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Properties of Leptons in Hot and Dense Medium SAMINA MASOOD, University of Houston Clear Lake — We show that the particles propagating in superdense stars like neutron stars and supernova are significantly modified in the presence of their chemical potential and extremely high magnetic field. However, the magnetic dipole moment of electron and the corresponding neutrino flavor is not important in the early universe because of the weak magnetic field and low mass density. We calculate the effective mass, charge, magnetic moment and other properties of electrons inside the astronomical systems, based on the statistical conditions of those systems. We show that the properties of heavier leptons are more significantly modified in highly dense media and their study is more relevant to the astronomical objects.

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