

# Cosmic Shear with Care

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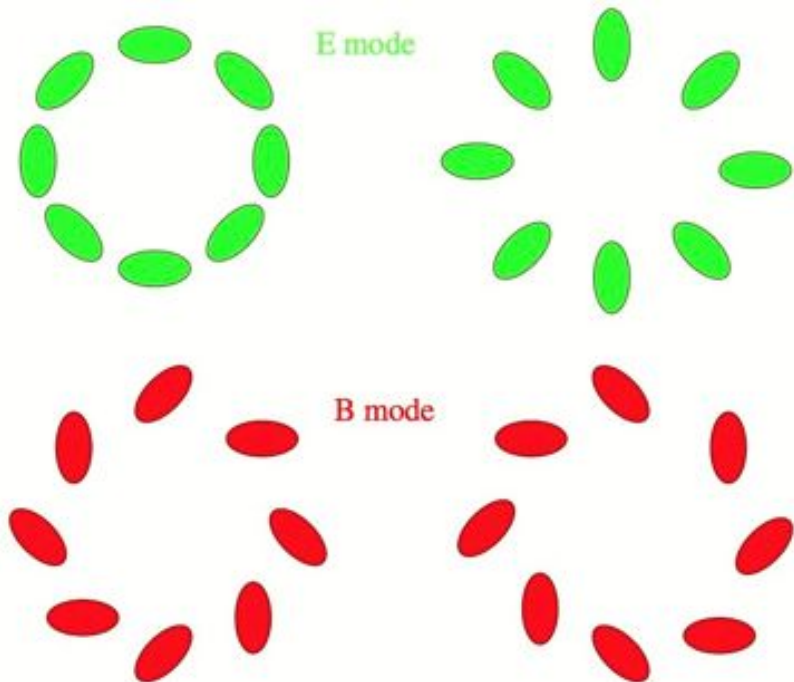
In collaboration with  
Catherine Heymans and KiDS

# E/B-modes and COSEBIs

$$\xi_+ = \text{E-modes} + \text{B-modes}$$

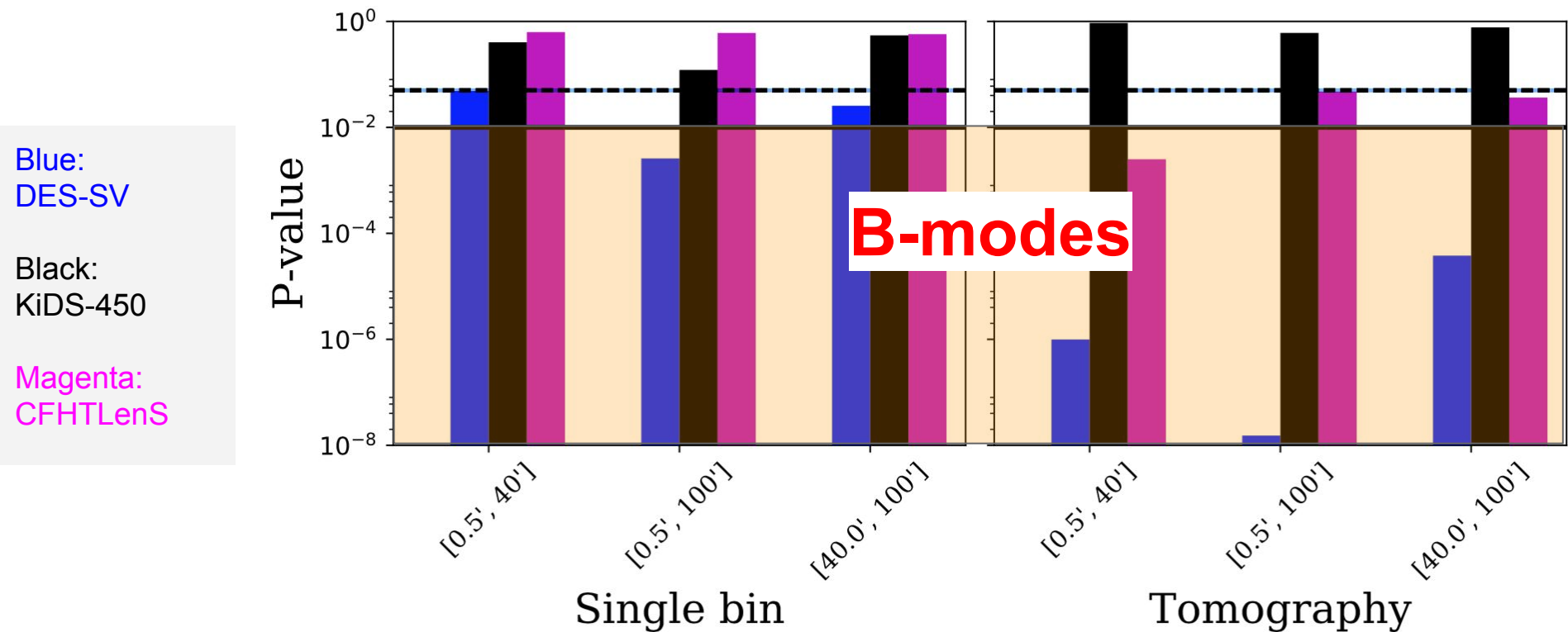
COSEBIs:

