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Cosmic birefringence and its implications

Tuesday, June 11, 2024 10:00 AM (1 hour)

Cosmic birefringence is a parity-violating phenomenon that rotates the plane of linear polarization of the CMB photons. Recently, a nonzero isotropic cosmic birefringence (ICB), its overall rotation angle from the last scattering surface to the present, with a statistical significance of 3.6 sigma has been reported for the latest joint analysis of Planck/WMAP data. In this talk, we will present some theoretical implications of ICB for new physics beyond the Standard Model, such as axions. Or, we will show why new physics is necessary to explain the measured ICB angle.

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