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Auto- and cross-correlation of the cosmic microwave background lensing and infrared background measured by Planck and Herschel

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The primary objective of this paper is to measure the auto- and cross-power spectrum of the CIB from Herschel and CMB lensing from Planck. To achieve this, we analyze the Herschel-SPIRE HerMES Large Mode Survey field, which is about 280 square degree. we use Madmap algorithm to merged the the Herschel Level 1 timeline data as the CIB maps using by Herschel Interactive Processing Environment (HIPE), and use 3σ flux cut to remove the contamination from the bright sources. The CMB lensing data was obtained form the 2013 release of data from the Planck mission. The calculation and correction of the auto- and cross-power spectrum is based on the work of Cooray et al. (2012). Then we performed a MCMC analysis using a simple parametric SED model, with a redshift-independent linear bias. All these steps above, we analyze the Herschel data at three bands: 250, 350 and 500μm, and calculate the auto-power spectrum of CIB anisotropies from $100 \leq \ell \leq 2048$ and the cross-power spectrum of CIB and CMB lensing from $200 \leq \ell \leq 20000$.

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