



Contribution ID: 75

Type: **not specified**

Transport coefficients of nuclear matter in neutron star cores in the BHF framework

Tuesday 25 March 2014 14:30 (20 minutes)

We calculate shear viscosity and thermal conductivity of dense asymmetric nuclear matter in the neutron star cores. Nuclear interaction is treated in the framework of non-relativistic Brueckner-Hartree-Fock formalism. The full Argonne v18 potential with addition of the Urbana IX effective three-body forces is used. In general, in-medium effects at two-body level lead to increase of the transport coefficients mainly due to decrease of the carriers' effective masses. However, we found that use of the Urbana IX three-body force leads to decrease in the kinetic coefficients with the respect to two-body case. The results of our calculations [1] are compared with the electron and muon transport coefficients and with results of other authors.

[1] P.S. Shternin, M. Baldo, and P.Haensel, PRC, 88, 065803 (2013)

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Session Classification: Afternoon session - Parallel A