

Advancing nuclear structure and scattering calculations using NLEFT

Saturday, 1 March 2025 09:05 (45 minutes)

In this talk, I will present an overview of recent advances in nuclear lattice simulations, focusing on how the recently developed N3LO lattice action bridges the gap between QCD and nuclear interactions, enabling the formulation of a modern theory of nuclear forces. More specifically, I will discuss the determination of three-nucleon interactions, which has led to highly precise predictions and a deeper understanding of nuclear systems. Additionally, I will highlight the wave function matching method, an approach that significantly improves the convergence of perturbation theory for solving quantum many-body systems. Finally, I will present recent ab-initio results from nuclear structure and nuclear scattering calculations.

Presenter: ELHATISARI, Serdar