Low-Statistics Estimation of the PINGU Neutrino Detector's Resolutions JUSTIN LANFRANCHI, Department of Physics, Penn State University, ICECUBE/PINGU COLLABORATION — PINGU is a proposed low-energy infill of the IceCube neutrino detector. We use Monte Carlo (MC) simulations of atmospheric neutrino interactions in the South Pole ice to predict the proposed detector's performance, but due to the extremely high processing time required to arrive at analysis-level events, the quantity of MC is the limitation on our ability to make such performance predictions. This is true particularly for energy and zenith-angle resolutions. To ameliorate these issues, we employ variable-bandwidth kernel density estimation (VBW-KDE) to arrive at statistically-robust detector resolutions. Here we discuss the technique and present our predictions for one proposed PINGU detector geometry.

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