



Weak lensing in CFIS and preliminary results

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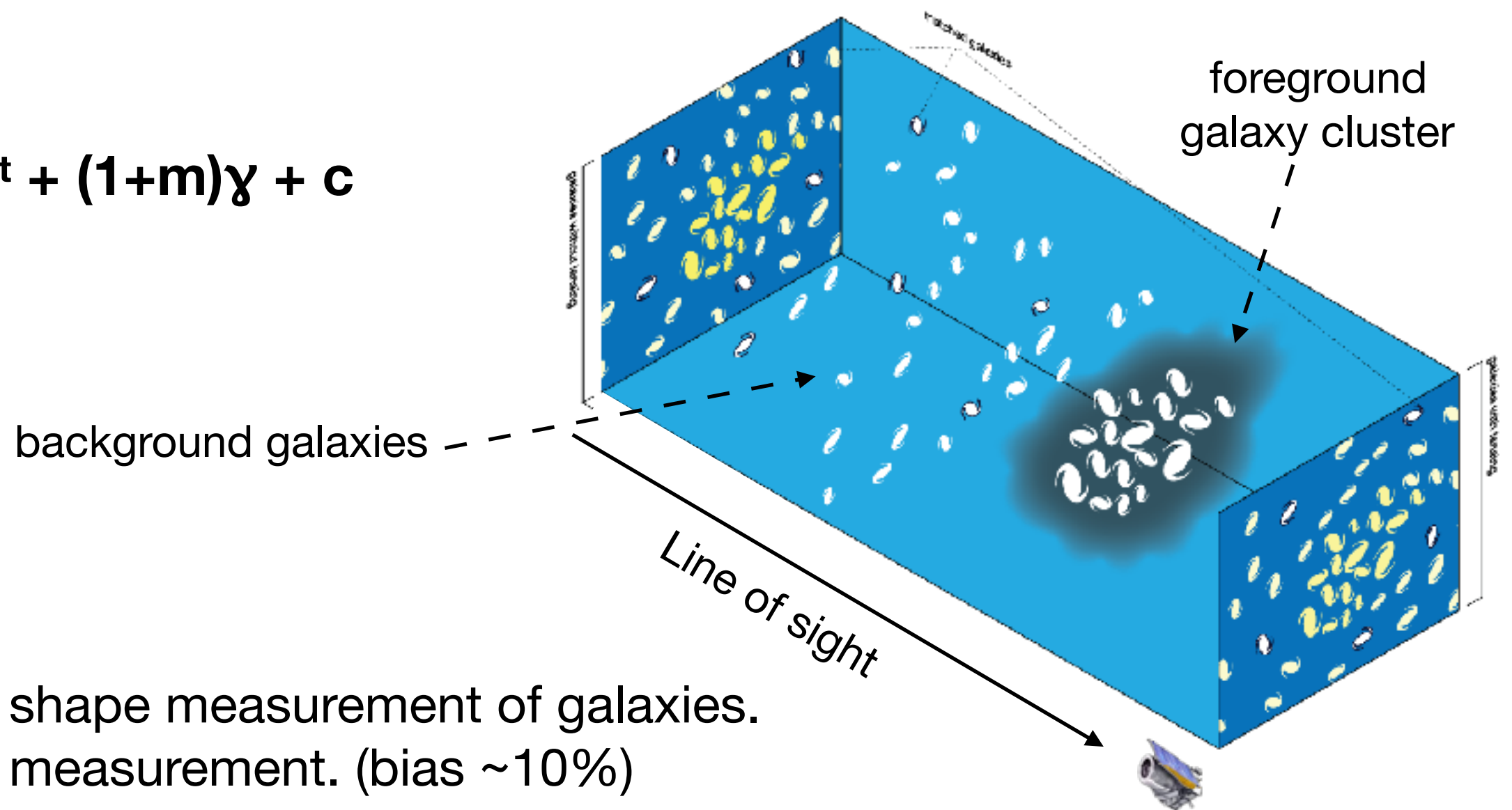
Outline

