Contribution ID: **36** Type: **not specified**

Interacting Bosons at Finite Angular Momentum Via Complex Langevin

Friday, July 27, 2018 3:20 PM (20 minutes)

Quantum field theories with a complex action suffer from a sign problem in stochastic non-perturbative treatments, making many systems of great interest - such as polarized or mass-imbalanced fermions and QCD at finite baryon density - extremely challenging to treat numerically. Another such system is that of bosons at finite angular momentum; experimentalists have successfully achieved vortex formation in supercooled bosonic atoms, and have measured quantities of interest such as the moment of inertia. However, the rotation results in a complex action, making the usual numerical treatments of the theory unusable. In this work, we use complex stochastic quantization, a method that has gained much attention in lattice QCD, to calculate basic properties of interacting bosons at finite angular momentum.

Primary author: Ms BERGER, Casey (University of North Carolina at Chapel Hill)

Co-author: Prof. DRUT, Joaquin (University of North Carolina at Chapel Hill)

Presenter: Ms BERGER, Casey (University of North Carolina at Chapel Hill)

Session Classification: Theoretical Developments

Track Classification: Theoretical Developments