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The quest for leptonic CP violation

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Particle/Antiparticle asymmetry (CP violation) was discovered almost six decades ago in quark bound states. CP violation was the only experimental evidence of matter and antimatter behaving differently in the Standard Model of particle physics. The discovery of neutrino oscillations at the end of the last century opened the window for similar phenomena in leptons. It has taken the neutrino community almost two decades to be able to start the exploration of this phenomenon using neutrino oscillations. The race for leptonic CP violation has already started with the running experiments T2K and NOvA and will provide definitive results with the new generation of experiments, Hyper-Kamiokande and DUNE. I will discuss the fundamentals of CP violation in neutrinos, describe the experimental approaches and the main challenges faced by the experimental research community.

Scientific topic

Symmetries

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