Current and Pending Support

Huey-Wen Lin

Current

Sponsor: National Science Foundation
Award Number: 1653405
Project/Proposal Title: "CAREER: Constraining Parton Distribution Functions for New-Physics Searches"
Total Award Amount: $425,000
Person-Months: 2 SUM
Total Award Period Covered: 2017-2022
Location of Project: Michigan State University
Brief Description of Project: High-performance computing using lattice QCD to study the nucleon parton distribution functions and their applications and impacts on new-physics searches
Overlap with Proposed Research: None

Pending

Sponsor: Research Corporation Foundation for Scientific Achievement
Project/Proposal Title: Unveiling the Three-Dimensional Structure of Nucleons
Total Award Amount: $100,000
Person-Months: 0.5 SUM
Total Award Period Covered: 2020-2023
Location of Project: Michigan State University
Brief Description of Project: High-performance computing with lattice QCD to study the three-dimensional structure of nucleons
Overlap with Proposed Research: None

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 SUM
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