

Astrophysical clues of axion-like particles

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Axion-like particles (ALPs) are a common feature in several extensions of the Standard Model, arising, for example, as a solution to the strong CP problem in quantum chromodynamics or as a prediction of string theories. Astrophysical and cosmological signatures of axion-like particles might be found in many observations, including gravitational wave spectra, but most importantly in the electromagnetic spectrum ranging from radio waves to gamma rays. A significant property for the experimental detection of ALPs is indeed their coupling to photons, which enables, among other phenomena, ALP-photon conversions in ambient magnetic fields.

In this talk we review the relevance of ALPs in high-energy astrophysics. In particular, we focus on the potential to detect spectral modifications of extragalactic sources due to ALP-photon conversions in intergalactic magnetic fields using the latest generation of Cherenkov telescopes.

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