



Contribution ID: 54

Type: **Invited Talk**

Probing Cosmic Ray Anisotropy in the Northern Hemisphere with Atmospheric Neutrinos

Tuesday, 10 October 2017 12:35 (30 minutes)

This talk introduces a new way of exploring Cosmic Ray Anisotropy: observation through secondary neutrinos. Using IceCube and a high-acceptance dataset of atmospheric neutrinos created for this analysis, we are nearing the sensitivity threshold to observe the phenomenon in atmospheric neutrinos arriving from the Northern Hemisphere. This analysis focuses on energy ranges that correspond to the spatially-consistent lower energy features of the dipole structure. Due to the statistical limitations of the neutrino dataset in comparison to the cosmic ray datasets, we also introduce new methods for detecting signal beyond the familiar multipole analysis, which will also be implemented. These include a 1D relative intensity fit to determine the amplitude and phase of the dipole, and a 2D binned log-likelihood analysis focusing on searching for observed anisotropy maps from the Tibet collaboration. Future hope for the work is to create a single-detector all-sky map of the anisotropy, minimizing systematical difficulties combining datasets from separate collaborations.

Primary author: WILLS, Lizz (o=drexel,ou=Institutions,dc=icecube,dc=wisc,dc=edu)

Presenter: WILLS, Lizz (o=drexel,ou=Institutions,dc=icecube,dc=wisc,dc=edu)

Session Classification: Session II