

CP VIOLATION IN NEUTRINO OSCILLATIONS FROM EC/Beta+ DECAYING ION BEAMS

The next generation of long baseline neutrino oscillation experiments will aim at determining the unknown mixing angle θ_{13} , the type of neutrino mass hierarchy and CP-violation. We discuss the separation of these properties by means of the energy dependence of the oscillation probability and we consider an hybrid setup which combines the electron capture and the beta+ decay from the same radioactive proton-rich ion with the same boost. We study the sensitivity to the mixing angle and the CP-phase, the CP discovery potential and the reach to determine the type of neutrino mass hierarchy. The analysis is performed for different boosts and baselines. We conclude that the combination of the two decay channels, with different neutrino energies, achieves remarkable results.

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