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Magnus approximation in Neutrino Oscillations

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Abstract content

Oscillations between active and sterile neutrinos remain as an open possibility to explain some anomalous experimental observations. In a four-neutrino (three active plus one sterile) mixing scheme, we use the Magnus expansion of the evolution operator to study the evolution of neutrino flavor amplitudes within the Earth. We apply this formalism to calculate the transition probabilities from active to sterile neutrinos with energies of the order of GeV, taking into account the matter effect for a varying terrestrial density.

Summary

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