

A new design for the CERN-Frejus neutrino Super Beam

Wednesday, 16 March 2011 19:47 (1 minute)

We present an optimization of the hadron focusing system for a low-energy high intensity conventional neutrino beam (Super-Beam) proposed on the basis of the HP-SPL at CERN with a beam power of 4 MW and an energy of 4.5 GeV.

The far detector would be a 440 kton Water Cherenkov detector (MEMPHYS) located at a baseline of 130 km in Fr'ejus site.

The neutrino fluxes simulation relies on a new GEANT4 based simulation coupled with an optimization algorithm based on the maximization of the sensitivity limit on the θ_{13} mixing angle.

A new configuration adopting a multiple horn system with solid targets is proposed which improves the sensitivity to θ_{13} and the CP violating phase δ_{CP} .

Presenter: LONGHIN, Andrea (INFN, Laboratori Nazionali di Frascati)

Session Classification: Poster session