

Implications of the cosmic birefringence measurement for the axion dark matter search

Tuesday 9 August 2022 16:31 (3 minutes)

We show that a recent constraint on the cosmic birefringence effect due to dark energy can be related to the constraints on the coupling of axion dark matter to photon, by relying on a simple model of two-axion alignment mechanism with periodic potentials. Owing to the alignment of the potentials, one linear combination of two fields provides a nearly flat direction and acts as dark energy, whereas the other combination provides a steep direction and acts as dark matter. This scenario solves the known conceptual issues of one-field model for dark energy and predicts the connection between seemingly disparate constraints on the dark sectors of our universe.

Primary author: OBATA, Ippei (Max-Planck-Institute for Astrophysics)

Presenter: OBATA, Ippei (Max-Planck-Institute for Astrophysics)

Session Classification: Poster Lightning Talks