A New Open-Source Nuclear Equation of State Framework based on the Liquid-Drop Model with Skyrme Interaction

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Code to construct EOS of hot dense matter for astrophysical applications. Based on the work of Lattimer and Swesty [*Nucl. Phys. A* **535** 331 (1991).]

1. Works with most Skyrme parametrizations.
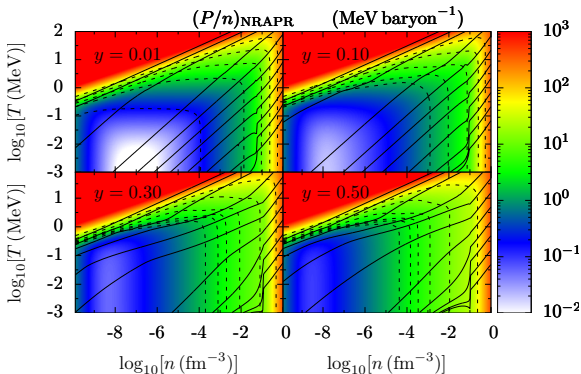
2. SNA or NSE for $n \lesssim 10^{-3}\,\mathrm{fm}^{-3}$.

3. Modify parametrization for $n \gtrsim 3n_0$.
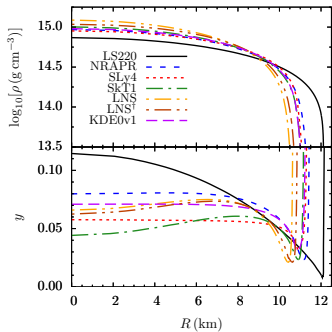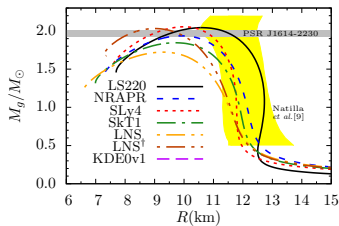
The code converges for

1. $10^{-4}\,\mathrm{MeV} \lesssim T \lesssim 10^{2.5}\,\mathrm{MeV}$;

2. $10^{-3} \lesssim y \lesssim 0.70$;

3. $10^{-13}\,\mathrm{fm}^{-3} \lesssim n \lesssim 10\,\mathrm{fm}^{-3}$.

NS structure

Core-collapse of $15 M_\odot$ star.