# 実験室と超新星/中性子星物質を核物質状態方程式(EOS)でつなぎたい

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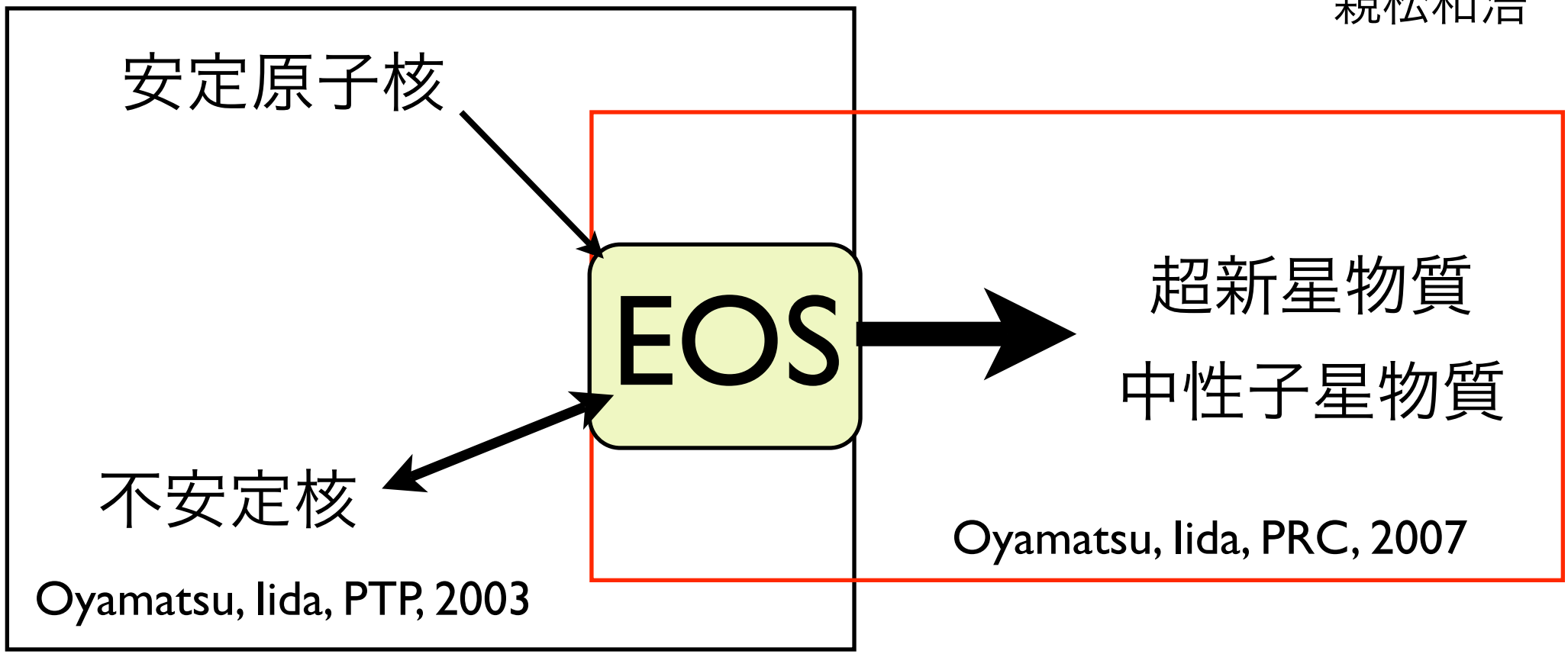


