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Title:	Hot and cold spot counts as probes of non-gaussianity in the cosmic microwave background
Authors:	Yogendran, K.P. (/jspui/browse?type=author&value=Yogendran%2C+K.P.)
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Abstract:	We introduce the numbers of hot and cold spots, n_h and n_c , of excursion sets of the cosmic microwave background (CMB) temperature anisotropy maps as statistical observables that can discriminate different non-Gaussian models. We numerically compute them from simulations of non-Gaussian CMB temperature fluctuation maps. The first kind of non-Gaussian model we study is the local type primordial non-Gaussianity. The second kind of model has some specific form of the probability distribution function from which the temperature fluctuation value at each pixel is drawn, obtained using HEALPIX. We find the characteristic non-Gaussian deviation shapes of n_h and n_c , which is distinct for each of the models under consideration. We further demonstrate that n_h and n_c carry additional information compared to the genus, which is just their linear combination, making them valuable additions to the Minkowski Functionals in constraining non-Gaussianity.
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