

Optimal CMB lensing power spectrum estimation

- ▶ Traditional quadratic estimators (QE) are known to be sub-optimal for next-generation experiments
- ▶ New estimators are currently being developed (Carron et al. 2017, Millea et al. 2019)
- ▶ Our goal: develop a fast and robust pipeline to get an unbiased CMB lensing power spectrum, based on the iterative lensing estimator of Carron et al. 2017
- ▶ We assume that iterative estimator is similar to applying a QE with modified weights.

- ▶ For CMB-S4: N0 bias reduced by factor 2 and N1 bias reduced by factor 4
- ▶ Covariance matrix much more diagonal
- ▶ Realisation dependant debiasing: allows a robust estimation of the lensing power spectrum
- ▶ Improve constraints on the amplitude of lensing power spectrum by 60%