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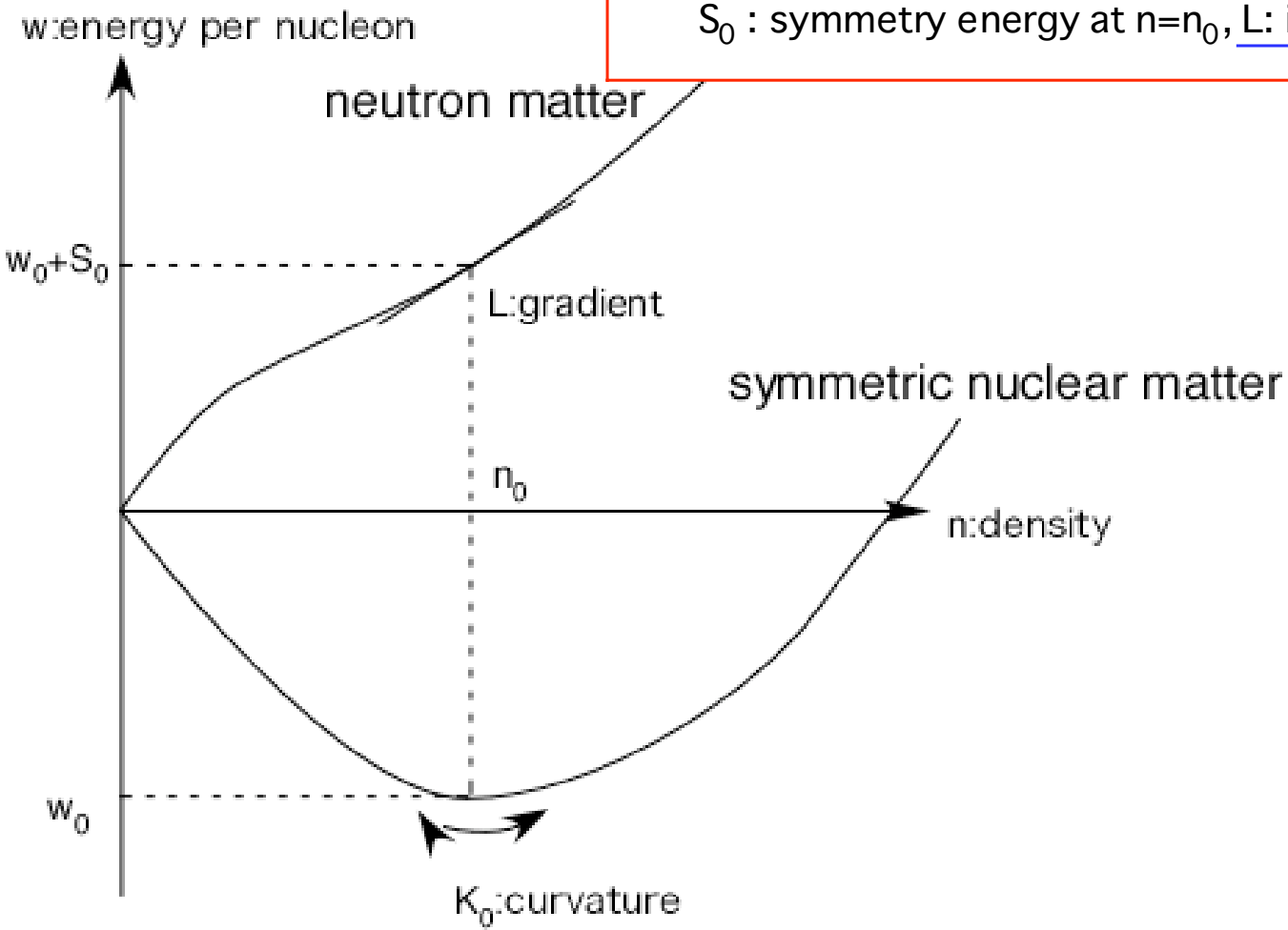
# Which EOS parameter dominates macroscopic properties of neutron-rich nuclei in laboratory and in neutron-star crusts?

Energy per nucleon of nearly symmetric nuclear matter

$$w(n,x) \approx w_0 + \frac{K_0}{18 n_0^2}(n-n_0)^2 + (1-2x)^2\left[S_0 + \frac{L}{3n_0}(n-n_0)\right]$$