1. Introduction
2. Weak lensing in CFIS
3. Preliminary results
4. Redshift estimation in CFIS
5. Conclusion

Introduction

Weak lensing

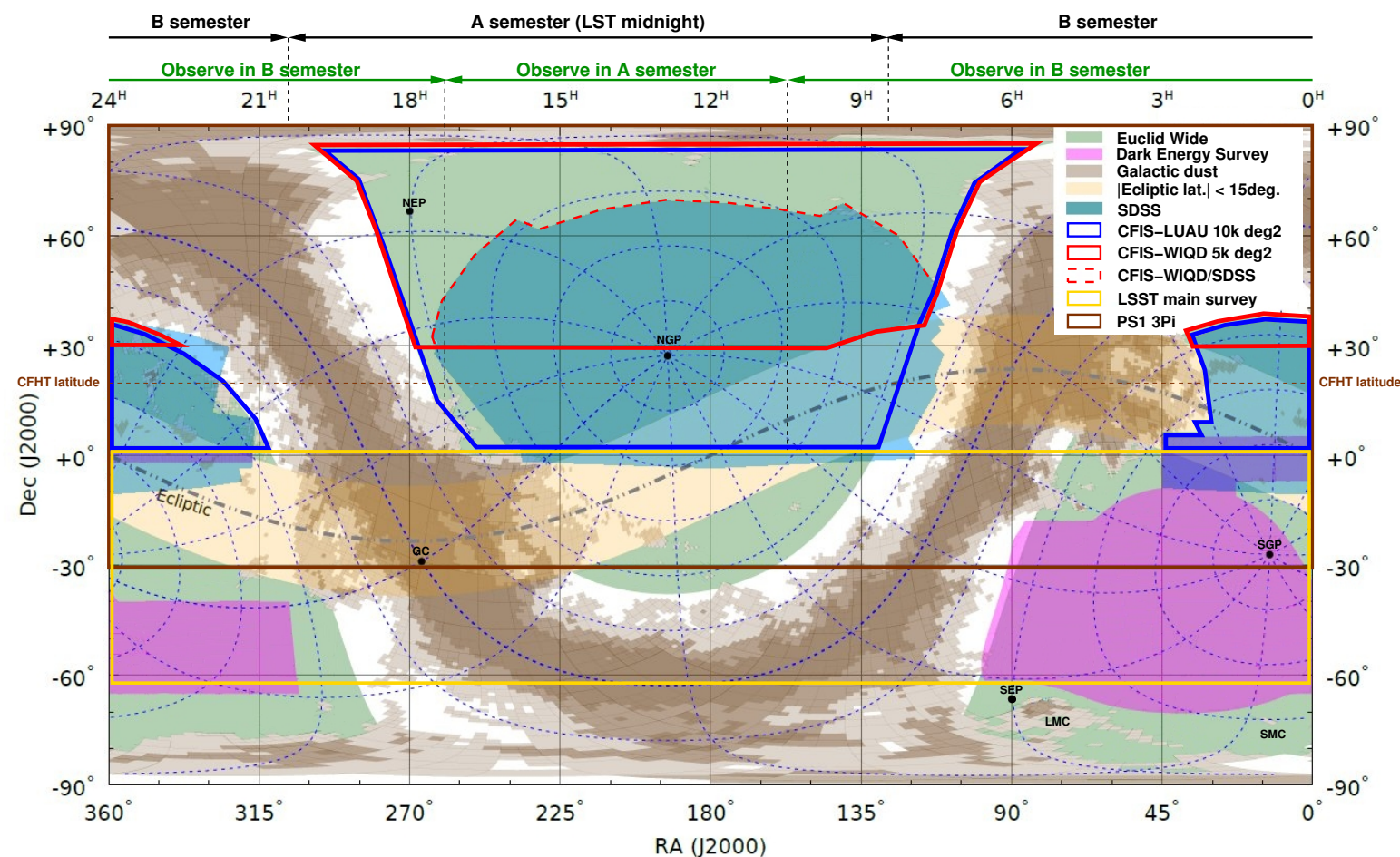
$$e^{\text{obs}} = e^{\text{int}} + (1+m)\gamma + c$$



- Based on shape measurement of galaxies.
- Unbiased measurement. (bias ~10%)
- Effect ~1% of galaxy ellipticity.
- Statistical studies on large area.
- Tracer of dark matter.

CFIS survey within the framework of weak lensing studies

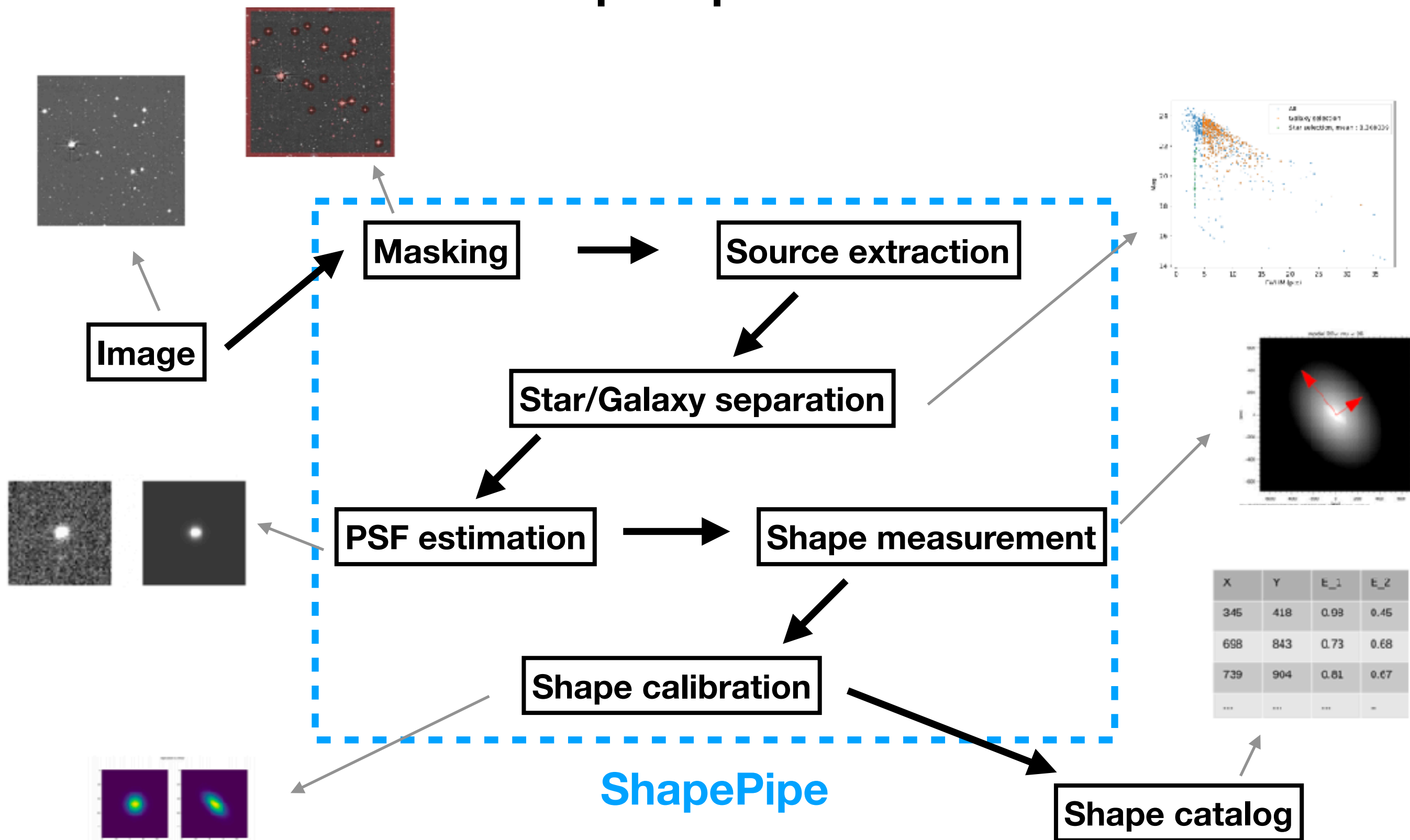
- 5000 Deg² in the northern hemisphere.
- Seeing ~0.6 arcsec on r-band.
- Large overlap with BOSS/eBOSS.
- Collaboration with Pan-STARRS.



