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Advances in Materials for Nuclear Energy

EDITORS

Chaitanya S. Deo
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Advances in Materials for Nuclear Energy

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*Invited Paper

PREFACE

Symposium HH, “Advances in Materials for Nuclear Energy,” was held Nov. 25–30 at the 2012 MRS Fall Meeting in Boston, Massachusetts.

As the world faces steadily rising energy demand and cost, nuclear energy produced by fission and fusion reactors is increasingly recognized as an economically viable and carbon-neutral alternative to fossil energy sources. With new reactor concepts pursuing passive safety mechanisms and better performance, the behavior of structural materials and fuel is at the forefront of challenges in the development of promising reactor ideas. Accordingly, the research and development activities in nuclear materials and fuel areas have substantially increased over the last few years. The goal of this symposium was to provide a forum for the discussion of materials limitations and new developments in the field of nuclear fission and fusion energy on an experimental and modeling platform. This symposium proceedings volume represents the recent advances in materials for nuclear energy applications. The papers are divided into three sections: (1) Theory, Modeling and Simulation, (2) Radiation Effects and (3) Synthesis, Characterization and Thermomechanical Properties. Each paper in this volume provides a glimpse of the exciting recent developments occurring in materials for nuclear energy and includes the new results of both experimental and theoretical studies.

Chaitanya Deo
Gianguido Baldinozzi
Maria Jose Caturla
Chu-Chun Fu
Kazuhiro Yasuda
Yanwen Zhang

May 2013

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