

Sensitivity studies for the IceCube-Gen2 radio array

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The IceCube Neutrino Observatory at the South Pole has measured the diffuse astrophysical neutrino flux up to \sim PeV energies and is starting to identify first point source candidates.

The next generation facility, IceCube-Gen2, aims at extending the accessible energy range to EeV in order to measure the continuation of the measured astrophysical spectrum, to identify neutrino sources, and to search for a cosmogenic neutrino flux. As part of IceCube-Gen2, a radio array is foreseen that is sensitive to detect Askaryan emission of neutrinos beyond \sim 5 PeV. Surface and deep antenna stations have different benefits in terms of effective area, resolution, and the capability to reject backgrounds from cosmic-ray air showers and may be combined to reach best sensitivity. The optimal detector configuration is still to be identified.

This contribution presents the full-array simulation efforts for a combination of deep and surface antennas, and compares different design options with respect to their sensitivity to fulfill the science goals of IceCube-Gen2.

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Collaboration

IceCube-Gen2

other Collaboration

Subcategory

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