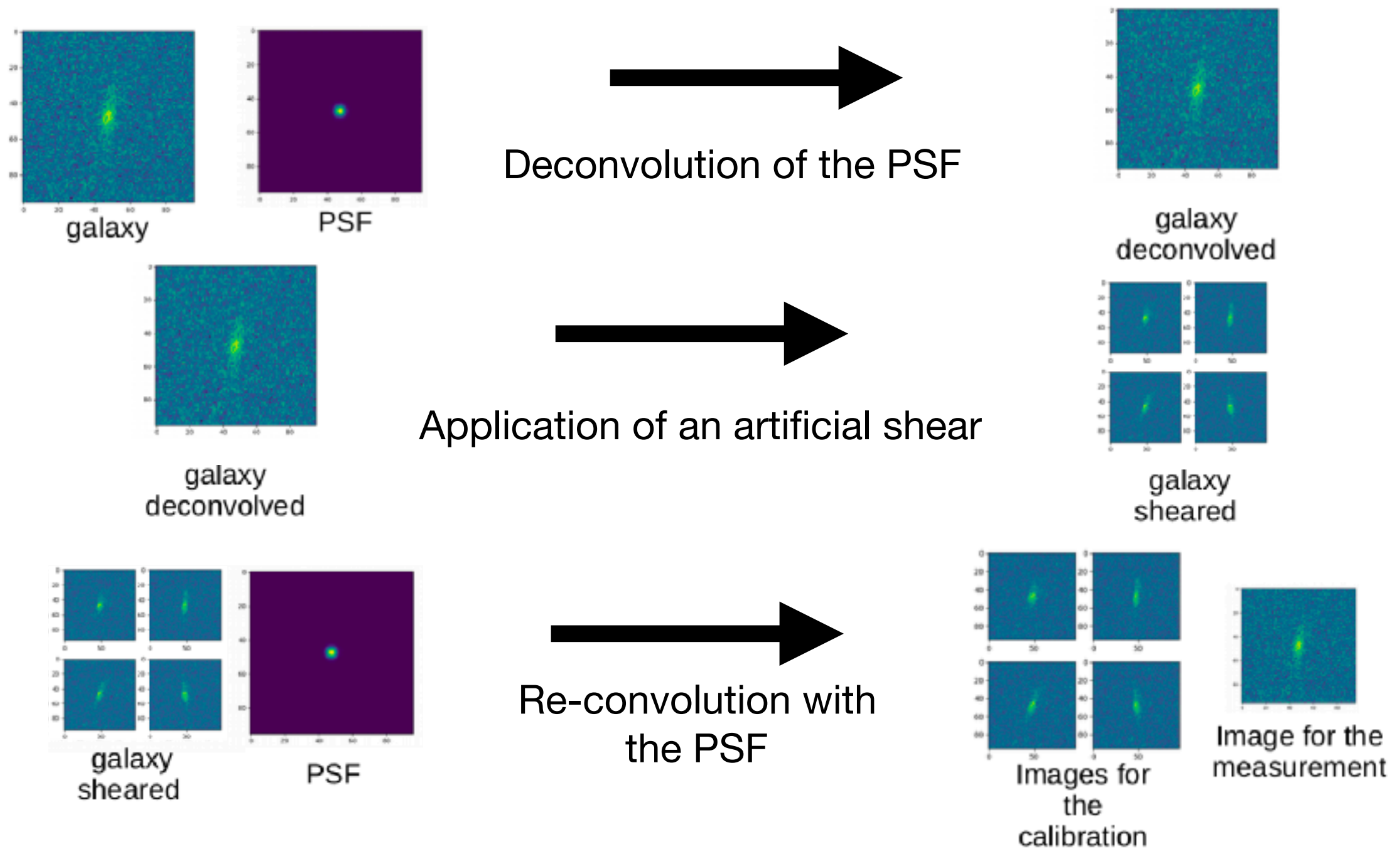
(Ref : CFIS collaboration)

