



Contribution ID: 33

Type: **not specified**

Technical Advances towards the IceCube-Gen2 Neutrino Observatory

Thursday, 9 September 2021 11:30 (15 minutes)

IceCube-Gen2 is a planned extension of the IceCube Neutrino Observatory at the geographic South Pole. Gen2 is optimized to search for sources of astrophysical neutrinos from TeV to EeV energies. IceCube-Gen2 builds on a successful decade of scientific observations with IceCube. The observatory will utilize optical sensor modules integrated into the deep ultra-clear Antarctic ice for the detection of Cherenkov light from neutrino interactions, surface detectors on the ice for the detection of cosmic-ray air showers, and an extended radio array for sensing of ultra-high-energy neutrinos. The presentation will review future IceCube technologies and infrastructure. Technologies for the construction and operations of the Gen2 detector will be described, with a particular emphasis on sustainability and resource optimization.

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Session Classification: Science