

EPJ Web of Conferences **31**, 00018 (2012)

DOI: 10.1051/epjconf/20123100018

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# Fragmentation and clustering in star matter

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## Abstract

The specificity of the crust-core phase transition in neutron star at zero and finite temperature will be discussed. It will be shown that, as a consequence of the presence of long range Coulomb interactions, the equivalence of statistical ensembles is violated and a clustered phase is expected which is not accessible in the grandcanonical ensemble. A specific analytical Nuclear Statistical Equilibrium model will be presented and some new quantitative results relevant for the supernova dynamics will be shown. Finally, the analogies and differences with the phenomenon of nuclear fragmentation will be highlighted.

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