Weak lensing with CFIS

ShapePipe overview

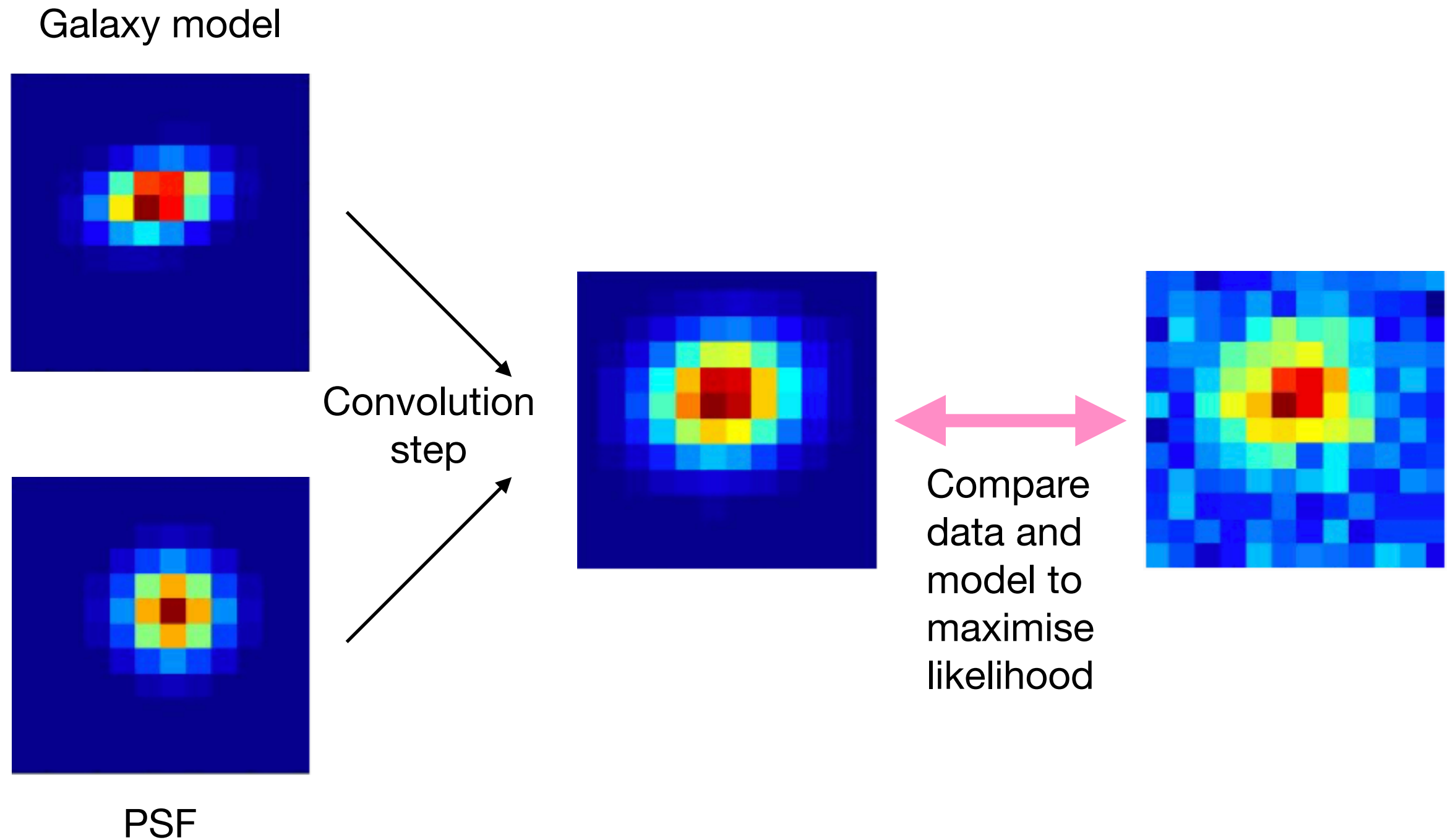


Metacalibration



(Ref : Huff E., Mandelbaum R. 2017, arXiv:1702.02600)

