Contribution ID: **205** Type: **Poster**

BBGKY hierarchy for quantum error mitigation

Tuesday, 30 July 2024 18:15 (1 hour)

The confinement/deconfinement phase transition of QCD at finite densities is still numerically inaccessible by classical computations. The exponential speedup of quantum computers could avoid this issue, but their current physical implementations are subjected to quantum noise. In my poster, I will present a novel quantum error mitigation scheme based on the BBGKY hierarchy, applicable to any arbitrary digital quantum simulation. The idea is to improve zero-noise extrapolations through additional constraints coming from the BBGKY dynamical equations of the digital spin system. Our preliminary results show that on average the mitigation scheme improves the quality of the (1+1)-Schwinger model measurements, therefore encouraging us to study more realistic models.

Primary author: Mr SAPORITI, Theo (Université Paris-Saclay / CEA)

Co-authors: TAMAAZOUSTI, Mohamed (University Paris-Saclay, CEA, List); KAIKOV, Oleg (University Paris-Saclay, CEA-List); SAZONOV, Vasily (University Paris-Saclay, CEA, List)

Presenter: Mr SAPORITI, Theo (Université Paris-Saclay / CEA)

Session Classification: Poster session and reception

Track Classification: Quantum Computing and Quantum Information