

Direction Reconstruction using a CNN for GeV-Scale Neutrinos in IceCube

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The IceCube Neutrino Observatory is designed to observe neutrinos interacting deep within the South Pole ice. It consists of 5,160 digital optical modules, which are arrayed over a cubic kilometer from 1,450 m to 2,450 m depth. At the lower center of the array is the DeepCore subdetector, which has a denser configuration that lowers the observable energy threshold to about 5 GeV and creates the opportunity to study neutrino oscillations with low energy atmospheric neutrinos. A precise reconstruction of neutrino direction is critical in the measurements of oscillation parameters. In this presentation, I will discuss the direction reconstruction of GeV-scale neutrinos in IceCube by using a convolutional neural network (CNN) and compare the result to that of the current likelihood-based reconstruction algorithm.

Are you are a member of the APS Division of Particles and Fields?

Yes

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