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Primordial Non-Gaussianity (fNL) in WMAP data AMIT YADAV, BENJAMIN WANDELT, University of Illinois at Urbana-Champaign — We present evidence for the detection of primordial non- Gaussianity of the local type (f_{NL}), using the temperature information of the Cosmic Microwave Background (CMB) from the WMAP 3-year data. We employ the bispectrum estimator of non- Gaussianity described in Yadav et al. 2007 which allows us to analyze the entirety of the WMAP data without an arbitrary cut- off in angular scale. Using the combined information from WMAP's two main science channels up to $\ell_{max} = 750$ and the conservative Kp0 foreground mask we find $26.9 < \mathbf{f_{NL}} < \mathbf{146.7}$ at 95% C.L., with a central value of $f_{NL} = 86.8$. This corresponds to a rejection of $f_{NL} = 0$ at more than 99.5% significance. We find that this detection is robust to variations in l_{max}, frequency and masks. We conclude that the WMAP 3-year data disfavors single field slow- roll inflation.

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