$n_0$ : nuclear density, $w_0$ :saturation energy, $K_0$ : incompressibility

$S_0$ : symmetry energy at $n=n_0$, L: its density derivative coefficient



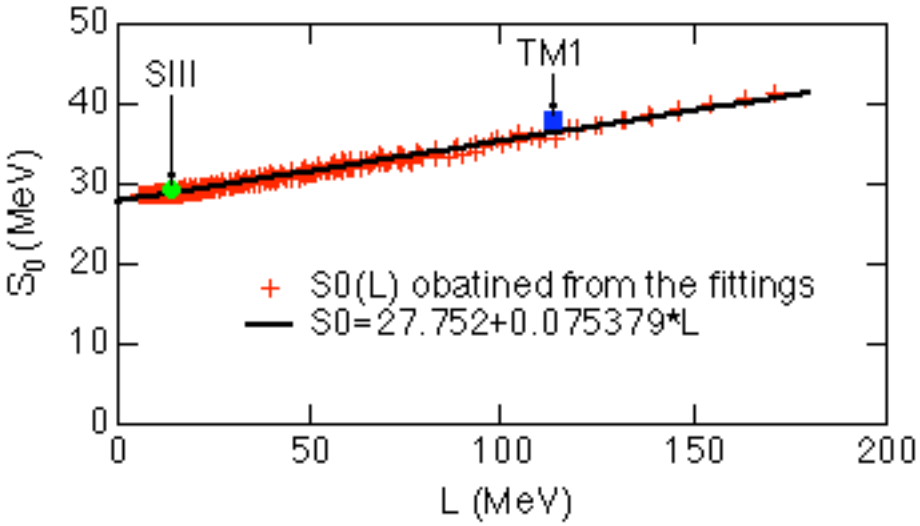

$$L = 3n_0 \left.\frac{dS(n)}{dn}\right|_{n=n_0}$$

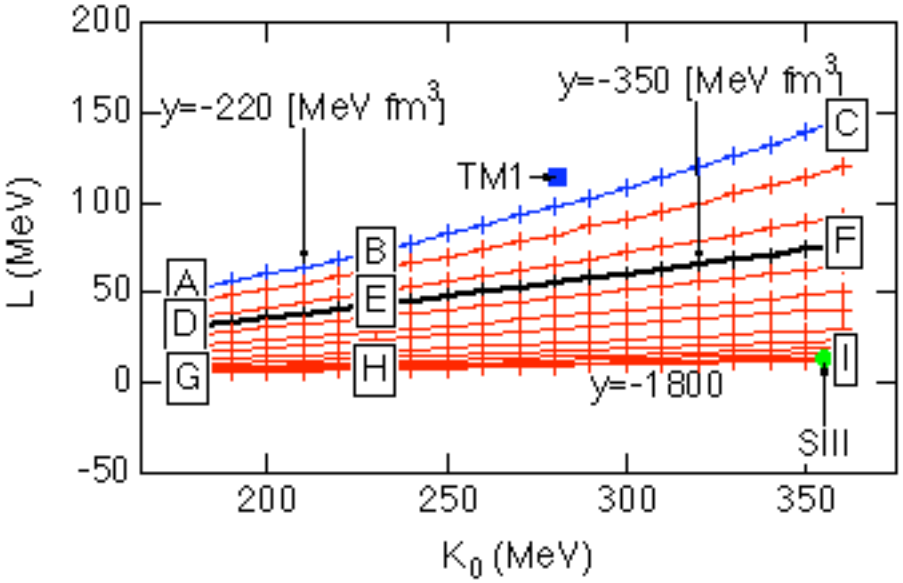
$$S_0 = S(n_0)$$

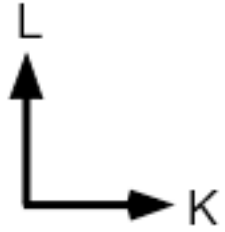
EOS parameter values obtained from stable nuclei

