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The Dark Energy Survey Y6 3x2pt analysis

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I will present an overview of the 3×2pt analysis of the full 4000 deg² of imaging data from the final Dark Energy Survey data release (DES Y6). I will begin with a general introduction to the 3×2pt framework, outlining how cosmological parameters are inferred from the joint analysis of the three two-point correlations that can be measured from galaxy positions and shapes: galaxy clustering, galaxy–galaxy lensing, and cosmic shear.

Focusing on the DES analysis, I will describe the construction of the data samples and the shear calibration, followed by the treatment of masking and imaging systematics. I will then focus on the redshift calibration. In particular, I will detail how photometric and clustering information are derived and combined within a Bayesian framework, and present the DES Y6 redshift marginalization method based on "modes"designed to better capture cosmology-relevant redshift uncertainties. I will also cover the intrinsic alignment modeling and the robustness tests against baryonic effects through optimized scale cuts. I will conclude by presenting the expected cosmological parameter uncertainties from DES Y6, without disclosing best-fit values, as the final results are not yet public.

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