

Scott Lawrence – HEP Seminar 11/12/2019
Maryland

Title: From Qubits to Quarks: Parton Physics on a Quantum Computer

Abstract: Quantum computers provide a unique way of computing real-time correlators from first principles, a task not yet achievable on classical computers due to the sign problem. The determination of the hadronic tensor on the Euclidean lattice is obstructed by the difficulty of converting Euclidean correlators to real-time correlators. This is a match made in heaven: a lattice field theory simulation on a quantum computer may provide access to PDFs. In this talk we discuss the way in which a quantum computer may naturally solve this problem, outline recent progress on simulating field theories on a quantum computer, and detail the resources needed to perform such a calculation.