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Poster: Primordial Non-Gaussianity in Spectral Distortions and PBH constraints

Distortions of μ-type in the frequency spectrum of CMB photons are bounded by FIRAS observations. Since peaks in the primordial scalar power spectrum at small scales can enhance them, FIRAS data can be used to set limits on the Primordial Black Hole (PBH) abundance. However, such peaks usually come together with some non-Gaussian statistics in the primordial curvature spectrum which is usually neglected when deriving bounds on PBH abundance. This caveat has often been invoked to discard such bounds. After studying and comparing various approximation schemes to compute μ-distorsions with good accuracy, we show how to deal with non-Gaussianity of the local type, either for a perturbative case or a full χ^2 distribution. Finally, we show that bounds on PBH abundance derived from FIRAS bounds on μ-distorsions are robust against the assumption of non-gaussian statistics. This talk will be based on two articles in collaboration with C. Byrnes and J. Lesgourgues that will be published before this symposium.

Would you be interested in presenting a poster? (this will not impact the decision on your talk)

yes

Primary author: SHARMA, Devanshu

Co-authors: BYRNES, Christian (University of Sussex (GB)); LESGOURGUES, Julien (TTK, RWTH Aachen University)

Presenter: SHARMA, Devanshu

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