

ID: Plenary IV

Title: Recent Advances in Quantum Monte Carlo for Nuclei and Cold Atoms

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I will present recent physics advances in applying Quantum Monte Carlo in nuclear physics and related fields, including cold atom physics. Quantum Monte Carlo techniques have been used to study the properties of the lightest nuclei, including their decays and reactions. More recently they are also being used to study the properties of homogeneous and inhomogeneous neutron-rich matter as exists in neutron stars. Analogous fermionic cold-atom systems have also been investigated, for which direct comparisons with experiment are possible. Verifying the methods allows us to reliably predict the properties of the neutron star crust, and move toward a better understanding of the most neutron-rich elements created in astrophysical environments.