$S_0$:symmetry energy

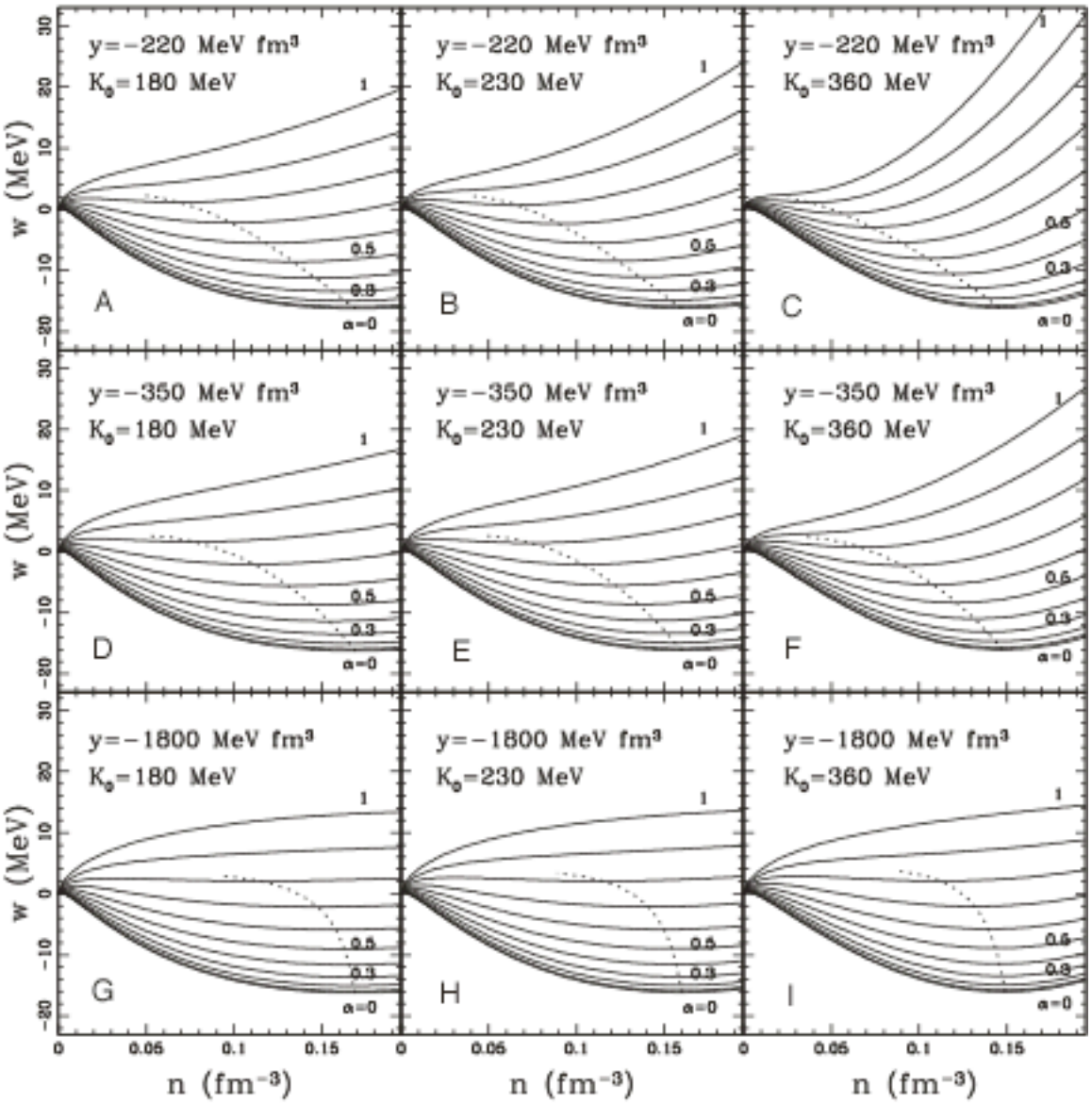
L : density symmetry coefficient




9 representative EOS A-I



# Equation of state of nuclear matter and nuclei in laboratories and in neutron-star crusts

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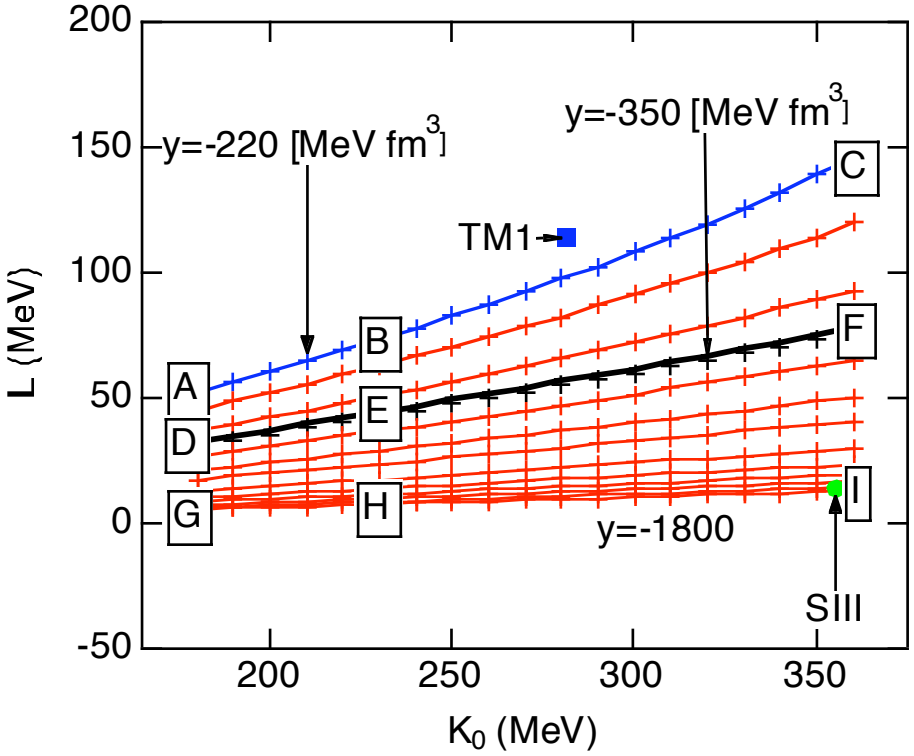
