Contribution ID: **71** Type: **Invited talk in a parallel session**

Are X-rays the new -rays in neutrino astronomy?

Monday, 8 July 2024 15:25 (25 minutes)

The production mechanism of astrophysical high-energy neutrinos is not yet understood. A common assumption is that beamed relativistic outflows (jets) driven by accreting black holes are needed to accelerate particles to such high energies to produce high-energy neutrinos. Indeed, the first astrophysical high-energy neutrino source candidate identified by IceCube at a significance level of >3σ was a blazar – an AGN with an accreting supermassive black hole that drives a relativistic jet directed towards Earth. Recently, IceCube discovered strong evidence that Seyfert galaxies also emit neutrinos, which appears unrelated to jet activity. I will show that the neutrino–hard X-ray flux ratio of the blazar TXS 0506+056 is consistent with neutrino production in a γ-obscured region near the central supermassive black hole, with the X-ray flux corresponding to reprocessed γ-ray emission with flux comparable to that of neutrinos. Similar neutrino–hard X-ray flux ratios were found for three of IceCube's Seyfert galaxies, raising the possibility of a common neutrino production mechanism that may not involve a strong jet. I will discuss how future observations could test the jet origin of blazar neutrinos.

Primary author: BARTOS, Imre (University of Florida)

Presenter: BARTOS, Imre (University of Florida)

Session Classification: Neutrinos in the multi-messenger era

Track Classification: Neutrinos (NU): Neutrinos in the multi-messenger era