



# Effects of Radiation on Materials

22nd Symposium



Editors

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# *Effects of Radiation on Materials: 22nd Symposium*

*T. R. Allen, R. G. Lott, J. T. Busby, and A. S. Kumar, editors*

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# Foreword

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This Special Technical Publication is a compilation of technical papers which were peer reviewed for the On-line Journal ASTM International and used as the proceedings of the 22nd Symposium on Effects of Radiation on Materials. The symposium, sponsored by ASTM Committee E10 on Nuclear Technology and Applications, was held in Boston, Massachusetts on June 8-10, 2004. The Chairs of the Symposium were Todd R. Allen, from the University of Wisconsin, Randy G. Lott, from Westinghouse Electric Company, Jeremy T. Busby, then at the University of Michigan and now at Oak Ridge National Laboratory, and Arvind S. Kumar, University of Missouri-Rolla.

# Contents

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<b>Overview</b>	ix
AUSTENITIC STEELS	
<b>Behavior of Irradiated Type 316 Stainless Steels under Low-Strain-Rate Tensile Conditions</b> —T. YOSHITAKE, I. YAMAGATA, N. AKASAKA, Y. NAKAMURA, H. TSAI, J. COLE, AND T. ALLEN	3
<b>Radiation-Induced Stress Relaxation of Welded Type 304 Stainless Steel Evaluated by Neutron Diffraction</b> —M. OBATA, J. H. ROOT, Y. ISHIYAMA, K. NAKATA, H. SAKAMOTO, H. ANZAI, AND K. ASANO	15
<b>Low Strain-Rate Microstructural Deformation Behavior in 316 Stainless Steel Irradiated in EBR-II</b> —J. I. COLE, T. R. ALLEN, H. TSAI, T. YOSHITAKE, I. YAMAGATA, N. AKASAKA, AND Y. NAKAMURA	32
<b>Neutron Flux Effect on the Irradiation Hardening of Type 304 Stainless Steel</b> —T. TORIMARU, M. KODAMA, S. TANAKA, T. NAKAMURA, K. ASANO, AND K. KUMAGAI	41
<b>Modeling the Effects of Oversize Solute Additions on Radiation-Induced Segregation in Austenitic Stainless Steels</b> —M. J. HACKETT, G. S. WAS, AND E. P. SIMONEN	52
FERRITIC-MARTENSITIC STEELS	
<b>Post-Irradiation Tensile Behavior and Residual Activity of Several Ferritic/Martensitic and Austenitic Steels Irradiated in Osiris Reactor at 325°C up to 9 dpa</b> —Y. DE CARLAN, X. AVERTY, J.-C. BRACHET, J.-L. BERTIN, F. ROZENBLUM, O. RABOUILLE, AND A. BOUGAULT	67
<b>The Role of Grain Boundary Engineering on the High Temperature Creep of Ferritic-Martensitic Alloy T91</b> —G. GUPTA AND G. S. WAS	86
<b>Extrapolation of Fracture Toughness Data for HT9 Irradiated at 360–390°C</b> —D. S. GELLES AND R. J. KURTZ	99

<b>Development of Fuel Clad Materials for High Burn-up Operation of LWR</b> —H.-S. CHO, A. KIMURA, S. UKAI, AND M. FUJIWARA	111
<b>Small Angle Neutron Scattering Study of Irradiated Martensitic Steels: Relation Between Microstructural Evolution and Hardening</b> —M.-H. MATHON, Y. DE CARLAN, X. AVERTY, A. ALAMO, AND C.-H. DE NOVION	120
<b>Radiation Resistance of Advanced Ferritic-Martensitic Steel HCM12A</b> —T. R. ALLEN, L. TAN, J. D. TUCKER, J. GAN, G. GUPTA, G. S. WAS, S. SHUTTHANANDAN, AND S. THEVUTHASAN	135
PRESSURE VESSEL STEELS	
<b>Microstructural and Mechanical Characterization of Radiation Effects in Model Reactor Pressure Vessel Steels</b> —A. ULBRICHT, J. BÖHMERT, AND H.-W. VIEHRIG	151
<b>Effects of Neutron Irradiation on Precipitation in Reactor Pressure Vessel Steels</b> —R. G. FAULKNER, Z. LU, D. ELLIS, AND T. J. WILLIAMS	165
<b>Radiation- and Thermally-Induced Phosphorus Inter-Granular Segregation in Pressure Vessel Steels</b> —Z. LU, R. G. FAULKNER, R. B. JONES, AND P. E. J. FLEWITT	180
<b>Fracture Toughness, Thermo-Electric Power, and Atom Probe Investigations of JRQ Steel in I, IA, IAR, and IARA Conditions</b> —R. K. NANSTAD, M. NIFFENEGGER, R. D. KALKHOF, M. K. MILLER, M. A. SOKOLOV, AND PH. TIPPING	195
<b>Assessment of Neutron Irradiation-Induced Grain Boundary Embrittlement by Phosphorous Segregation in a Reactor Pressure Vessel Steel</b> —A. KIMURA, M. SHIBATA, R. KASADA, K. FUJII, K. FUKUYA, AND H. NAKATA	212
<b>Effects of Neutron Dose, Dose Rate, and Irradiation Temperature on the Irradiation Embrittlement of a Low-Copper Reactor Pressure Vessel Steel</b> —R. KASADA, T. KUDO, A. KIMURA, H. MATSUI, AND M. NARUI	225
<b>Mechanical Property Changes in Reactor Vessel Materials Thermally Aged for 209 000 H at 282°C</b> —H. P. GUNAWARDANE, J. B. HALL, AND S. T. ROSINSKI	236
<b>Recent Surveillance Data and a Revised Embrittlement Correlation</b> —W. L. SERVER, R. G. LOTT, S. T. ROSINSKI, AND C. A. ENGLISH	245
<b>Use of Broken Charpy V-notch Specimens from a Surveillance Program for Fracture Toughness Determination</b> —M. SCIBETTA, E. LUCON, R. CHAOUADI, E. VAN WALLE, AND R. GERARD	255
<b>Dynamic Finite Element Modeling of Fracture in Charpy V-Notch Specimens of Weld Material 72W</b> —J. H. MCCOY AND A. S. KUMAR	262

