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Updated Results for the Search for $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ Oscillations from T2K in the 3-flavour Framework

Authorship annotation

For the T2K collaboration, on behalf of the VALOR group

Session and Location

Wednesday Session, Poster Wall #68 (Auditorium Gallery Right)

Abstract content

I report the results of a search for $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ oscillations at the T2K experiment in a 3-flavour framework using an exposure of 1.49 $\times 10^{21}$ Protons On Target (POT) in $\bar{\nu}$ mode and 1.12 $\times 10^{21}$ POT in $\bar{\nu}$ mode, an increase of 50% in the $\bar{\nu}$ exposure compared to results reported in 2016.

Results are reported for a joint analysis where candidate events are selected from the e-like events observed in $\bar{\nu}$ running mode, while four other far detector event samples are used with near-detector data to constrain the values of the oscillation and systematic parameters, including the mass-hierarchy, giving the best possible constraint on $\bar{\nu}_e$ appearance. Two hypotheses are tested, a) no $\bar{\nu}_e$ appearance and b) the best knowledge of the PMNS matrix, where both rate-only and rate+shape analyses are performed, producing p-values for each hypothesis.

Poster included in proceedings:

yes

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