Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Our recent progress in microscopic calculations of the equation of state[1] FRANCESCA SAMMARRUCA, PEI LIU, University of Idaho — We are involved with a broad spectrum of studies aimed at improving our knowledge of nuclear matter, including its states far from equilibrium. Our "ab initio" approach is microscopic and relativistic, with the calculated nuclear matter properties being derived self- consistently from realistic nuclear forces. The isovector features of the equation of state, in particular, are still poorly understood. They have relevance for the physics of rare, short-lived nuclei and, on a dramatically different scale, the physics of neutron stars. In both cases, the crucial role is played by the symmetry energy, which determines the formation of the neutron skin in neutron-rich nuclei and the radius of a neutron star, a system 18 orders of magnitudes larger and 55 orders of magnitude heavier. We will report on our progress, which includes predictions of the energy per particle in hyperonic matter and, most recently, the effect of temperature on the single-particle properties.

[1]Support from the U.S. Department of Energy is acknowledged.

Francesca Sammarruca
University of Idaho

Date submitted: 06 Jul 2009 Electronic form version 1.4