



## Poster session 1 - Monday 4 July

### P1.037 Estimating the pion and kaon contributions to the T2K neutrino beam

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*on behalf of T2K collaboration*

The T2K beam contains neutrinos produced by pion and kaon decays. The energy and flavour of the neutrinos strongly depends on the identity of the parent particle, with the vast majority of the high energy intrinsic electron neutrino component resulting from kaon decays. The flux uncertainties are one of the dominant systematics and the intrinsic electron neutrino background is a major source of uncertainty in the appearance measurements. It is therefore important that the production of the neutrino beam is understood. The energy spectra of the neutrinos from different parents also vary differently with off-axis angle. The near detector (ND280) is positioned 2.5 degrees away from the beam centre, in line with the far detector, Super-Kamiokande. Though ND280 spans a small range of off-axis angles, the range is large enough to see a difference in how the neutrino energy spectra from each parent differ. The energy of the neutrino strongly affects the momentum of the muon produced via charged-current interactions within the detector, and the differences seen in these spectra for different parents will be used to calculate their relative contributions to the neutrino beam.