Foreword

Special Issue Featuring Papers from the 2024 ANS Radiation Protection and Shielding Division Topical Meeting

Guest Editors

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The Radiation Protection and Shielding Division (RPSD) of the American Nuclear Society (ANS) convened its 2024 topical meeting in conjunction with the ANS Winter Conference and Expo in Orlando, Florida, November 17–21, 2024. This event continued a long tradition of advancing the science and practice of radiation protection and shielding by uniting researchers, practitioners, and students from across the globe.

The papers selected for this special issue of *Nuclear Science and Engineering* represent the technical depth and diversity that characterize the field. They cover topics such as Monte Carlo and deterministic transport methods, hybrid computational strategies, experimental validation, medical and accelerator applications, nuclear security, space and fusion environments, and emerging applications of artificial intelligence and machine learning. Visualization methods, uncertainty quantification, and innovative designs for future energy systems and space exploration were also emphasized.

RPSD 2024 was led by general chair Robert Hayes of North Carolina State University and general cochair Bojan Petrovic of the Georgia Institute of Technology. The technical program was shaped by Michael Reichenberger of Idaho National Laboratory and Mathieu Dupont of Oak Ridge National Laboratory, with financial oversight provided by Irina Popova of Oak Ridge National Laboratory and publication guidance from Vaibhav Sinha of Ohio State University. Their leadership, along with the efforts of session organizers, workshop leaders, and reviewers, ensured a program of both technical rigor and scientific breadth.

The articles gathered here reflect not only progress in radiation protection and shielding but also the integration of these advances into the broader discipline of nuclear science and engineering. Each paper embodies a collaborative effort among universities, laboratories, industry, and international partners, and together they demonstrate the vitality of this community and its essential contributions to the safe and innovative use of nuclear technologies.

It is our expectation that this special issue of *Nuclear Science and Engineering* will serve as a lasting record of the advancements presented at RPSD 2024 and that it will continue to inspire further innovation and scholarship in radiation protection and shielding for years to come.

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