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Effects of Radiation on Nuclear Materials and the Nuclear Fuel Cycle

24th Volume

Guest Editors

Jeremy T. Busby
Brady Hanson

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Foreword

THIS COMPILATION OF THE *JOURNAL OF ASTM INTERNATIONAL (JAI)*, STP1513, on *Effects of Radiation on Nuclear Materials and the Nuclear Fuel Cycle: 24th Volume*, contains only the papers published in JAI that were presented at a symposium in Denver, CO from June 24–26, 2008 and sponsored by ASTM Committees E10 on Nuclear Technology and its Applications and C26 on the Nuclear Fuel Cycle.

The JAI Guest Editors are Jeremy T. Busby, Materials Science and Technology, Oak Ridge National Laboratory, Oak Ridge, TN, and Brady D. Hanson, Radiochemical Science and Engineering, Pacific Northwest National Laboratory, Richland, WA.

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Overview

The Effects of Radiation on Materials series began in 1956 with a meeting jointly sponsored by the E-10 Committee (called the Committee on Radioisotopes and Radiation Effects at the time) and the Atomic Industrial Forum. In 1960, this symposium transitioned to its current format under the E-10 Committee and, for the past 44 years, this symposium has been an international forum. In this most recent meeting, over half of the presentations originated outside the United States with lead authors from eleven different countries. These proceedings reflect that international scope.

The 24th Symposium on the Effects of Radiation on Materials marked the first joint sponsorship between the E-10 and C-26 Committees. The expanded meeting scope was well received as the broader view provided an opportunity to examine radiation damage for the entire fuel cycle.

These proceedings continue the long-established strength and depth of the Effects of Radiation on Materials series. Papers on radiation effects in reactor pressure vessel steels are again an integral component with specific topics ranging from surveillance programs around the world to detailed characterization of irradiated microstructures. Radiation effects in oxide-dispersion strengthened alloys and austenitic stainless steels are also included with several papers highlighting renewed interest in non-uniform deformation in these steels. The balance of the papers covers a diverse set of radiation-effects topics, ranging from modeling helium bubbles to finite-element modeling of fuel bundles.

The editors wish to express our gratitude to all of the reviewers, who are a vital component in a publication of this quality. The ASTM staff also played a key role in the production of these proceedings. Finally, and most importantly, we would like to thank the symposium presenters and authors for their participation and dedication to this series.

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