

Scott Bogner – MSU – Colloquium 11/29/2018

Title: “Nuclear Theory in the FRIB Era”

Abstract: The coming Facility for Rare Isotope Beams (FRIB) will enable scientists to make key discoveries about the properties of rare isotopes, nuclear astrophysics, fundamental interactions, and societal applications in medicine, homeland security, and industry. With its exploration vast terra incognita where there is little or no data, FRIB will challenge data-driven models like the nuclear shell model and energy density functional theory that have shaped our understanding of how nucleonic matter comes into being and how it evolves and organizes itself. One path forward is to use microscopic many-body theory to link these models to the underlying forces between nucleons, reducing the reliance on nearby data to pin down model parameters. In this talk, I focus on the use of modern effective field theory and renormalization group methods to accomplish this objective.