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Can the neutrinos from TXS 0506+056 have a coronal origin?

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The blazar TXS 0506+056 was the first astrophysical source to be associated with high-energy neutrinos, both temporally and spatially. This breakthrough followed the detection of a high-energy neutrino coincident with the blazar's 2017 multi-wavelength flare. Additionally, IceCube has identified TXS 0506+056 as the second most prominent hotspot in the neutrino sky over 9.5 years of observations, hinting at a steady neutrino emission from the blazar. Traditionally, neutrino production in blazars has been attributed to processes occurring in the powerful relativistic jet. However, recent studies propose that neutrinos from blazars may instead originate in a core region near the supermassive black hole, such as the AGN corona or the inner accretion flow. In this contribution, we explore this alternative scenario, focusing on the hypothesis that TXS 0506+056 is a masquerading BL Lac –a high-excitation quasar with hidden broad emission lines and a standard accretion disk. Using observationally informed estimates of the X-ray luminosity of the coronal region, we predict the neutrino and electromagnetic spectra expected from a putative corona and assess their consistency with the observed multi-wavelength spectrum of the source.

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