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To whom it may concern,
I am writing this letter to strongly support the **application** of Lars Sivertsen to the **QCBC23** at Jefferson Lab. It would also be very helpful to have **full financial support** from the program enabling his participation.

Lars has been my graduate student since 2020. He was one of the top students in his class when he started working with me. Interestingly, he already had a good background in nuclear astrophysics which allowed us to write a paper in a short amount of time on the topic of quarkyonic matter and the corresponding nuclear equation of state. He is very skilled in coding and his coding skills were crucial in our ability to move through this project swiftly. The paper was published in the Astrophysical Journal.

For our next project we worked on axion clumps in the background of a magnetic field and how time dependent magnetic fields can affect decay of axion condensates. Lars derived the equations of motion and then solved them analytically and numerically. He then coded up the ensuing time evolution of the axion clump in python. This resulted in another paper titled "Electromagnetic radiation from axion condensates in a time dependent magnetic field" which was published in the Journal of High Energy Physics (JHEP).

This project was followed by another project on axion clumps where we used energy conservation to understand the backreaction of electromagnetic fields on axion decay. By the time we began this project. Lars had already become very well versed with the axion clump literature and he was able to perform this calculation while keeping track of what was already accomplished in the literature. This resulted in another JHEP paper titled 'Energy conservation and axion back-reaction in a magnetic field'.

Lars has already taken an introductory quantum computing course at Iowa State University with Prof Thomas Iadecola, who is a condensed matter theorist working in the field of quantum information. This course exposed Lars to quantum computing problems relevant for condensed matter physics.
Currently, Lars, I and Tom Iadecola are involved in projects where we are trying to understand connections of Floquet topological insulators and discrete time lattice field theory. Lars has been pivotal to the development of this project and has helped clear several of my conceptual confusions regarding lattice models.

Lars is curious and energetic. He has great coding skills, and he is growing into a mature physicist. Participation at this program (QCBC) will greatly broaden his horizons and expose him to nuclear physics problems relevant to quantum computing.
Therefore, I extend my strongest support to his application as well as for full financial support.

Sincerely,
Srimoyee Sen