

Cosmic Magnetism in Voids and Filaments



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Using the TXS 0506+056 Flare to Constrain Intergalactic Magnetic Fields

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The recent observations of high-energy neutrinos from the blazar TXS 0506+056 in association with a corresponding electromagnetic component in a broad range of wavelengths may be used to analyze the intrinsic properties of this object and the traversed medium. Here we show that intergalactic magnetic fields (IGMFs) can affect the intrinsic spectral properties of this object reconstructed from observations. In particular, we point out that the reconstructed maximum gamma-ray energy of TXS 0506+056 can be significantly higher if IGMFs are strong. Finally, we use this flare to constrain both the magnetic field strength and the coherence length of IGMFs.

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