

Cosmic Magnetism in Voids and Filaments



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Cosmic magnetism through the lens of gamma rays

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The origin of magnetic fields in the Universe is an open problem in cosmology. One of the most promising ways to probe intergalactic magnetic fields (IGMFs) is using gamma rays produced in electromagnetic cascades initiated by high-energy gamma rays in the intergalactic space. Because the charged component of the cascade is sensitive to intervening magnetic fields, it is possible to probe IGMFs by combining spectral, temporal, and angular information from distant sources of high-energy gamma rays such as blazars. In this talk I will describe how to detect and characterise IGMFs with gamma rays, giving particular emphasis to the modelling of electromagnetic cascades and the associated uncertainties.

Presenter: ALVES BATISTA, Rafael (Radboud University)

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