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Poster Session – Submission of Abstract

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Title of the poster: The EUROnu Neutrino Oscillation Super Beam

Abstract:

In the framework of the EUROnu design study, a new design for the CERN to Fréjus neutrino beam based on CERN Superconducting Proton Linac has been achieved. This Super Beam is able to discover a CP violation in the leptonic sector over a significant fraction of δ_{CP} parameter by using a 4-MW proton beam of 4.5 GeV/c, a baseline of 130 km and the future Water Cherenkov MEMPHYS detector (0.5 Mton fiducial mass). The neutrino mass hierarchy can also be discovered by combining atmospheric neutrino data. After discovering that the last neutrino oscillation angle θ_{13} was large, it came out that working on the second oscillation maximum is even more promising. Thus, using the same parameters than for CERN to Fréjus, CERN to Canfranc with a baseline of 650 km has even more physics potentialities.

Summary:

CP violation and neutrino mass hierarchy, Neutrino super beam, CERN, SPL, MEMPHYS, EUROnu