

JOINT TUFTS/MIT COSMOLOGY SEMINAR

Cosmic birefringence from ultralight axion strings + walls

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Axion like particles (ALPs) whose masses can lie over a wide range (even smaller than 10^{-28} eV), have been shown to arise generically in string theory. In the cosmological context, the early Universe may have gotten filled with a network of ultralight axion cosmic strings/domain-walls which, depending upon the mass of the ALP, can survive till later than recombination. If the ALP also couples to electromagnetism, then the topological network induces a rotation of the polarization axis of the CMB photons. The signal is independent of the string tension, and only depends on the electric and PQ charges of heavy matter fields. I will present some results and discuss some ongoing work in this direction. Time permitting, I will also discuss some results in the tangential area of integer spin field wave dark matter.

Tuesday, November 22, 2022, 2:30 pm

574 Boston Ave, Room 310

Tufts University

Refreshments at 2:00 outside room 304