Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Morten Hjorth-Jensen

Other agencies (including NSF) to which this proposal has been/will be submit-

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

QLCI – CI: Institute for Quantum Computing and Control (IQC2) at MSU: This is a Challenge Institute (CI) proposal to the QLCI program. The Institute for Quantum Computing and Control at Michigan State University will work to deliver disruptive experimental, theoretical and algorithmic advances in noisy quantum information science systems and help to develop and deliver the next-generation US quantum workforce. THIS IS THE PROPOSED PROJECT.

PI: A.K. Wilson (MSU)

Source of Support: NSF

Total Award Amount: $25,000,000.00 Total Award Period Covered: 8/1/2020 – 7/31/2025

Location of Project: Michigan State University

Person-Months Per Year Committed to the Project. 0.0 Cal: 0.00 Acad: 0.00 Sumr: 0.00

Support: ☒ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: Ab-Initio Nuclear Theory: From Nuclei to Neutron Stars

This project aims at developing and applying complementary manybody methods to a wide variety of nuclear systems, ranging from stable closed-shell nuclei and homogenous dense nuclear matter to exotic loosely-bound neutron and proton rich nuclei far from shell closures. The proposed research will be built around thoroughly modern ab initio many-body methods such as coupled cluster theory and the in-medium similarity renormalization group.

PI: Bogner and Hjorth-Jensen

Source of Support:. National Science Foundation

Total Award Amount $600,000 Total Award Period Covered: 8/1/17 – 7/31/20

Location of Project: Michigan State University

Person-Months Per Year Committed to the Project. 0.12 Cal: 0.00 Acad: 0.00 Sumr: 0.00

Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title: From Quarks to Stars; A Quantum Computing Approach to the Nuclear

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.

PI: Hjorth-Jensen

Source of Support: Department of Energy

Total Award Amount: $1,000,000 Total Award Period Covered: 2020-2023

Location of Project: Michigan State University

Person-Months Per Year Committed to the Project. 0.12 Cal: 0.00 Acad: 0.00 Sumr: 0.0

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support

Project/Proposal Title:

PI:

Source of Support:

Total Award Amount: Total Award Period Covered:

Location of Project:

Person-Months Per Year Committed to the Project. 0.0 Cal:0.00 Acad: 0.00 Sumr: 0.0

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*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.