

Constraining patchy reionization with the CMB

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Abstract content

If the Universe reionizes in patches, the observed optical depth τ varies with the line of sight. Scattering of CMB photons by free electrons results in a damping of the CMB power spectra by a factor $\exp(-2\tau)$. When the optical depth is anisotropic, the damping has an angular dependence. We show that this angular dependence adds power to the CMB TT spectrum on small scales. We use data from the Atacama Cosmology Telescope to constrain the angular variation of τ , and hence place constraints on certain reionization models.

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