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Improved IceCube event reconstructions using direct-tracking photon tables

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The IceCube detector is designed to detect very high energy neutrino events (100 TeV+) from astrophysical sources. A low energy array, DeepCore, was designed to extend the reach of IceCube down to ~ 10 GeV. At these low energies there are unique challenges in the analyses, including angular and energy reconstruction of the events. One way to improve the reconstructions is by improving the tools, such as the photon look-up tables used to calculate the most likely properties of the event. Increasing the accuracy of the photon tables, by directly tracking the source leptons and photons in the ice, may create a closer representation of the physical reality of the underlying events. Presented will be the status of the improved reconstructions from the advanced table generation with an expectation of the impact on DeepCore analyses.

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