Contribution ID: **4**                                                    Type: **not specified**

# Relativistic EOS for Supernova Simulations

*Thursday, 3 November 2011 10:00 (30 minutes)*

We construct the relativistic equation of state (EOS) of dense matter
covering a wide range of temperature, proton fraction, and density
for the use of core-collapse supernova simulations.
The study is based on the relativistic mean-field (RMF) theory,
which can provide an excellent description of nuclear matter and
finite nuclei. The Thomas-Fermi approximation is adopted to describe
the non-uniform matter, which is composed of a lattice of heavy nuclei. We present two types of results. The
first one takes into account only the nucleon degree of freedom, while the second one considers additional
contributions from Lambda hyperons. We tabulate the resulting EOS with an improved design of ranges and
grids.

**Primary author:**   Prof. SHEN, Hong (Nankai University)

**Presenter:**   Prof. SHEN, Hong (Nankai University)