P3.025 **The WAGASCI detector as an off-axis near detector of the T2K and HK experiments**

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The ND280 detector is the off-axis near detector of the T2K experiment. It allows for the measurement of the muon neutrino flux and spectrum, and the determination of the ν_e intrinsic contamination in the beam. Its very high particle identification and momentum resolution ability drastically reduces the uncertainties coming from the neutrino beam from 25.9% to 8.8% in the ν_e appearance channel. This residual uncertainty is dominated by the cross-section model component (7.5%), which is mainly due to a difference in target material between the ND280 near detector (hydrocarbon) and the SuperKamiokande far detector (water). On top of this, the Super-Kamiokande detector does have a 4π acceptance while ND280 is mainly able to track and measure the momentum of foward-going particles. This results in a non-negligible use of the neutrino model to extrapolate the flux at the far detector from the near detector measurement.

For this reason, we propose a water target detector as an upgrade of ND280, the WAGASCI-upgraded detector. This detector uses a 3D grid scintillator structure in order to reconstruct particles with $\sim 4\pi$ acceptance. The current WAGASCI detector is an approved J-PARC experiment and will be installed outside the T2K magnet starting from 2017, at 1.6 off-axis. Subsequently, for the ND280 upgrade, we hope to install a similar detector, WAGASCI-upgraded inside the T2K magnet. This detector would be surrounded by 4 Time Projection Chambers that would allow for PID and momentum reconstruction in almost 4π directions. In this poster, we will detail the ability of the different geometries of this detector to constrain the neutrino flux using the muon momentum and direction. On top of this, we will present the detector's ability to measure low energy hadrons in order to further constrain the neutrino cross-section models, and particularly the Meson Exchange Current effects.