Abstract Submitted for the OSS13 Meeting of The American Physical Society

Neutron matter based on consistently evolved chiral threenucleon interactions<sup>1</sup> R.J. FURNSTAHL, K. HEBELER, Ohio State U. — We present the first results for the neutron matter equation of state (EOS) using nucleonnucleon and three-nucleon chiral effective field theory interactions that are consistently evolved in the framework of the Similarity Renormalization Group (SRG). The dependence of the EOS on the SRG resolution scale is greatly reduced when induced three-nucleon forces (3NF) are included and the residual variation, which in part is from missing induced four-body interactions, is comparable to estimated many-body perturbation theory truncation errors. The relative growth with decreasing resolution of the 3NF contributions to the energy per neutron is of natural size, but it accelerates at the lowest resolutions where strong renormalization of the long-range 3NF matrix elements is also observed.

<sup>1</sup>Supported in part by the NSF and the DOE SciDAC-3 NUCLEI project.

Richard Furnstahl The Ohio State University

Date submitted: 25 Feb 2013

Electronic form version 1.4