



Contribution ID: 256

Type: Talk

Symmetries of the Loop-string-hadron Framework: Towards Quantum Simulating Gauge Theories

Monday, 29 July 2024 15:55 (20 minutes)

Reformulating the Hamiltonian formulation of non-Abelian lattice gauge theories entirely in terms of gauge invariant loop-string-hadron degrees of freedom provides a set of advantages for simulating the theory on quantum hardware and in turn is expected to address a series of physics quests. The framework is manifestly (non-Abelian) gauge invariant, yet possesses a set of remnant Abelian gauge symmetries along with its global symmetry properties. In this talk, we describe all the symmetries of this framework and discuss the advantages/ challenges of the symmetry structure being present/preserved in a Hamiltonian simulation towards understanding real-time dynamics of non-Abelian gauge theories.

Primary author: RAYCHOWDHURY, Indrakshi (Department of Physics, BITS Pilani, KK Birla Goa Campus)

Co-authors: Mr MATHEW, Emil (BITS Pilani, KK Birla Goa Campus); Dr KADAM, Saurabh (IQUS, University of Washington)

Presenter: RAYCHOWDHURY, Indrakshi (Department of Physics, BITS Pilani, KK Birla Goa Campus)

Session Classification: Quantum computing and quantum information

Track Classification: Quantum Computing and Quantum Information