

A Decade of Atmospheric Neutrino Oscillations with IceCube

Thursday, 20 June 2024 14:50 (20 minutes)

The IceCube Neutrino Observatory is a cubic-kilometre Cherenkov neutrino telescope deep in the glacial ice at the geographic South Pole. Thanks to its low energy extension, DeepCore, the instrument can observe atmospheric neutrinos as low as 5-GeV, going up to hundreds of TeV with the full array. This wide energy flux comes from all directions in the sky, and is modulated by oscillations driven by Δm_{atm}^2 . With $O(100k)$ atmospheric neutrinos detected every year, IceCube DeepCore has unprecedented statistical power to measure atmospheric neutrino oscillations, as well as to search for exotic oscillations and other non-standard phenomena that might affect neutrinos at energies that cannot be currently reached by accelerators. In this talk I will review the results obtained by IceCube over the last decade, including the most recent results on neutrino oscillations, and will show the expected impact of additional instrumentation that will be deployed in the near future.

Poster prize

Given name

Surname

First affiliation

Second affiliation

Institutional email

Gender

Collaboration (if any)

Primary author: YANEZ, Juan Pablo (University of Alberta)

Presenter: YANEZ, Juan Pablo (University of Alberta)

Session Classification: S12: Three flavor neutrino oscillations - Atmos. nu