

Detector Systematics in IceCube Neutrino Oscillation Analyses

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The IceCube Neutrino Observatory instruments about 1 km^3 of deep, glacial ice below the geographic South Pole with 5160 digital optical modules (DOMs) to register the Cherenkov light of passing charged particles. The DeepCore subdetector, a more densely instrumented region located in the clearest section of ice, provides sensitivity to neutrinos in the range of 5-100 GeV.

Using the DeepCore detector, IceCube provides competitive measurements of the atmospheric oscillation parameters and puts constraints on sterile neutrino properties. These measurements are limited by the knowledge of systematics. This talk highlights the calibration and modelling of the most important detector systematics, namely the ice properties and the absolute photon detection efficiency and their impact on the analysis results.

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