

# Hamiltonian Formulations of Lattice Gauge Theories, with an eye towards Quantum Simulation\*

*Monday 30 May 2022 10:00 (1 hour)*

There are many fundamental questions in particle and nuclear physics that cannot be addressed via classical computing techniques. These include the equation of state for finite density nuclear matter, real-time dynamics of quantum field theories from first-principles and non-perturbative aspects of chiral gauge theories. In recent years quantum computing hardware has seen dramatic advancements, which have brought with them the possibility to apply quantum computing to these and other open problems in high energy physics. In this talk, after a brief introduction to quantum computing, I will discuss my recent work towards the quantum simulation of lower-dimensional lattice gauge theories, focusing on the interplay between Gauss' law, gauge redundancies and (un)favourable resource scaling.

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