LensFit overview

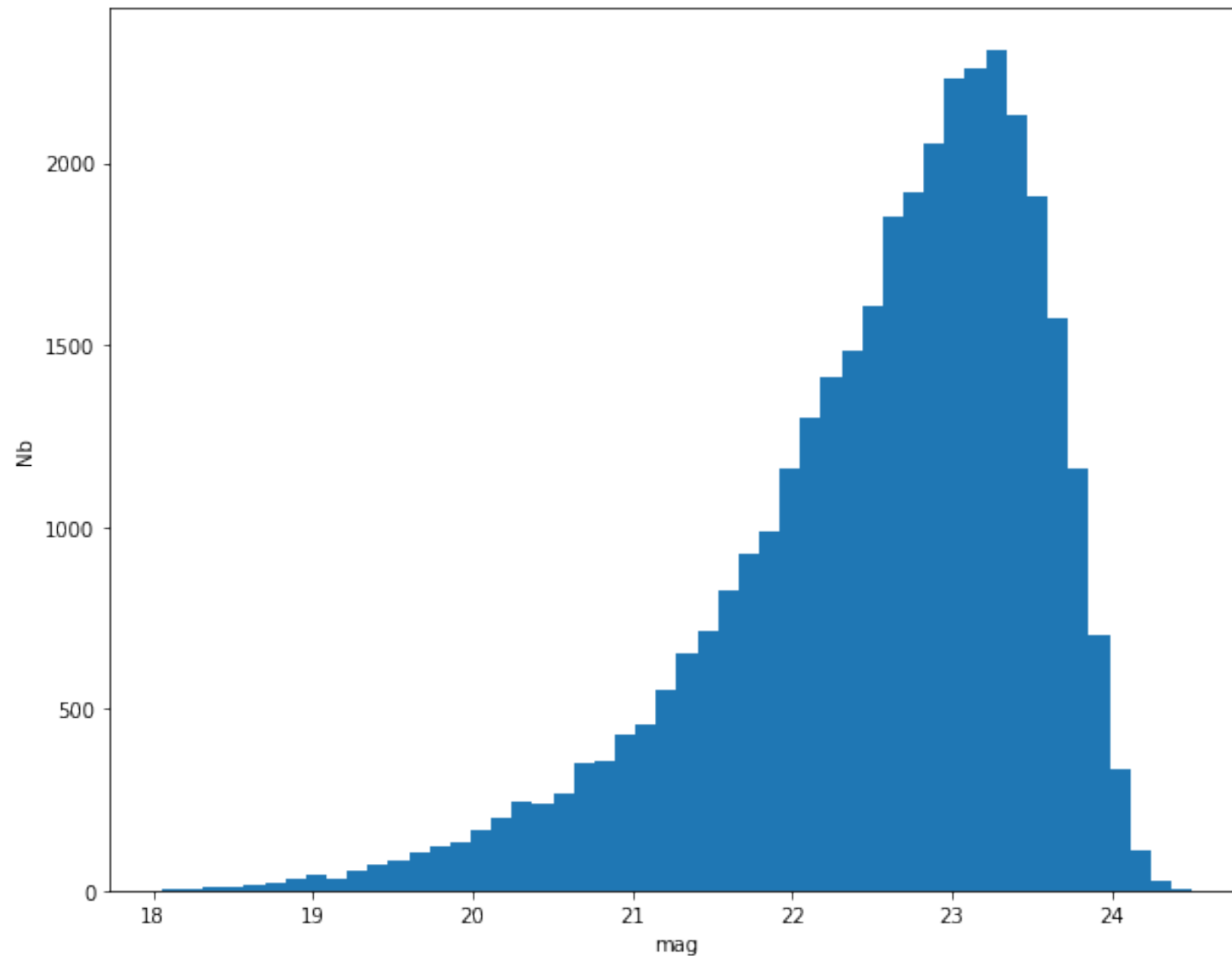


(Ref : Miller et al 2007, Kitching et al 2008, Miller et al 2013)

Preliminary results with ShapePipe

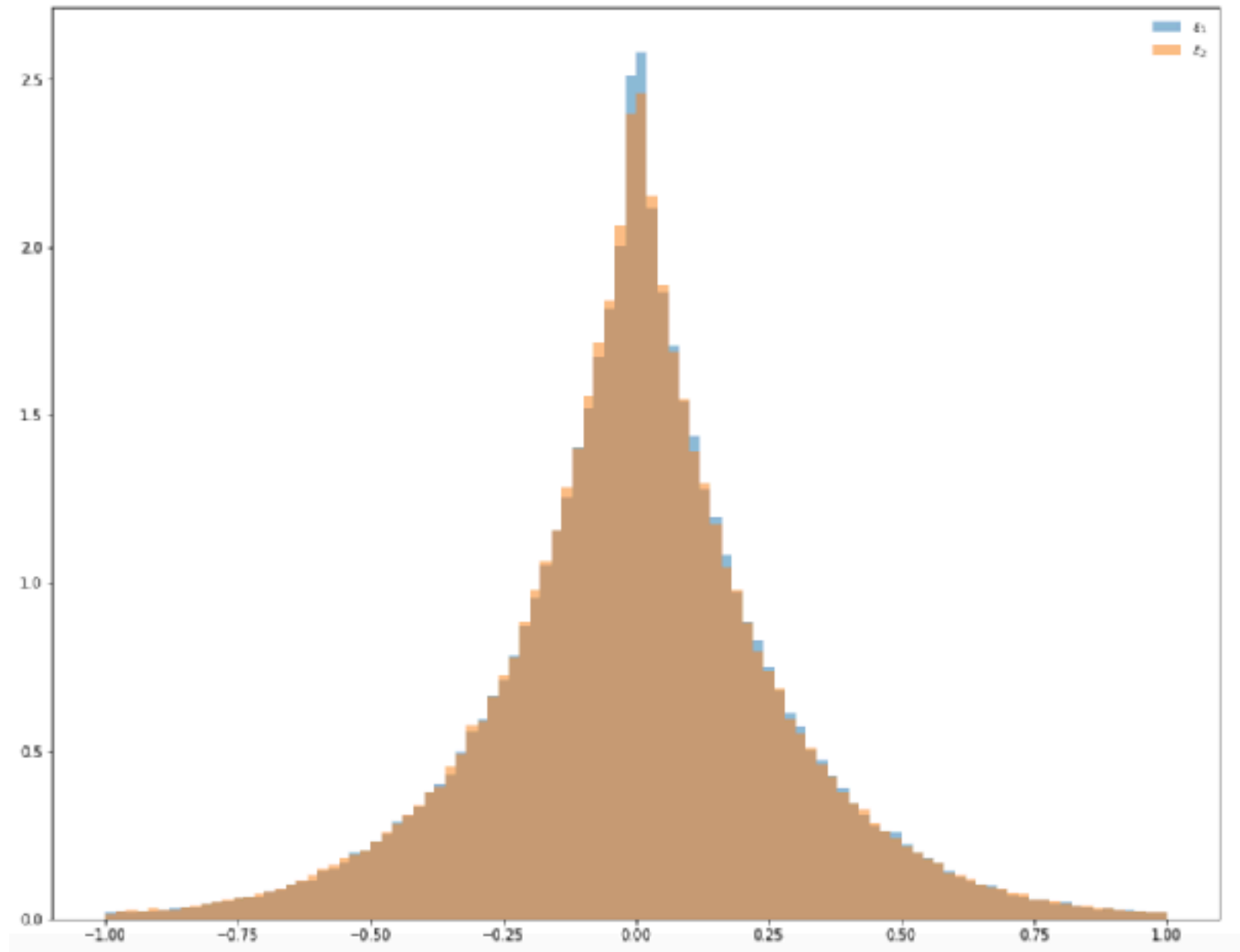
Preliminary results

- Magnitudes distribution (on single exposures).



