Current and Pending Support

Dean Lee

Current

Sponsor:	Department of Energy
Award Number:	DE-SC0018638
Project/Proposal Title:	Nuclear Theory from First Principles to Forefront Experiments
Total Award Amount:	$210,000
Person-Months:	0.12 summer
Total Award Period Covered:	5/15/18 – 5/14/20
Location of Project:	Michigan State University
Brief Description of Project:	Lattice simulations based on chiral effective field theory are used to describe nuclear structure from first principles.
Overlap with Proposed Research:	No direct overlap.

Sponsor:	Department of Energy/NNSA
Award Number:	DE-AC52-06NA25396 (subaward from LANL)
Project/Proposal Title:	Large Scale Simulations of Nuclear Reactions
Total Award Amount:	$600,000
Person-Months:	1 summer
Total Award Period Covered:	10/5/18 – 8/30/22
Location of Project:	Michigan State University
Brief Description of Project:	Lattice simulations based on chiral effective field theory are used to describe nuclear scattering and reactions from first principles.
Overlap with Proposed Research:	No direct overlap.

Pending

Sponsor:	Department of Energy
Project/Proposal Title:	From Quarks to Stars; A Quantum Computing Approach to the Nuclear Many-Body Problem
Total Award Amount:	$1,000,000
Person-Months:	0.12 summer
Total Award Period Covered:	10/1/19 – 9/30/22
Location of Project:	Michigan State University
Brief Description of Project:	This proposal aims at studying and applying recent developments of algorithms and methods from quantum computing and quantum information theory to studies of complex and strongly interacting nuclear many-particle systems. The proposal aims at developing new methods for studying systems that span from strong force simulations of

	quarks and gluons to many-body methods applied to the equation of state of dense matter. The proposal aims at developing interdisciplinary research projects that unites researchers in quantum computing and quantum information theory with theorists working on interacting many-particle methods applied to nuclear physics.
Overlap with Proposed Research:	this is the proposed project
Sponsor:	National Science Foundation
Project/Proposal Title:	Time fractals and discrete scale invariance with trapped ions
Total Award Amount:	$283,508
Person-Months:	0.5 summer
Total Award Period Covered:	5/16/19 – 5/15/22
Location of Project:	Michigan State University
Brief Description of Project:	Investigations of trapped ion systems which exhibit a spectrum with discrete scale invariance.
Overlap with Proposed Research:	No direct overlap. However some test examples in the current proposal will make use of findings from this project.