

Seminarium Astrofizyczne
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Hoża 69 Pawilon; sala 22

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Properties of nuclei and neutron stars observations

Nuclei are present in the crust of neutron star at densities up to 10^{14} g cm⁻³. The crust of a neutron star contributes only about one percent to the stellar mass but it is essential for many astrophysical phenomena, such as pulsar glitches and X-ray bursts.

I will discuss the possibility of testing some basic properties of nuclear model (as shell effects) by the observations of neutron stars in binary systems - soft X-ray transients (SXTXs) in quiescence. The main process influencing the quiescent emission of the X-ray transients is deep crustal heating. I will present new model of the deep crustal heating based on the extended Thomas-Fermi method used for the calculation of the properties of neutron star crust. The location of the energy sources in the crust and the energy release due to non-equilibrium reactions are main parameters determining the cooling of the neutron star in the accreting system in quiescent phase.

Serdecznie zapraszam,
Agnieszka Majczyna