Preliminary results

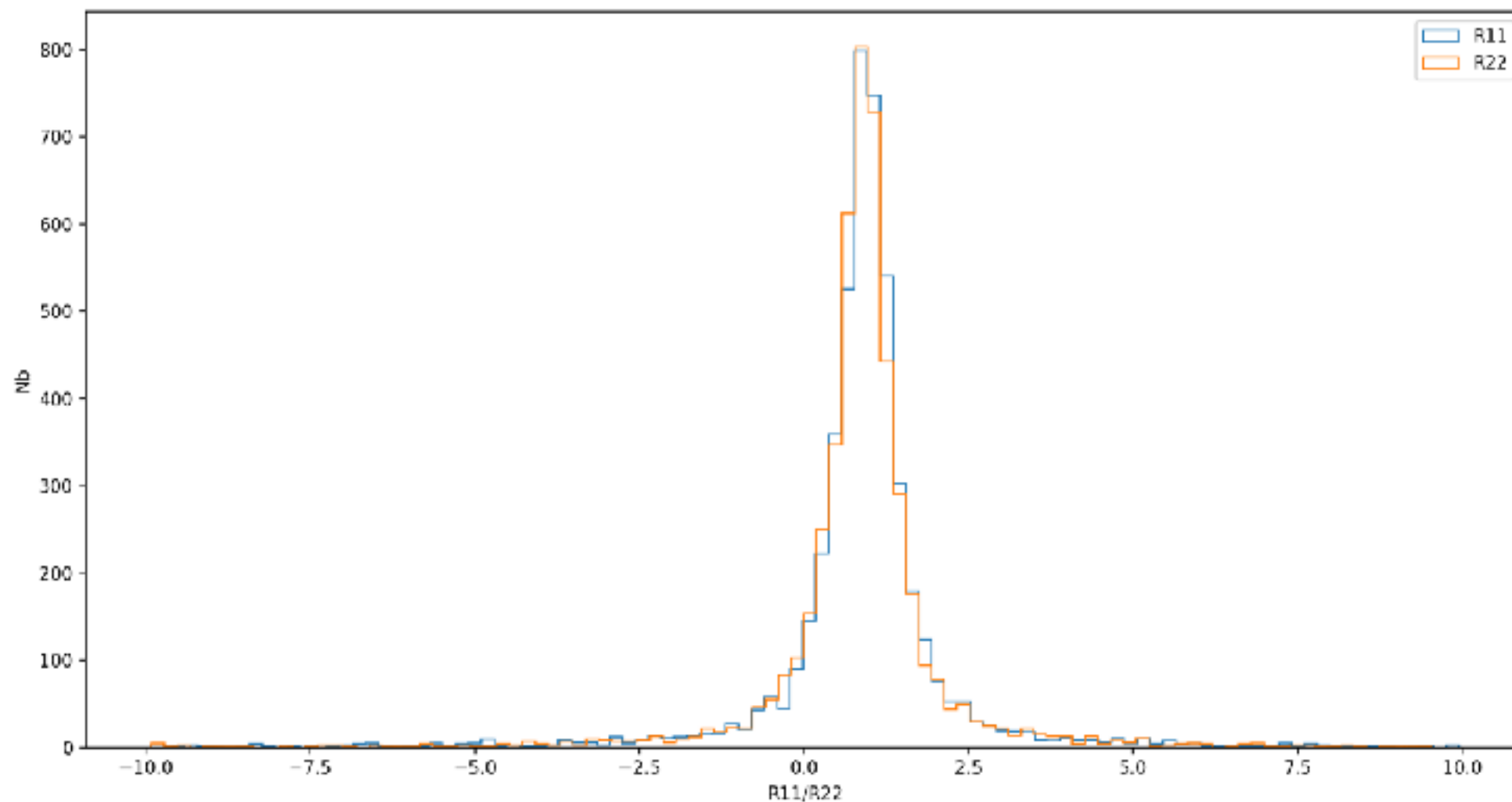
- Ellipticities distribution. (Computed with KSB method)



(Ref : - Kaiser, N., Squires, G. and Broadhurst, T., 1994. *arXiv preprint astro-ph/9411005*
- M. Viola, P. Melchior, M. Bartelmann 2010 *arXiv:1006.2470*)

Preliminary results

- Metacalibration tested on one single exposure.

