

Probing the missing baryons with the kinetic Sunyaev-Zeldovich effect

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The kinetic Sunyaev-Zeldovich (kSZ) effect represents a secondary anisotropy in the cosmic microwave background (CMB) radiation, caused by the inverse Compton scattering of free electrons in galaxy clusters. Observations from the Planck satellite, as well as the ACT and SPT experiments, have enabled the measurement of this effect, providing insights into the dynamics of large-scale structures. In this talk, I will review recent advancements in the study of the kSZ effect using data from Planck, ACT, and SPT. I will demonstrate how cross-correlation of the kSZ effect with the peculiar velocity field and pairwise momentum field helps trace the distribution of missing baryons. Additionally, I will explore its physical relationship with the thermal Sunyaev-Zeldovich (tSZ) effect.

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