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## Latest Neutrino Oscillation Results from T2K

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Neutrinos are Standard Model particles that lead us to many open questions. Very abundant but yet challenging to detect, they are a key towards physics beyond the Standard Model and they play a role in major questions about our Universe. In particular, the Dirac phase of CP symmetry violation ( $\delta_{CP}$ ) that parameterizes the asymmetry in flavor oscillation probabilities between neutrino and anti-neutrinos is one of the most studied parameters. If  $\sin(\delta_{CP})$  is non-zero, this would mean that neutrinos, and the leptonic sector in general, may participate in the unexplained matter/anti-matter asymmetry of the Universe via yet-to-be-discovered leptogenesis mechanisms.

The neutrino oscillation long baseline program in Japan is currently leading the sensitivity to CP violation in neutrino oscillations. More specifically, the Tokai to Kamioka (T2K) experiment measures muon neutrino disappearance and electron neutrino appearance in a 600 MeV accelerator beam of (anti-) neutrinos with a baseline of 295 km. Its sensitivity is based on a complex set of near detectors, both on- and off-axis, as well as an off-axis water Cherenkov far detector.

We will present here the analysis principle, with a focus on the far detector fit, and the latest accelerator neutrino oscillation results.

### Submitted on behalf of a Collaboration?

Yes

**Author:** MELLET, Lucile (LPNHE, Sorbonne Université (FRANCE))

**Presenter:** MELLET, Lucile (LPNHE, Sorbonne Université (FRANCE))

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