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Particle Physics with IceCube[1]

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The IceCube neutrino observatory is the world's largest high-energy neutrino telescope, utilizing the deep Antarctic ice as the Cherenkov detector medium. In December 2010 the last of the observatory's 86 strings of optical detectors was deployed, completing the approximate cubic-kilometer array. With the addition of a low-energy extension, called DeepCore, the observatory has very high neutrino detection efficiency for energies ranging from approximately 10 GeV to a few EeV. The low-energy threshold establishes the first steps towards precision neutrino measurements in the Antarctic. Discussed will be early results from this emerging particle physics program as well as initial expectations from studies of potential future detector upgrades towards creating a multi-megaton neutrino detector with O(10 MeV) energy threshold.

[1]for the IceCube Collaboration