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The nuPRISM Near Detector

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In order to reach the projected T2HK physics sensitivities, a better understanding of neutrino interaction uncertainties is required. The nuPRISM detector concept is a novel new technique to directly measure neutrino interaction final states for any oscillated spectra at Hyper-K. This removes neutrino interaction uncertainties from the accelerator-based oscillation measurements, and provides the first ever direct experimental constraint on the relationship between lepton kinematics (what experiments observe) and neutrino energy (what experiments wish to measure). In addition, nuPRISM provides a highly sensitive probe of the MiniBooNE sterile neutrino oscillation signal. Other measurements, such as unique cross section measurements, including the first ever measurements of neutral current cross sections as a function of neutrino energy, are also possible. The feasibility and current analysis status for a nuPRISM detector for Hyper-K will be presented.

Primary author: Dr WILKING, Michael (TRIUMF)

Presenter: Dr WILKING, Michael (TRIUMF)

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