Contribution ID: **118** Type: **Oral**

The diffuse neutrino flux from jetted AGN due to interactions of relativistic protons with the CMB and the EBL

Monday 2 December 2019 17:15 (15 minutes)

The extragalactic neutrino background (ENB) has been measured from tens of TeV and constrained up to ultra-high energies. This work considers the unresolved source contribution to this neutrino flux produced in the jets of AGN through photomeson production considering as target the omnipresent cosmic microwave background (CMB) and extragalactic background light (EBL) radiation fields. This is relevant for cases where proton acceleration to relativistic energies occurs at locations within the jet devoid of strong radiation fields.

These external target photon fields appear as beamed anisotropic radiation fields in the co-moving frame of the jets. We use the gyro-phase averaged interaction rates for hadronic and electromagnetic proton-photon interactions in these anisotropic targets, and modify the corresponding Monte Carlo codes to calculate the yields of all secondaries. The total neutrino flux that results from the evolving gamma-ray loud AGN populations of various types is then compared to the ENB. We find that the contribution from misaligned AGN dominates the total neutrino flux, and that neutrinos produced due to interactions with the EBL make up the largest contribution for most parameter combinations. Constraints for the maximum possible baryon loading for such setups are derived.

Author: REIMER, Anita (University of Innsbruck)

Co-author: OLIVERA-NIETO, Laura (MPIK Heidelberg)

Presenter: REIMER, Anita (University of Innsbruck)

Session Classification: Parallel

Track Classification: Neutrinos