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Title:	Primordial non-Gaussian signatures in CMB polarization
Authors:	Yogendran, K.P. (/jspui/browse?type=author&value=Yogendran%2C+K.P.)
Keywords:	non-Gaussianity CMB polarization Minkowski Functionals
Issue Date:	2015
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Citation:	Journal of Cosmology and Astroparticle Physics, 2015(2)
Abstract:	We study the signatures of local type primordial non-Gaussianity, parametrized by f_{NL} , of scalar perturbations in CMB polarization using the probability distribution functions, Minkowski Functionals and Betti numbers. We show that the lowest order non-Gaussian deviation of the PDF of the total polarization intensity is at order $(f_{NL}\sigma)^2$. We calculate the non-Gaussian deviations of Minkowski Functionals and Betti numbers from simulated polarization maps. If observational issues such as instrumental noise are ignored, we find that E mode polarization provides independent and equally strong constraint on f_{NL} as temperature fluctuations. The constraint is expected to weaken when observational issues are included since the signal-to-noise ratio of polarization data is lower than that of temperature. The non-Gaussian signal in the total polarization intensity, however, is much weaker and has a relatively large cosmic variance and hence may not be useful for detecting local type non-Gaussianity
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