

Physics Division Seminar

16 November 2020

**Zohreh Davoudi, University of Maryland**

***Quantum Simulators for Nuclear Physics: Progress, Challenges, and Future***

A vibrant program has formed in recent years in various scientific disciplines to take advantage of near-term and future quantum-simulation and quantum-computing hardware to study complex quantum many-body systems, building upon the vision of Richard Feynman for quantum simulation. Such activities have recently started in nuclear physics, hoping to bring new and powerful experimental and computational tools to address a range of challenging problems in strongly interacting nuclear many-body systems. In this talk, I review a number of important developments, including proposals for simulating strongly interacting field theories with the goal of studying strong dynamics of quarks and gluons, and of nucleons. The hardware technologies that are expected to enable both the analog simulations and the digital quantum computations of these problems will be enumerated, and their unique feature for applications in nuclear physics will be outlined.

To meet with the speaker (remotely), please contact the host Matthew Dietrich.