# **Nuclear Technology**

VOLUME 211 · NUMBER 8 · AUGUST 2025



# **Contents**

## RAPID COMMUNICATION

1609 Development and Characterization of a W8Ni3Cu Alloy for Gamma Radiation Shielding Armando C. Souza, Flavio Aristone, Marco A. A. Cortez, Munique S. de Lima, Duilio R. Porto, Rafaela M. da Silva, Jesualdo L. Rossi

#### RESEARCH ARTICLES

- 1619 Initial Studies of Tellurium Embrittlement in 316H Stainless Steel

  Lauryn K. Reyes, Mohammad Umar Faroog Khan, Ryan E. Gordon, Stephen S. Raiman
- 1625 A Robust Anomaly Detection System for Nuclear Power Plants Under Varying Environmental Conditions and Malfunction Levels

  Sungmin Kim, Fan Zhang
- 1645 Increased <sup>238</sup>Pu Production in Proliferation-Resistant U-10Zr Fuel Produced from Reprocessed Uranium Containing Unseparated <sup>237</sup>Np Eva M. Lisowski, Hiroshi Sagara
- 1662 Effect of Multisized Packing on the Heat Transfer Characteristics of a Face-Centered-Cubic-Structured Pebble Bed Xiaole Wang, Leisheng Chen, Ruixiang Sun, Jaeyoung Lee
- 1674 A MOOSE-Based Model for Fission Product Transport and Source Term Estimation for High-Temperature Gas-Cooled Reactors

  Nicolas Martin, Lise Charlot, Gerhard Strydom
- 1699 Development of an Extended State Observer for Monitoring of a PWR Based on a Two-Point Kinetic Model

  Jiuwu Hui
- 1723 Fuel Behavior Implications of Reactor Design Choices in Pressurized Water SMRs Assil Halimi, Koroush Shirvan
- 1747 Whole-Core 3D Multiphysics Transient Modeling of a Prismatic Micro High-Temperature Gas-Cooled Reactor
  - Marc C. Van Den Berg, Danny Lathouwers, Jan Leen Kloosterman
- 1774 Verification and Validation of Depletion Calculations for TRISO Fuel Against Data from the Second Advanced Gas Reactor Irradiation Campaign

  Tatiana Siaraferas, Yves Robert, Massimiliano Fratoni

—continued—

https://www.ans.org

# **Contents** continued

VOLUME 211 · NUMBER 8 · AUGUST 2025

- **1809** Modeling and Optimization of <sup>147</sup>Pm Radioisotope-Powered GaN-Based PIN Junction Betavoltaic Cell
  - Ao Zhang, Li Chen, Chunlei Wang, Jingmin Li
- 1823 Path Toward a Breeding, Proliferation-Resistant, Thermal-Spectrum Molten Salt Reactor David E. Holcomb, Mauricio E. Tano
- 1851 TRISO Fuel's Safety Functions, Contributions to Reactor Safety, and Necessary Safety Limits
  - Jason Andrus, Lee Nelson, Jeffrey Phillips, Jonathon Wheelwright
- **1860** Replacement Strategy for Aging Nuclear Power Instrumentation and Control Equipment Based on Life Margin

Yongwei Chen, Yonggang Li, Yongjing Xie, Zuguo Chen, Jiale Li

## NOTE

1875 Incorporating the Effect of Centrifugal Force into the Correlation for Saturated Flow Boiling Heat Transfer in a Helically Coiled Tube
Jae Jun Jeong, Tae Gang Lee, Sang Gyun Nam, Byongjo Yun

**⊗ANS**