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Thermodynamics of the crust-core transition in (proto)neutron stars

Some selected aspects of the crust-core transition in star matter at zero and finite temperature will be reviewed. In particular, the relevance of clusterised matter will be demonstrated and connexions with the nuclear multifragmentation problem presented.

New results on the equations of state in different thermodynamical conditions relevant to the proto-neutron star evolution will be presented and critically compared to the existing literature. Covered subjects will include the nature and characteristics of the phase transition, the relevance of cluster distributions and its connection with the neutrino opacity, the importance of the effective nuclear interaction.