

Camera Calibration for the IceCube Upgrade and Gen2

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An upgrade to the IceCube Neutrino Telescope is currently under construction. For the Upgrade, seven new strings will be deployed in the central region of the 86 string IceCube detector to enhance the capability to detect neutrinos in the GeV range. One of the main science objectives of the Upgrade is an improved calibration of the IceCube detector to reduce systematic uncertainties related to the optical properties of the ice. We have developed a novel optical camera and illumination system that will be part of 700 newly developed optical modules to be deployed with the Upgrade. A combination of transmission and reflection photographic measurements will be used to measure the optical properties of bulk ice between strings and refrozen ice in the drill hole, to determine module positions, and to survey the local ice environments surrounding the sensor module. In this contribution, we present the production design, acceptance testing, and plan for post-deployment calibration measurements with the camera system.

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IceCube; IceCube Upgrade; Detector calibration; Camera system

Collaboration

IceCube

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Subcategory

Experimental Methods & Instrumentation

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