Current and Pending Support

Scott Bogner

Current

Sponsor:	National Science Foundation
Award Number:	PHY-1713901
Project/Proposal Title:	Ab-Initio Nuclear Theory: From Nuclei to Neutron Stars
Total Award Amount:	$600,000
Person-Months:	2 summer
Total Award Period Covered:	8/1/17 – 7/31/20
Location of Project:	Michigan State University
Brief Description of Project:	Ab-initio many-body theory for nuclear structure calculations
Overlap with Proposed Research:	Shares common many-body methods (IMSRG/CC theory), but the focus is very different (the proposed research focuses on algorithms to be employed on quantum computers.)

Sponsor:	Department of Energy
Award Number:	DE-SC0015376
Project/Proposal Title:	Nuclear Theory for Double Beta Decay and Fundamental Symmetries
Total Award Amount:	$150,000
Person-Months:	0.12 academic
Total Award Period Covered:	5/1/16 – 4/20/21
Location of Project:	Michigan State University
Brief Description of Project:	Develop reliable ab-initio calculations of neutrino less double beta decay nuclear matrix elements.
Overlap with Proposed Research:	None

Sponsor:	Department of Energy
Award Number:	DE-SC0018083
Project/Proposal Title:	Nuclear Computational Low Energy Initiative (NUCLEI)
Total Award Amount:	$1,821,000
Person-Months:	0.12 academic
Total Award Period Covered:	9/1/17 – 8/31/21
Location of Project:	Michigan State University
Brief Description of Project:	Develop microscopically based energy density functionals for nuclei.
Overlap with Proposed Research:	None

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 academic
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