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A New Proposal for a Tokai to Hyper-K Near Detector

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In order to maximize the physics potential of a projected 10 year beam running period, systematic uncertainties at the 2% level are required, and the largest source of systematic uncertainty is projected to be from uncertainties on neutrino interaction cross sections. This new near detector proposal aims to significantly reduce the dependence of T2HK measurements on a priori knowledge of neutrino cross sections by utilizing a variety of off-axis angles to empirically determine the relationship between neutrino energy and lepton kinematics.

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