Nuclear Technology

VOLUME 211 · NUMBER 5 · MAY 2025



i

Contents

REVIEW ARTICLES

- 863 Response to the Seawater Contamination Event at Hamaoka Unit 5 and the Effects of Corrosion by Seawater
 Koichiro Omura
- 889 Processes and Interactions of Potential Relevance for Deep Geological Disposal of HLW and L/ILW at the Same Site—International Approaches and Transferability to the German Site Selection

Marie Voss. Ute Maurer-Rurack, Andreas Poller

905 Recent Developments and Findings of Heat Pipe Experiments for Microreactor Applications

Ilyas Yilgor, Zachary D. Sellers, Jeremy L. Hartvigsen, Katrina M. Sweetland,

Pei-Hsun Huang, Taehwan Ahn, Joseph Seo, Annalisa Manera, Victor Petrov,

Mark Anderson, Yassin Hassan, Shanbin Shi, Piyush Sabharwall

RESEARCH ARTICLES

- **940** An Optimal Radiation Shield Design of a Small Modular Nuclear Power Reactor by Genetic Algorithm
 - S. Bagheri, H. Khalafi, A. A. Bahrami
- 953 Performance Analysis of U₃Si₂-Al Fuel with Density of 2.96 gU/cm³ and Burnup of 56% Maman Kartaman Ajiriyanto, Aslina Br. Ginting, Sungkono, Supardjo, Juan Carlos Sihotang
- 963 Neutronics—Thermal-Hydraulics—Coupled Transient Analysis for Reactor Power Change in an Inclined Offshore Floating Boiling Water Reactor Kodai Fukuda, Toru Obara, Kenya Suyama
- 974 Research on Active Disturbance Rejection Control of Small Modular Reactor Once-Through Steam Generator Based on Differential Evolution Optimization Algorithm

 Wei Guo, Bo Shi, Tao Zhang, Zhijiang Wu, Guohua Xiong, Minjun Peng
- **994** Exploring the Feasibility of Quantum-Based Secure Communications for Nuclear Applications

Konstantinos Gkouliaras, Vasileios Theos, Stylianos Chatzidakis

1014 Calculation of Isotope-Specific Fission Rates for Neutrino Source Calculation in PWR Fuel Diversion Safeguarding

Dean Price, Leia Barrowes, James Wells, Brendan Kochunas

—continued—

https://www.ans.org

Contents continued

VOLUME 211 · NUMBER 5 · MAY 2025

1044 Fiberoptic Laser-Induced Breakdown Spectroscopy System for in situ Measurement in a Hazardous Environment

Yichen Zhao, Haori Yang, Sivanandan S. Harilal

1056 Design and Development of a Portable Neutron Detection System Based on a 6 Li-Doped ZnS(Ag) Scintillator

Tuğçe Gürdal, Haluk Yücel

1066 Hazard Identification Risk Assessment Onsite Survey for External Human-Induced Events Aspect of the Nuclear Power Plant in West Kalimantan, Indonesia

Khusnul Khotimah, Widjanarko, Siti Alimah, Budi Santoso, Sriyana, Kurnia Anzhar, Joko Waluyo, Gustini H. Sayid, Rismiyanto, Hadi Suntoko, Fepriadi, Nicholas Bertony Saputra, Agus Teguh Pranoto, Yulaida Maya Sari, Ika Wahyu Setya Andani

1080 A RELAP5-3D Model of the Lobo Lead Loop

Jonathan L. Barthle, Nicholas Meehan, G. Ivan Maldonado, Nicholas R. Brown

NOTES

1092 Nuclear Reactor Operations Education and Training with Virtual Reality and an Immersive Desktop Application

Shikha Prasad, Oscar L. Delgado, Alexander Tucker, Sunay Palsole

1103 Comparative Study of Raman and EPMA Elemental Mapping of an Unirradiated MOX Sample

Jean-Yves Colle, Philipp Pöml, Jacobus Boshoven, Rudy J. M. Konings