

Patchy dark screening

Wednesday, 8 May 2024 14:50 (10 minutes)

I will discuss anisotropic (patchy) screening induced by the resonant conversion of cosmic microwave background (CMB) photons into light bosons in the dark sector as they cross non-linear large scale structure (LSS). Using kinetically mixed dark photon as an example, I will show how this conversion between CMB photon and light bosons leads to new CMB anisotropies that are correlated with LSS. These anisotropies from new physics, with their characteristic frequency dependence, can be separated from the primary CMB anisotropies. I will show analysis with existing CMB data, and how it improve significantly upon current constraints on light dark photons, while data from upcoming experiments such as CMB-S4, CMB-HD and upcoming LSS surveys can further further improve the reach by orders of magnitude.

Primary author: Dr HUANG, Junwu (Perimeter Institute)

Presenter: Dr HUANG, Junwu (Perimeter Institute)

Session Classification: Session 11