

How sensitive is the radius to the crust EOS?

Constança Providência

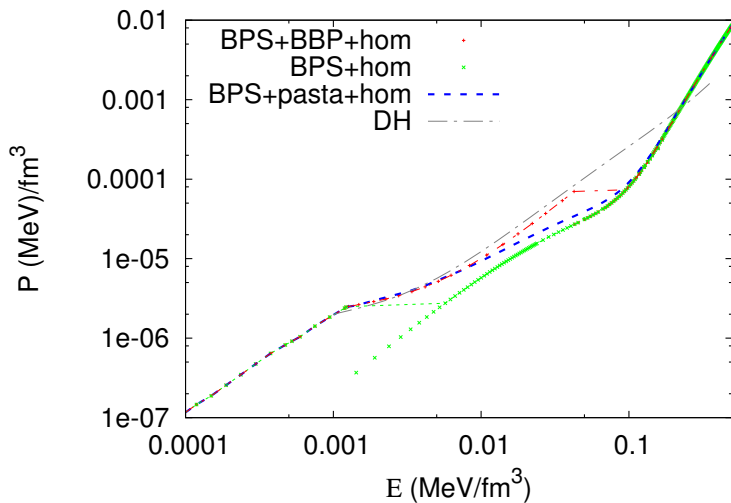
Centro de Física Computacional
Universidade de Coimbra, Portugal

NewCompStar, WG2, 2014

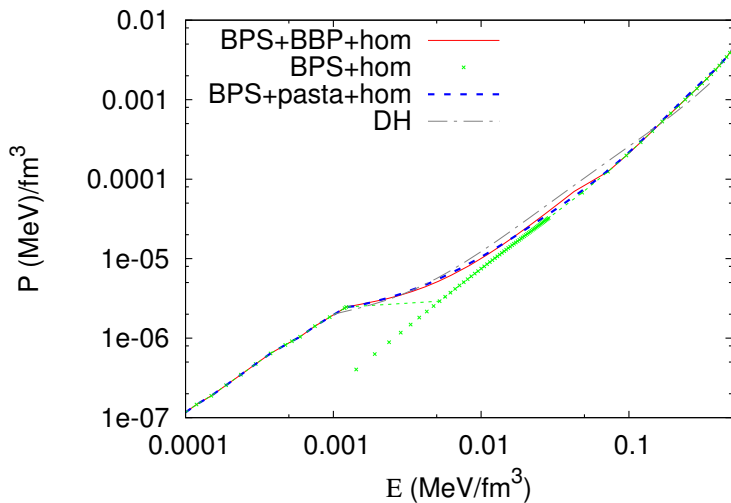
EOS of the crust

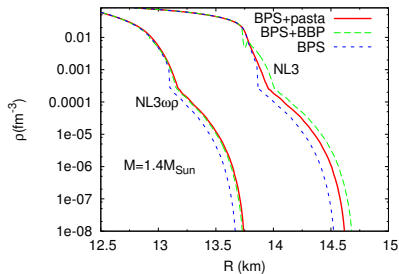
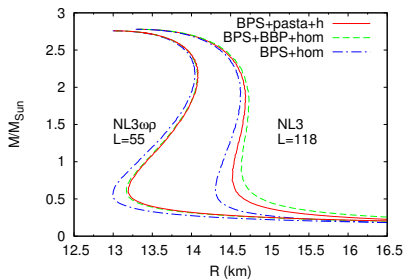
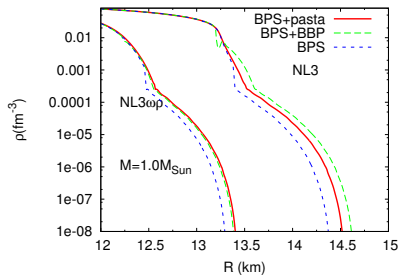
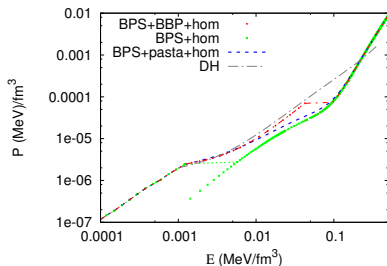
- ▶ Outer crust: densities below neutron drip $\rho \lesssim 10^{-4} \text{ fm}^{-3}$
 - ▶ Baym-Pethick-Sutherland (BPS) (1971)
 - ▶ Haensel & Pichon (1994)
 - ▶ Ruester, Hempel, Schaffner-Bielich (2006)
- ▶ Inner crust: from neutron drip to crust-core transition
 - ▶ Baym-Bethe-Pethick (CLDM) 1971
 - ▶ Negele-Vautherin (HF) 1973
 - ▶ Douchin & Haensel (CLDM) 2001
 - ▶ Crust-core transition density (Ducoin et al 2011)
 - ▶ Inner crust EOS within TF (Grill et al 2014)
NL3, TM1, FU, IUFSU, DDME2, DDH δ , NL3 $\omega\rho$
- ▶ Which construction is generally used?
 - ▶ Glendenning: (*Compact stars* 2000)
BPS + BBP + homogeneous above $\rho = 0.01 \text{ fm}^{-3}$
- ▶ Does the radius of NS depend on the crust EOS?

NL3 - L=118 MeV



NL3 $\omega\rho$ - L=55



NL3, NL3 $\omega\rho$ 

FSU, IUFSU

