

# Cosmic magnetic field probes with electromagnetic cascades and cosmic rays

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Weak relic magnetic fields produced in the early Universe can be probed through their influence on electromagnetic cascades in the relatively pristine environment of cosmic voids. Such electromagnetic cascades are initiated by powerful blazars and lead to gamma-ray spectra from GeV to TeV energies whose spectrum at Earth that are sensitive to cosmic magnetic fields, but also to pair beam plasma instabilities. We plan to present simulations based on the public code CRPropa that aim to disentangle these two effects on observed gamma-ray spectra.

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