<b>Effects of Proton Irradiation on Reactor Pressure Vessel Steel and Its Model Alloys—</b> H. SHIBAMOTO, A. KIMURA, M. HASEGAWA, H. MATSUI, AND S. YAMAGUCHI	274
RADIATION DAMAGE FUNDAMENTALS	
<b>Correlated Formation and Stability of SIA Loops and Stacking Fault Tetrahedra in High Energy Displacement Cascades in Copper—</b> R. E. VOSKOBOINIKOV, Y. N. OSETSKY, AND D. J. BACON	285
<b>Atomic-Scale Simulation of Defect Cluster Formation in High-Energy Displacement Cascades in Zirconium—</b> R. E. VOSKOBOINIKOV, Y. N. OSETSKY, AND D. J. BACON	299
<b>Flow Localization Processes in Austenitic Alloys—</b> X. WU, X. PAN, M. LI, AND J. F. STUBBINS	314
<b>Deformation Mechanism Maps of Unirradiated and Irradiated V-4Cr-4Ti—</b> M. LI AND S. J. ZINKLE	328
CERAMICS AND OTHER NUCLEAR SYSTEM MATERIALS	
<b>Plutonium-238 Alpha-Decay Damage Study of a Glass-Bonded Sodalite Ceramic Waste Form—</b> S. M. FRANK, T. DiSANTO, K. M. GOFF, S. G. JOHNSON, J.-F. JUE, T. L. BARBER, M. NOY, T. P. O'HOLLERAN, AND J. J. GIGLIO	347
<b>Microstructure Evolution in ZrC Irradiated with Kr Ions—</b> J. GAN, M. K. MEYER, R. C. BIRTCHER, AND T. R. ALLEN	358
<b>Mechanical Properties of Cubic Silicon Carbide after Neutron Irradiation at Elevated Temperatures—</b> Y. KATOH AND L. L. SNEAD	365
<b>Creep-Fatigue Behavior in High Strength Copper Alloys—</b> J. F. STUBBINS AND M. LI	378
<b>Tensile, Flexural, and Shear Properties of Neutron Irradiated SiC/SiC Composites with Different Fiber-Matrix Interfaces—</b> T. NOZAWA, K. OZAWA, S. KONDO, T. HINOKI, Y. KATOH, L. L. SNEAD, AND A. KOHYAMA	392

# Overview

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Selected papers from the 22nd Symposium on the Effects of Radiation on Materials are published in this volume. The symposium, sponsored by ASTM Committee E-10 on Nuclear Technology and Applications was held in Boston, Massachusetts on June 8-10, 2004. Todd R. Allen, from the University of Wisconsin, chaired the meeting. Co-chairmen were Randy G. Lott, Westinghouse Electric Company, Jeremy T. Busby, then at the University of Michigan and now at Oak ridge National Laboratory, and Arvind S. Kumar, University of Missouri-Rolla.

This symposium series began in 1956 with a meeting jointly sponsored by E-10, then the Committee on Radioisotopes and Radiation Effects, and the Atomic Industrial Forum. The symposium in the present form, sponsored by Committee E-10, began in 1960 and became international in 1963 with the presentation of five papers of the total of eighteen from laboratories outside of the United States. At the current meeting, of the 61 papers presented, 25 came from sources outside the United States. The nearly 50% international participation in the presentations represents the truly international efforts that are ongoing in the study of radiation effects on materials.

The symposium began with a plenary lecture presented by Dr. Everett Bloom of Oak Ridge National Laboratory. One of the pioneers of the field of radiation effects, Dr. Bloom provided a history of important events in the development of the field of radiation effects and linked this history to the challenges facing the materials development in Generation IV systems.

The technical program was evenly balanced between sessions on austenitic stainless steels (17 presentations), ferritic-martensitic stainless steels (11 presentations), pressure vessel steels (15 presentations), radiation damage fundamentals (12 presentations), and ceramics and other nuclear energy system materials (6 presentations). The technical balance is indicative of the continued strength of research interest in embrittlement of pressure vessel steels, as well as the renewed interest in austenitic and ferritic-martensitic steels, as well as ceramics, for application in Generation IV systems. Heartening was the number of students and young post-doctoral researchers who presented and participated in the symposium.



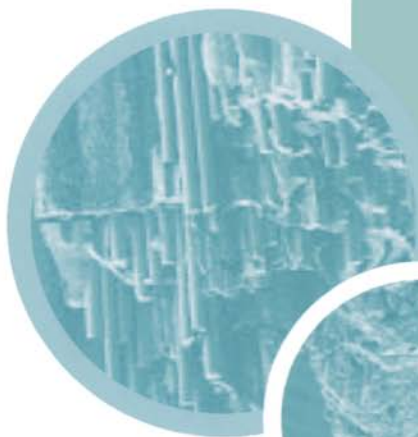
The editors wish to express our gratitude to all of the reviewers, without whom the quality of this publication would not be possible, and to all the symposium participants.

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