

Nuclear Technology

VOLUME 207 · NUMBER 6 · JUNE 2021

Selected papers from the 2020 Nuclear and Emerging Technologies for Space Topical Meeting (NETS 2020)

Contents

- iii Foreword
Robert Wham, Richard Howard

TECHNICAL PAPERS

- 773** A Concept Study on Advanced Radioisotope Solid Solutions and Mixed-Oxide Fuel Forms for Future Space Nuclear Power Systems
Richard M. Ambrosi, Daniel P. Kramer, Emily Jane Watkinson, Ramy Mesalam, Alessandra Barco
- 782** Empirical Analysis of the Multi-Mission Radioisotope Thermoelectric Generator Qualification Unit Operated at a Low Thermal Inventory with Potential for Improved End-of-Life Power
Christofer E. Whiting
- 790** Development of Engineering Qualification Model of a Small ETG for a Launch Environmental Test
Jintae Hong, Kwang-Jae Son, Jong-Bum Kim, Jin-Joo Kim
- 801** Development of a Novel Miniature Power Converter for Low-Power Radioisotope Heat Sources: Numerical and Experimental Results
Francisco I. Valentín, Gregory Daines
- 815** Fabrication of UN-Mo CERMET Nuclear Fuel Using Advanced Manufacturing Techniques
Alicia M. Raftery, Rachel L. Seibert, Daniel R. Brown, Michael P. Trammell, Andrew T. Nelson, Kurt A. Terrani
- 825** Toward an In-Depth Material Model for Cermet Nuclear Thermal Rocket Fuel Elements
William C. Tucker, Piyas Chowdhury, Lauren J. Abbott, Justin B. Haskins
- 836** Trade-Offs Between Space Nuclear Systems Fueled with Highly Enriched Uranium and Low-Enriched Uranium
Bhavya Lal, Jericho Locke

—continued—

Contents continued

VOLUME 207 · NUMBER 6 · JUNE 2021

TECHNICAL NOTES

- 844** Considerations for Implementing Presidential Memorandum-20 Guidelines for Nuclear Safety Launch Authorization for Future Civil Space Missions
Yale Chang
- 851** Operational Considerations for Space Fission Power and Propulsion Platforms
Andrew C. Klein, Allen Camp, Patrick McClure, Susan Voss, Elan Borenstein, Paul VanDamme
- 860** Stay Cool—Alternatives for Long-Term Storage of Large Quantities of Liquid Hydrogen on a Mars Transfer Vehicle
Nicholas A. Morris, L. Dale Thomas, D. Keith Hollingsworth
- 866** Novel Deep Space Nuclear Electric Propulsion Spacecraft
Troy Howe, Steve Howe, Jack Miller

TECHNICAL SUMMARIES

- 876** Space Nuclear Power and Propulsion at USNC-Tech
Paolo Venneri, Michael Eades
- 882** Space Nuclear Propulsion Fuel and Moderator Development Plan Conceptual Testing Reference Design
Jeremy L. Gustafson