



Contribution ID: 78

Type: **Oral contribution**

Thematic talk: High-energy neutrinos from the Galaxy: expectations and experimental results

Tuesday, 6 September 2022 14:25 (35 minutes)

The detection of a diffuse flux of cosmic neutrinos with energies up to several PeV has opened a new window into the exploration of the extreme non-thermal Universe. Despite several analysis strategies have been implemented, the origin of these neutrinos remains to date unknown. The latter include the investigation of catalogued astrophysical accelerators as well as neutrino auto-correlation studies. Very-high-energy gamma-ray data indicate that our Galaxy is populated by many powerful accelerators, e.g. the several so-called PeVatrons recently detected by LHAASO. Being produced in hadronic interaction processes only, neutrinos would be key to shed light on the nature of the observed radiation. Additionally, the diffuse Galactic neutrino flux originated at cosmic-ray collisions with target gas located along the Galactic Plane represents a guaranteed source of neutrinos, likely contributing to the observed diffuse neutrino flux. In this talk, I'll review the status of neutrino observations and discuss the most promising results concerning Galactic neutrino candidate sources.

Collaboration

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Session Classification: Galactic Astrophysical Accelerators