

The Structure and Signals of Neutron Stars, from Birth to Death



Contribution ID: 62

Type: **not specified**

PROPERTIES OF LOCALIZED PROTONS IN NEUTRON STAR MATTER AT FINITE TEMPERATURES

Tuesday 25 March 2014 18:00 (15 minutes)

We study properties of the proton component of neutron star matter for a number of realistic nuclear models. Vanishing of the nuclear symmetry energy implies proton-neutron separation in dense nuclear matter. Protons which form admixture tend to be localized in potential wells. Here we extend the description of proton localization to finite temperatures. It appears that the protons are still localized at temperatures typical for hot neutron stars. That fact has important astrophysical consequences. Moreover, the temperature inclusion leads to unexpected results for the behaviour of the proton localized state.

Author: Dr SZMAGLIŃSKI, Adam (Institute of Physics, Cracow University of Technology)

Co-authors: Dr KUBIS, Sebastian (Institute of Physics, Cracow University of Technology); Prof. WÓJCIK, Włodzimierz (Institute of Physics, Cracow University of Technology)

Presenter: Dr SZMAGLIŃSKI, Adam (Institute of Physics, Cracow University of Technology)

Session Classification: Evening session - Parallel B