Contribution ID: **617** Type: **Plenary talk**

Evidence of Neutrinos from the Galactic Plane - Flash plenary talk

Tuesday 29 August 2023 12:00 (15 minutes)

Visible in the sky as a swath of stars, dust, and gas, the Galactic plane of the Milky Way has been observed in every wavelength of the electromagnetic spectrum, from radio waves to infrared, optical, x-rays, and gamma rays. This work presents the first observation of the Galactic plane in high-energy neutrinos. Within our Galaxy, high-energy neutrinos can be produced when cosmic rays interact at their acceleration sites and during propagation through the interstellar medium. Using a new sample of neutrinos with energies ranging from 500 GeV to multi-PeV, tests of a diffuse Galactic neutrino emission find a 4.5σ rejection of the background-only hypothesis. This observation was enabled by machine-learning techniques that improved the selection efficiency and angular resolution of cascade-like neutrino events produced from charged-current ν_e and ν_τ interactions and neutral-current interactions of all flavors in IceCube.

Submitted on behalf of a Collaboration?

Yes

Author: Dr SCLAFANI, Steve (University of Maryland)

Presenter: Dr SCLAFANI, Steve (University of Maryland)

Session Classification: Plenary session

Track Classification: Neutrino physics and astrophysics