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# Propagating PSF errors into shear biases

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We are currently working on propagating expected Euclid PSF errors into shear biases for the WL E2E box as part of the SPV3 exercise. Given some base and perturbed PSFs generated using the PSF Toolkit, we numerically estimate the multiplicative and additive shear biases for galaxies in the Flagship 2 mock catalogue. We currently consider two sources of PSF error: firstly, errors in the PSF modelling across the survey footprint; and secondly, PSF errors arising due to imperfect knowledge of the galaxy SEDs. For the PSF modelling errors, we consider the impact of neglecting the variation in the PSF due to changes in solar aspect angle throughout the survey, resulting in shear biases that vary across the survey footprint. For the galaxy SED errors, we consider the error in the PSF model that arises due to coarse binning and noise in the photometric galaxy SEDs that will be used in the per-galaxy PSF modelling. For both techniques, we calculate shear biases corresponding to a subset of the expected PSFs, and use PCA and kNN techniques to propagate to mock galaxies in flagship. This is ongoing work. In the future, we plan to investigate errors in the PSF calibration at the start of the mission, as well as the impact of blending of the ground-based photometry on the SED errors.

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