Contribution ID : **25** Type : **not specified**

Neutron transfer reactions in accreting neutron stars

I discuss a novel type of nuclear reactions in accreting neutron stars - neutron transfer, which is quantum tunneling of weakly bounded neutron from one nucleus to another. The rate of this process is estimated for fixed nuclei separation and then averaged over realistic distribution of nuclei to get the rate value for astrophysical conditions. It is shown that the neutron transfer can modify reaction chains in accreting neutron stars and affects their heating and cooling. In particular, it can suppress cooling by URCA pairs of nuclei, which is supposed to be crucial for the hottest neutron stars.

Primary author(s) : Dr CHUGUNOV, Andrei (Ioffe Institute)

Presenter(s) : Dr CHUGUNOV, Andrei (Ioffe Institute)