

Abstract Submitted
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Total Pair Production Rate for Electron Neutrinos in Magnetic Fields¹ B. JORDAN RUSSELL, TODD TINSLEY, Hendrix College — We present a calculation for the total production rate for electron-positron pairs using electron-type neutrinos in an intense magnetic field. This production rate is significant to a number of astrophysical phenomena exhibiting strong magnetic fields and a sensitivity to neutrino transport, including magnetars and some varieties of supernovae. Because electron-type neutrino flux is considerably higher in supernovae events and it participates in both charged and neutral-current reactions, its contribution to the total production rate is of particular interest. We compare this to a previous calculation involving muon and tau-type neutrinos.

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