

Erratum: Unified equations of state for cold non-accreting neutron stars with Brussels-Montreal functionals. I. Role of symmetry energy

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Accepted XXX. Received YYY; in original form ZZZ

Key words: errata – addenda – stars: neutron – equation of state – dense matter

This is a correction notice for ‘Unified equations of state for cold non-accreting neutron stars with Brussels-Montreal functionals. I. Role of symmetry energy’ (DOI: <https://doi.org/10.1093/mnras/sty2413>), which was published in MNRAS 481, 2994–3026 (2018). We regret to inform that a computing error in the inner-crust code for functionals BSk24 and BSk25 came to our attention after publication. The correction of this error leads to the proton drip point (Table 12) being shifted from $\bar{n}_{\text{pd}} = 0.0692 \text{ fm}^{-3}$ to $\bar{n}_{\text{pd}} = 0.073 \text{ fm}^{-3}$ for functional BSk24 and from 0.077 fm^{-3} to 0.081 fm^{-3} for functional BSk25. The tables appearing as supplementary material have been appropriately modified. The functionals BSk22 and BSk26 were calculated correctly, but *all* the tables appearing as supplementary material have been corrected for errors in formatting.

The main feature of the correction is for a new magic number at $Z = 138$ to appear just below proton drip in the case of functional BSk25, in the density range from 0.077 fm^{-3} to 0.081 fm^{-3} . Some related quantities, such as the numbers of free and clustered protons and neutrons in a Wigner-Seitz cell, have changed accordingly, while the changes in the numerical values of some other quantities, for example pressure, energy density, and proton number *fraction*, are negligibly small. The analytic fitting formulae described in Appendix C remain unchanged, with the new residuals of the same order of magnitude as originally. Although the numerical values of some of the fitted quantities have changed in the density ranges between the old and new values of the proton-drip densities, the fitting formulae reproduce these changes after the above-mentioned tabular values of the proton drip densities and Z have been fixed (the Fortran code that implements the fits, which is avail-

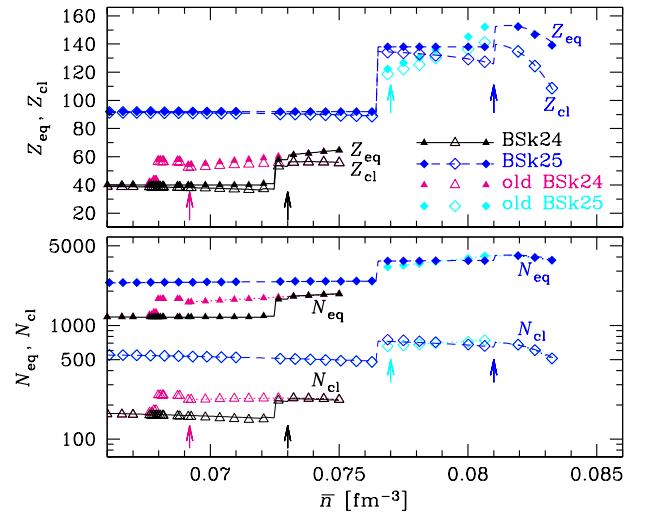


Figure 1. (Color online.) Upper panel: Equilibrium values Z_{eq} of number of protons in a Wigner-Seitz cell in the inner crust (solid symbols) and Z_{cl} , the cluster component of Z_{eq} (open symbols), as functions of mean baryon density \bar{n} for functionals BSk24 and BSk25. The arrows indicate the proton-drip densities \bar{n}_{pd} . Old and corrected data are coded according to the legend. Lower panel: The same for the neutron numbers N_{eq} and N_{cl} . The curves represent the fit with the corrected input values of \bar{n}_{pd} and Z_{eq} .

able at <http://www.ioffe.ru/astro/NSG/BSk/>, has been updated accordingly). The figure illustrates the changes in the equilibrium values of the proton and neutron numbers in a Wigner-Seitz cell and in a cluster.

This paper has been typeset from a T_EX/L^AT_EX file prepared by the author.

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