Contribution ID: **56** Type: **not specified**

Polarization effects in neutrino pairs production by electrons (positrons) in hot stellar magnetic fields

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present the analytic formula for the differential probability of the neutrino pairs emission by electrons (positrons) in hot stellar magnetic fields with allowance for the longitudinal polarizations of the initial and final electrons (positrons). It is shown that the differential probabilities of the considered processes are sensitive to the spin variable of the initial and final electrons (positrons) and to the direction of the emitted neutrino pairs momenta. We also investigate the energy loss by electrons (positrons) having the different polarization states by means of neutrino pairs emission in hot stellar magnetic fields with allowance for the longitudinal polarizations of the initial and final electrons (positrons). In general, the gas consisting of only the electrons (positrons) having a left-hand circular polarization and the gas consisting of only the electrons (positrons) having a right-hand circular polarization are cooled at the expense of neutrino pairs emission by the electrons (positrons) in hot stellar magnetic fields asymmetrically. In the cooling process of the electron (positron) gas at the expense of neutrino pairs emission by the electrons (positrons) in hot stellar magnetic fields the dominant role belongs to the electron neutrino pairs emission process compared with the contribution of the muon (tauon) neutrino pairs emission process. The asymmetry of the cooling in the process of electron neutrino pairs emission by electrons is 8 times more than that one in the process of muon neutrino pairs emission by electrons or in the process of tauon neutrino pairs emission by electrons. The asymmetry of cooling in the process of electron neutrino pairs emission by positrons is 4 times more than that one in the process of muon neutrino pairs emission by positrons or in the process of tauon neutrino pairs emission by positrons.

Authors: Dr GASIMOVA, Rasmiyya (Nakhchivan State University); Dr HUSEYNOV (GUSEINOV), Vali (Nakhchivan State University; Nakhchivan Depatrment of Azerbaijan National Academy of Sciences)

Co-author: Ms SHUKUROVA, Yagut (Nakhchivan State University)

Presenter: Dr GASIMOVA, Rasmiyya (Nakhchivan State University)

Session Classification: Poster Session

Track Classification: Poster Session