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## **POS-49 Improving reconstruction of GeV-scale neutrinos in IceCube-DeepCore by direct event simulation**

*Tuesday 12 June 2018 18:08 (2 minutes)*

The IceCube Neutrino Observatory is a cubic-km Cherenkov detector of instrumented ice, designed with the primary goal of detecting very high energy neutrino events beyond the TeV scale from astrophysical sources. Detection of few-GeV atmospheric neutrinos is made possible by the DeepCore infill array. The relatively small amount of recorded event information at these energies introduces challenges for the reconstruction of particle properties, such as energy and incoming angle. Further, the naturally-occurring deep glacial Cherenkov medium requires detailed models, based on in-situ calibrations, to describe photon propagation in the ice. Current reconstruction methods rely on approximated tabulated template events. Replacing these templates with event simulation allows use of the full description of the natural ice medium for accurate resolution of event properties. This method of “direct reconstruction” can also be used for study of ice-related systematic errors. A full description of the algorithm, as well as an estimation of its effects on event reconstruction will be presented.

**Author:** NOWICKI, Sarah

**Presenter:** NOWICKI, Sarah

**Session Classification:** PPD Poster Session & Finals: Poster competition and Mingle session with Industrial partners/employers (5) | Session d'affiches PPD et finales: Concours d'affiches et rencontres avec partenaires industriels et employeurs (5)

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