Contribution ID: **60** Type: **not specified**

Modeling TXS 0506+056 Neutrino Flares for AMEGO-X

Monday, 18 July 2022 20:40 (20 minutes)

TXS 0506+056 is the first multimessenger blazar, having been detected twice by IceCube during events described as neutrino flares, one of which coincided with a gamma-ray flare. TXS 0506+056 is an unusual blazar independent of the coincident neutrino observations. We develop a one-zone, leptohadronic particle transport model and apply it to the historical broadband SED to establish a baseline for the physical parameters. Then, we look in more detail at the multiwavelength SED simultaneous with each neutrino event. The model is specifically designed to examine the effects of particle acceleration on the observable data through self-consistent implementation of both acceleration and emission processes. Additionally, we compare with other successful models from the literature that suggest divergent physical interpretations to suggest that AMEGO-X is well poised to differentiate between these models through multimessenger collaboration on blazar flares.

In-person or Virtual?

In-person

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Session Classification: Poster Session