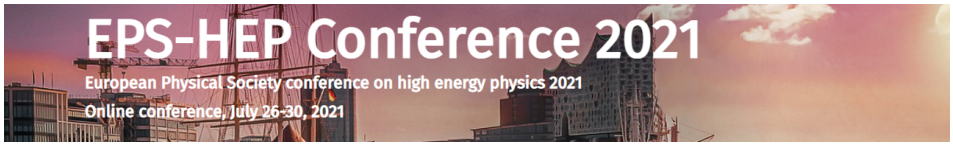

Contribution ID: **803** Type: **Parallel session talk**

Neutrino emission from temporarily-absorbed gamma-ray blazars

Thursday 29 July 2021 10:10 (20 minutes)

Since the discovery of high-energy neutrinos by the IceCube South Pole Neutrino Detector in 2013, the origin of their cosmic flux is still under debate. Every piece of the puzzle that helps to understand their acceleration sites is of great interest, because cosmic neutrinos are key messengers to explore the non-thermal universe where it is opaque to the cosmic rays and photons. IceCube recorded its highest-energy cosmic neutrino alert ever on 2019 July 30, IC-190730A, which quickly became associated with the blazar PKS 1502+106. By analyzing multimessenger observations on this source, we point out that a scenario, in which gamma-ray emission is suppressed during efficient neutrino production, could potentially resolve the apparent contradiction of the blazar models simultaneously producing a detectable neutrino flux and a gamma flare, since at the time of efficient neutrino production the observed gamma-flux drops. We show other examples of possible gamma suppression, TXS 0506+056 and PKS B1424-418. Temporary gamma-suppression could increase the sensitivity of neutrino-blazar coincidence searches due to the short allowed time coincidence between gamma-suppressed periods and neutrinos, enabling the identification of the origin of IceCube's diffuse neutrino flux possibly with already existing data.

First author

Emma Kun

Email

kun.emma@csfk.org

Collaboration / Activity

IceCube

Primary authors: KUN, Emma (Konkoly Observatory); BARTOS, Imre (University of Florida); TJUS, Julia (Ruhr-Universität Bochum); BIERMANN, Peter (MPI for Radioastronomy); HALZEN, Francis (University of Wisconsin)

Presenter: KUN, Emma (Konkoly Observatory)

Session Classification: T01: Astroparticle and Gravitational Waves

Track Classification: Astroparticle and Gravitational Waves