

Abstract for an Invited Paper  
for the DNP11 Meeting of  
The American Physical Society

**New Applications of Renormalization Group Methods in Nuclear Physics**

KAI HEBELER, The Ohio State University

Renewed interest in the physics of nuclei is stimulated by experiments at rare isotope facilities, which open the way to new regions of exotic nuclei, and by astrophysical observations and simulations of neutron stars and supernovae, which require controlled constraints on the equation of state of nucleonic matter. The use of Renormalization Group methods to lower the characteristic resolution of inter-nucleon interactions is opening new avenues for calculations of low-energy nuclear structure and reactions. In this presentation I will give an overview over recent developments and discuss various results for the nuclear equation of state and the consequences for the structure of neutron stars, short-range correlations and the role of many-body forces in nuclear systems.