Current and Pending Support

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Current

Sponsor:	Department of Energy
Award Number:	
Project/Proposal Title:	SciDAC-4: Computing the Properties of Matter with Leadership Computing Resources
Total Award Amount:	$550,000
Person-Months:	0
Total Award Period Covered:	9/1/17 – 8/31/22
Location of Project:	Multi-institutional, led by Jefferson Laboratory, MIT and Brookhaven National Laboratory; subcontract at MSU
Brief Description of Project:	Code development for lattice QCD calculations
Overlap with Proposed Research:	none

Sponsor:	National Science Foundation
Award Number:	PHY-1812332
Project/Proposal Title:	Heavy Quarkonia as Thermometer of Quark-Gluon Plasma
Total Award Amount:	$240,000
Person-Months:	1 month SUM
Total Award Period Covered:	8/15/18 – 8/31/21
Location of Project:	MSU
Brief Description of Project:	Study of the heavy quark bound states in quark-gluon plasma applying lattice QCD
Overlap with Proposed Research:	none

Sponsor:	Department of Energy
Award Number:	DE-SC0019139
Project/Proposal Title:	Foundations of Quantum Computing for Gauge Theories and Quantum Gravity

Total Award Amount:	$127,325
Person-Months:	0 months
Total Award Period Covered:	10/1/18 – 9/30/20
Location of Project:	Multi-institutional, lead by the University of Iowa, subcontract at MSU
Brief Description of Project:	Foundational aspects of quantum computing as applied to quantum field theories and quantum gravity, study of tensor renormalization group methods with applications to quantum computing
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