www.copyright.com>, email: info@copyright.com.

Purchasing Options:

Premium Subscription- Premium Subscription includes current subscription and one year's lease access to the full MRS Online Proceedings Library Archive for \$6,875.00 / £4,655.00 / €6,330.00. *Subscription-* Subscription with perpetual access to the content subscribed to in a given year, including three years of back-file lease access to content from the MRS Online Proceedings Library Archive. The price for a 2016 subscription is \$2,875.00 / £1,855.00 / €2,500.00. *MRS Members-* Access to *MRS Advances* is available to all MRS members without charge.

Contact Details:

For all inquiries about pricing and access to *MRS Advances*, please get in touch via the following email addresses: online@cambridge.org (for the Americas); library.sales@cambridge.org (for UK, Europe, and rest of world).

journals.cambridge.org/adv

CONTENTS

INTERMEDIATE LEVEL WASTE

- Immobilisation Process for Contaminated Zeolitic Ion Exchangers from Fukushima 4089**
D. Pletser, R.K. Chinnam, M. Kamoshida,
and W.E. Lee
- Magnesium Alloys and Graphite Wastes Encapsulated in Cementitious Materials: Reduction of Galvanic Corrosion Using Alkali Hydroxide Activated Blast Furnace Slag 4095**
D. Chartier, B. Muzeau, L. Stefan,
J. Sanchez-Canet, and C. Monguillon
- Hydration of Eurobitum Bituminized Waste Under Free Swelling Conditions: Osmosis-induced Swelling and NaNO_3 Leaching 4103**
Nele Bleyen, Steven Smets, Wim Verwimp,
Katrien Hendrix, Xavier Sillen, and Elie Valcke
- Osmosis: The Key Process that Drives Water Uptake and Swelling of Eurobitum Bituminized Radioactive Waste 4109**
K. Hendrix, N. Bleyen, S. Smets, W. Verwimp,
X. Sillen, and E. Valcke
- Processing of Irradiated Graphite: The Outcomes of an IAEA Coordinated Research Project 4117**
Michael I. Ojovan and Anthony J. Wickham
- Synthesis of Calcium Monouranate Particles via an Aqueous Route. 4123**
Weixuan Ding, Johannes A. Botha, Bruce C.
Hanson, and Ian T. Burke

FUEL

- In-situ High Temperature X-ray Diffraction Study of the Am-O System 4133**
E. Epifano, R.C. Belin, J-C Richaud, R. Vauchy,
M. Strach, F. Lebreton, T. Delahaye, C. Guéneau,
and P.M. Martin
- Repartition of the Uranium Isotopes within the Belgian UOX Spent Fuel 4139**
Th. Mennecart, C. Cachoir,
K. Lemmens, K. Govers, A. Dobney,
and L. Adriaensen
- Review about the Effect of He on the Microstructure of Spent Nuclear Fuel in a Repository 4147**
C. Ferry, J. Radwan, and H. Palancher
- The Behavior of Unirradiated UO₂ and Uraninite Under Repository Conditions Characterized by Raman. 4157**
L.J. Bonales, J.M. Elorrieta, C. Menor-Salván,
and J. Cobos
- Dissolution of Spent Nuclear Fuel Fragments at High Alkaline Conditions Under H₂ Overpressure 4163**
E. González-Robles, M. Herm,
V. Montoya, N. Müller, B. Kienzler,
R. Gens, and V. Metz
- Lessons Learned from Leaching of Dry Milled High Burnup UO₂ Fuel Under H₂ Atmosphere 4169**
Anders Puranen, Michael Granfors,
Ella Ekeröth, and Kastriot Spahiu