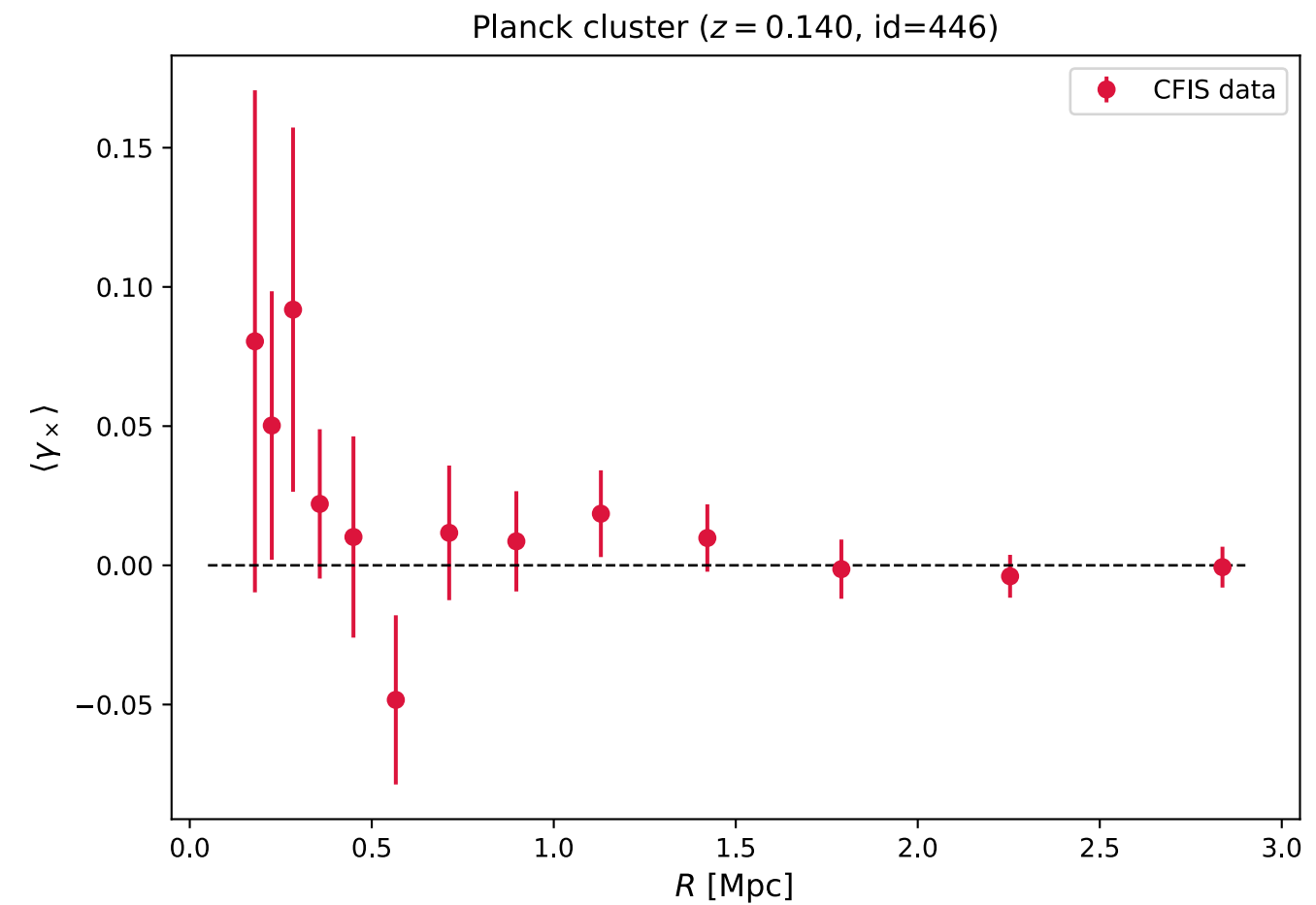
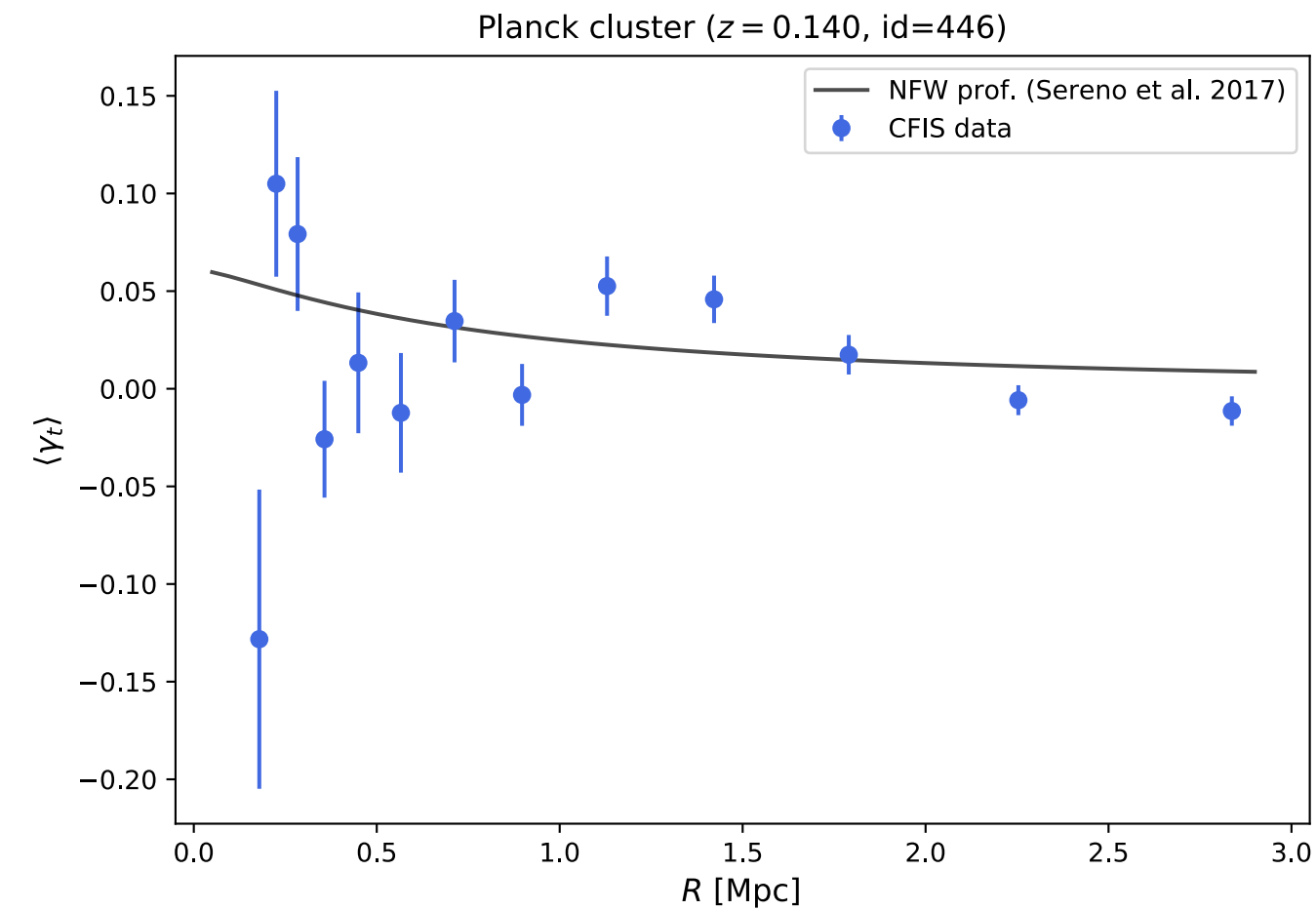