- Clean E/B-modes
- Complete
- Efficient
- Well-defined modes
- Robust diagnosis tool for systematics
- More Gaussian

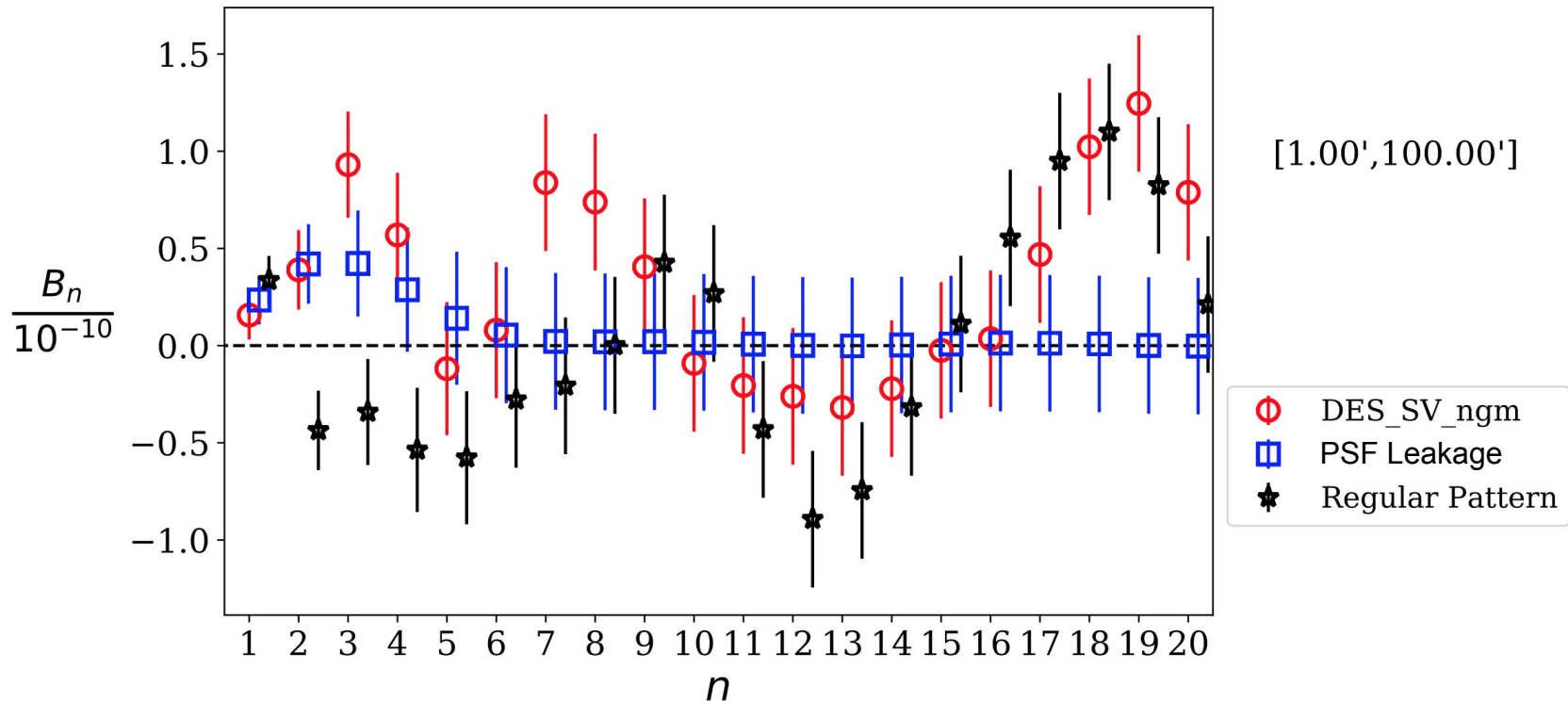


van Waerbeke & Mellier 2003

# B-modes in public cosmic shear data



# Systematics and B-modes



# Effect of systematics on cosmological parameters

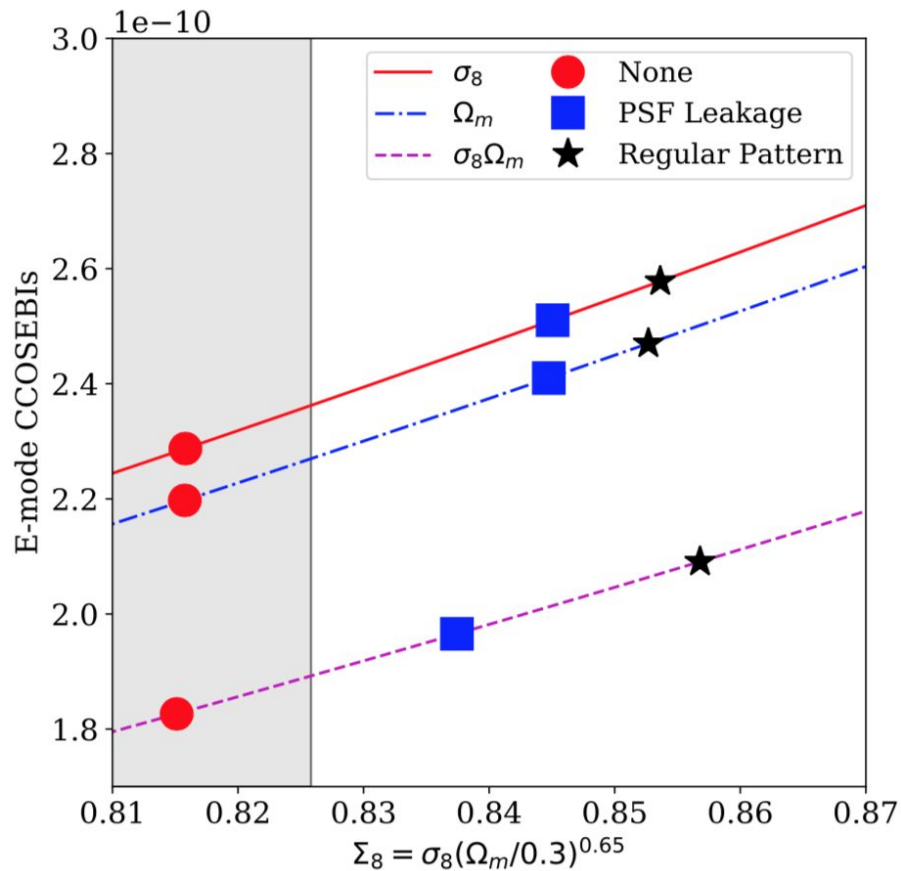
Cosmic shear data is mostly sensitive to

$$\Sigma_8 = \sigma_8 (\Omega_m / 0.3)^\alpha$$

Compressed COSEBIs:

- linear combination of COSEBIs
- Based on sensitivity of COSEBIs to parameters
- Cosmological parameters:

$\sigma_8$  and  $\Omega_m$



If you are interested to know more please talk to me and/or read our paper coming out soon (Asgari et al. 2018).