Abstract Submitted
for the APR13 Meeting of
The American Physical Society

The NDL Equation of State for Neutron Star and Supernova Simulations MATTHEW A. MEIXNER, J. POCAHONTAS OLSON, GRANT J. MATHEWS, University of Notre Dame, N.Q. LAN, Hanoi National University of Education, H.E. DALHED, Lawrence Livermore National Laboratory — Astrophysical observations are showing remarkable convergence with laboratory measurements of nuclear properties of neutron matter near saturation density ($\rho_B \sim 2.6 \times 10^{14}$ g/cm^3). This talk will discuss a new nuclear equation of state, the Notre Dame Livermore EoS (NDL EoS), which is robust enough in the ranges of density (ρ_B = 1 - 10^{16} g/cm^3, temperature (T = 0 - 175 MeV) and electron fraction (Y_e = 0 - 0.7) for use in current neutron star and supernova simulations. We will contrast the thermodynamic properties and nuclear abundances with modern implementations of the nuclear EoS based on RMF theory and the liquid drop model.

Matthew Meixner
University of Notre Dame

Date submitted: 14 Jan 2013 Electronic form version 1.4