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Total production rate for neutrino-induced pair creation in a magnetic field LAURA JOHNSON, Hendrix College — The role of magnetic fields on neutrino interactions can be very important in astrophysical environments where enormous field strengths exist and objects are sensitive to neutrino transport. One such interaction is the production of electron- positron pairs through the process $\nu \rightarrow \nu e \bar{e}$ in a strong background magnetic field. In addition to the usual integration over final momenta, the total pair-production rate involves a summation over all possible Landau levels associated with the electron and positron. The number of Landau states grows rapidly with increased magnetic field and increased energy which poses significant computational challenges. This talk will identify the difficulties associated with summing the total pair-production rate, the dominant terms contributing to the total rate, and will present methods of approximating the sum.

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