



Poster session 4 – Friday 8 July

P4.026 Optimizing the θ_{23} octant search in long baseline neutrino experiments

S Vihonen¹, C R Das², J Maalampi¹ and J Pulido³

¹University of Jyväskylä, Finland, ²Joint Institute of Nuclear Research, Russia, ³Instituto Superior Técnico, Portugal

Determination of the θ_{23} octant will be an important goal for the next generation of neutrino oscillation experiments, as it will show whether the true value of θ_{23} lies in the high octant, $\theta_{23} > 45^\circ$, or in the low octant, $\theta_{23} < 45^\circ$. In this work we investigate the prospects of studying the θ_{23} octant in future long baseline neutrino experiments. Using the GLoBES software, we study the sensitivity to θ_{23} octant in terms of baseline length, beam sharing and systematic errors and use the Long Baseline Neutrino Observatory (LBNO) as our benchmark experiment. We also show the interference on the octant determination that arises from the unconstrained CP violation angle δ_{CP} . In our results, we discuss the impact of matter effects on the octant determination potential and establish a connection between the beam sharing and mass hierarchy.