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Magnetic field in intergalactic space

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Electromagnetic cascading of TeV-band gamma-ray emission from distant blazars is a means to investigate the amplitude of magnetic field in the voids of intergalactic space. The flux of cascade emission from some objects is weaker than it should be, leaving two interpretations. The magnetic field may be strong enough to deflect the electron-positron pairs out of the line of sight. Alternatively plasma instabilities might drain the energy of the pairs. We present the current state of research and the most recent results, indicating that plasma instabilities in most cases cannot provide sufficiently strong energy losses. This leaves intact the evidence for pG magnetic fields in cosmic voids.

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