Contribution ID: **28** Type: **not specified**

Exploring the high energy neutrino universe: IceCube, the IceCube Upgrade, and IceCube-Gen2

Tuesday 24 November 2020 14:45 (15 minutes)

IceCube is an astrophysical neutrino detector that uses photosensors embedded in a cubic kilometer of glacial ice at the South Pole. Over the past decade, IceCube has discovered a diffuse, high-energy flux of extragalactic neutrinos, and has reported the first likely multimessenger association involving high energy neutrinos.

In light of these findings, we are now looking towards the future at what neutrino astronomy can become over the next decade. IceCube will deploy a denser infill of photosensors in 2022 and 2023, aimed at extending our low energy capabilities as well as improving the directional reconstruction of incoming neutrinos, an important factor in identifying multimessenger coincidences. We are also eyeing an even grander vision; IceCube-Gen2 would increase the instrumented volume of the detector, enhancing our sensitivity to high energy neutrinos by an order of magnitude and allowing us to truly begin an age of robust high energy neutrino astronomy from transient sources.

In this talk I will discuss how the Swedish groups are working towards realizing this vision of next-generation neutrino astronomy, including building a new in-ice camera, improving our multi-messenger searches, and exploring new physics scenarios.

Abstract Track

Astroparticle physics

Author: Dr O'SULLIVAN, Erin (Uppsala University)

Presenter: Dr O'SULLIVAN, Erin (Uppsala University)

Session Classification: Tuesday afternoon