

Two-zone models for the multi-messenger emission from the blazar TXS 0506+056

A high-energy muon neutrino event, IceCube-170922A, was recently discovered in both spatial and temporal coincidence with a gamma-ray flare of the blazar TXS 0506+056. We propose the multi-messenger emission of the blazar flare can be well explained in two-zone models, with an inner blob inside of or close to the broad-line region (BLR) and an outer one well beyond the BLR. We compare our model with one-zone models discussed in previously literature and argue that differentiating between such scenarios will become possible with next-generation neutrino telescopes, such as IceCube-Gen2.

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