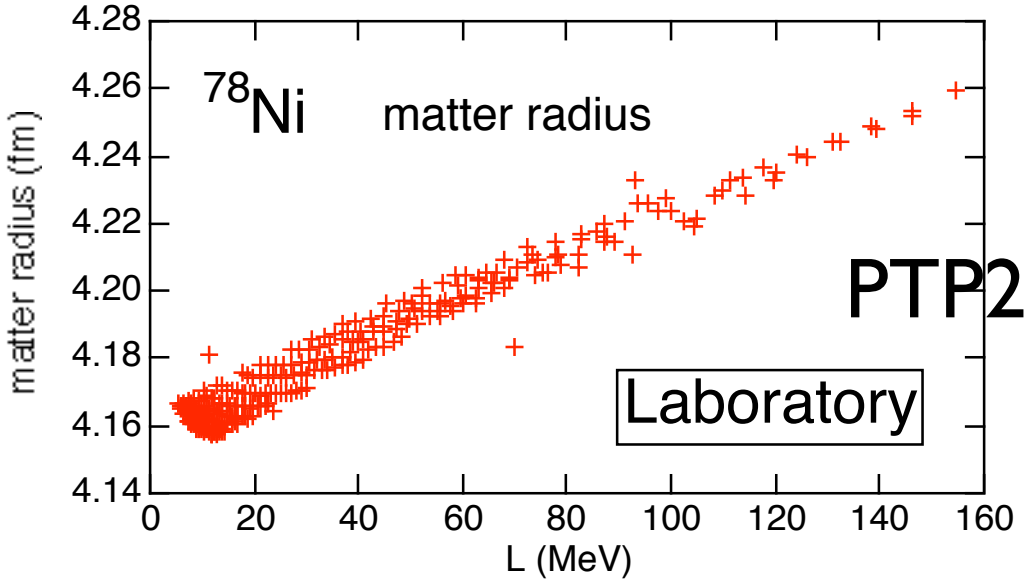
L : density-derivative coefficient of symmetry energy

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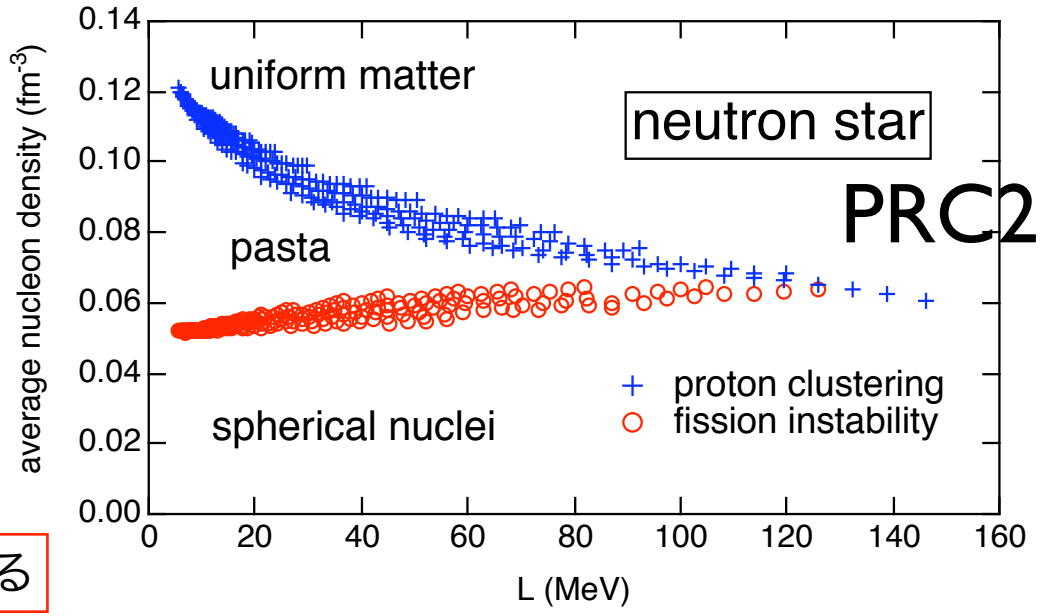


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