

Abstract

In this project, the main idea is to study the phenomenon of neutrino oscillations in flat & curved space-times and to reach to a common standard way to explain the flavour-oscillation probability. Here, calculation of the oscillation probability in plane-wave and wave-packet with assumptions like “same energy” & “same momentum” is done. Also the S-matrix formalism, importance of quantum-mechanical uncertainty relations, dependence of the sizes of production & detection regions, coherence and kinetic entanglement are discussed regarding neutrino oscillations.