Median values :
 $R11 = 0.932$
 $R22 = 0.896$

bias ~ 9%

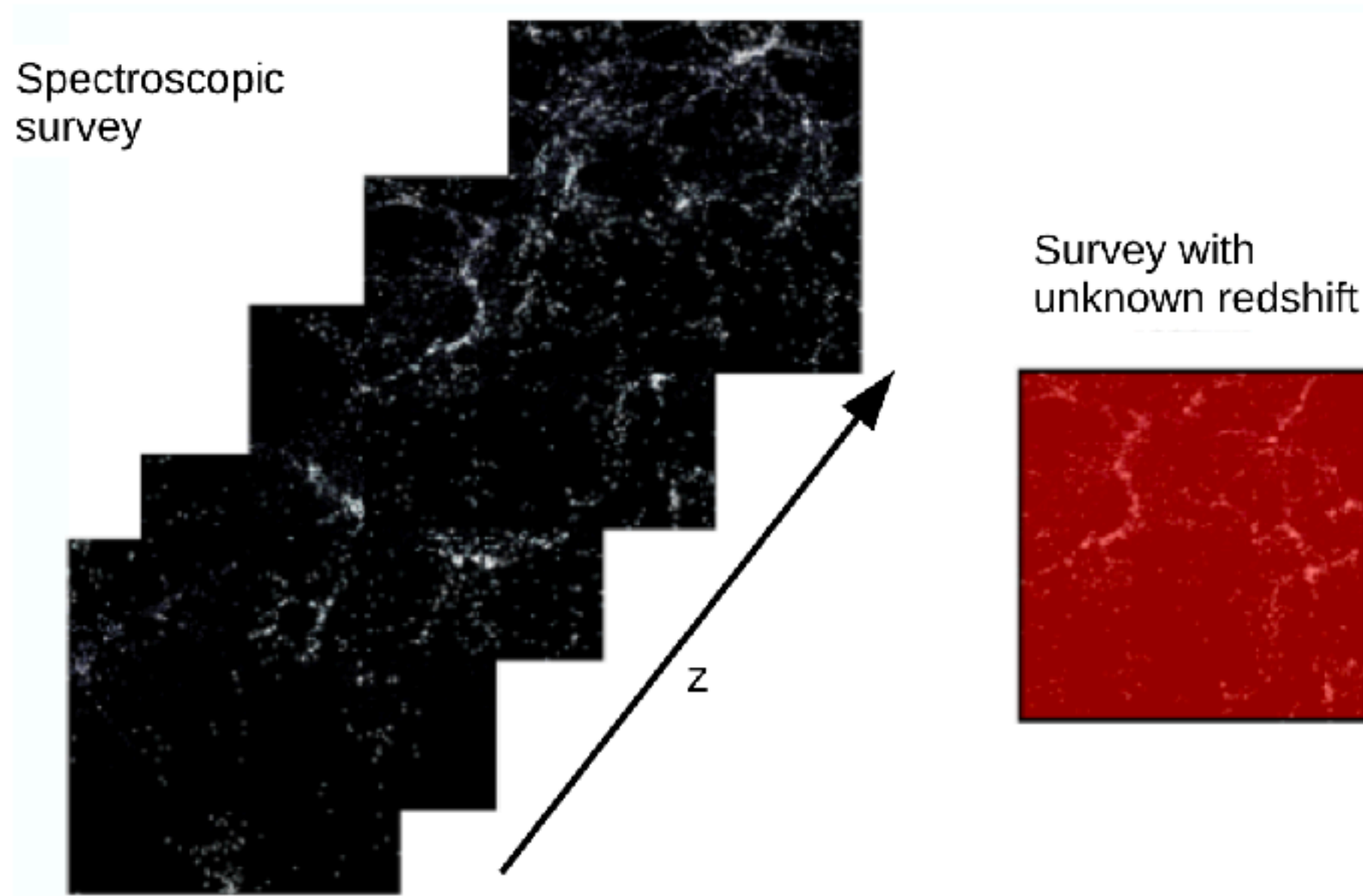
Preliminary results

- Gamma_t and gamma_x around a Planck cluster



Redshift estimation in CFIS

Cluster-z estimation



(Ref : Scottez V. et al. 2016, MNRAS, 462.2, 1683-1696)

Conclusion

Conclusion

- CFIS is perfect for weak lensing studies.
 - Large area
 - High quality images
- Two pipelines in development to ensure result's consistency.
- Redshift available from spectro-z, photo-z and cluster-z.

Thank you for your attention !

