The CFHT Stripe 82 Survey (CS82)

No Cl's in this talk
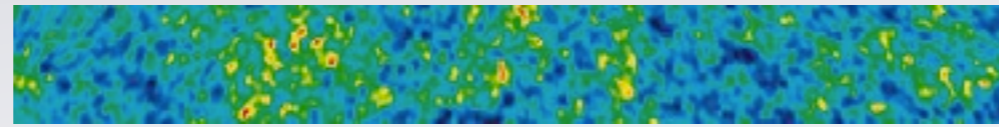
Alexie Leauthaud, Jean-Paul Kneib, Ludovic van Waerbeke, Martin Makler, and the CS82 collaboration

CMB-Galaxy Lensing Cross-correlations

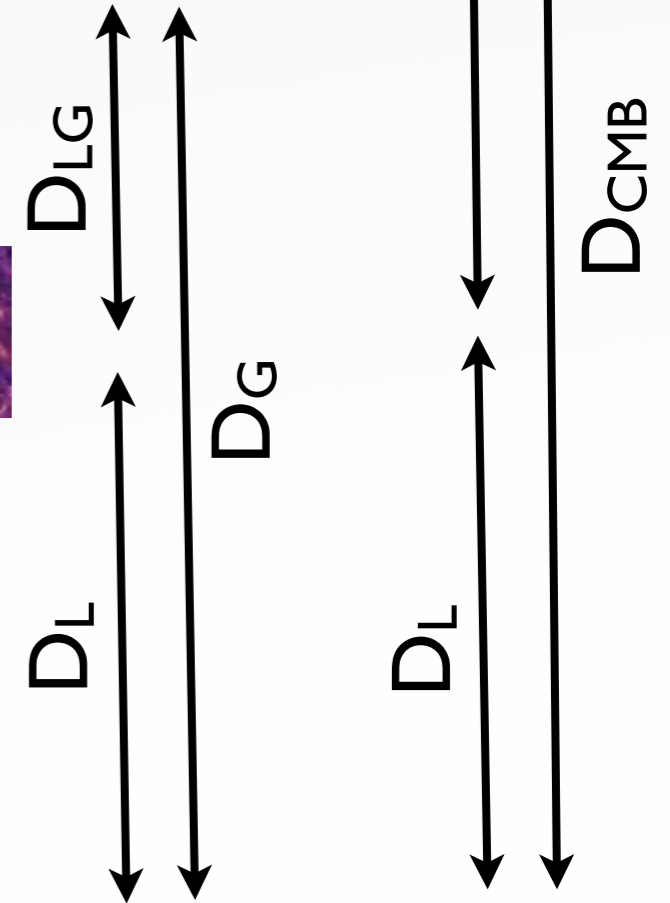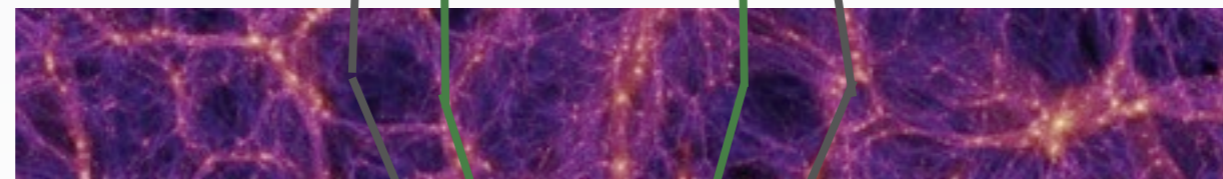with: Sudeep Das, Eric Linder, Charlotte Welker

$\kappa = \Sigma / \Sigma_{crit}$

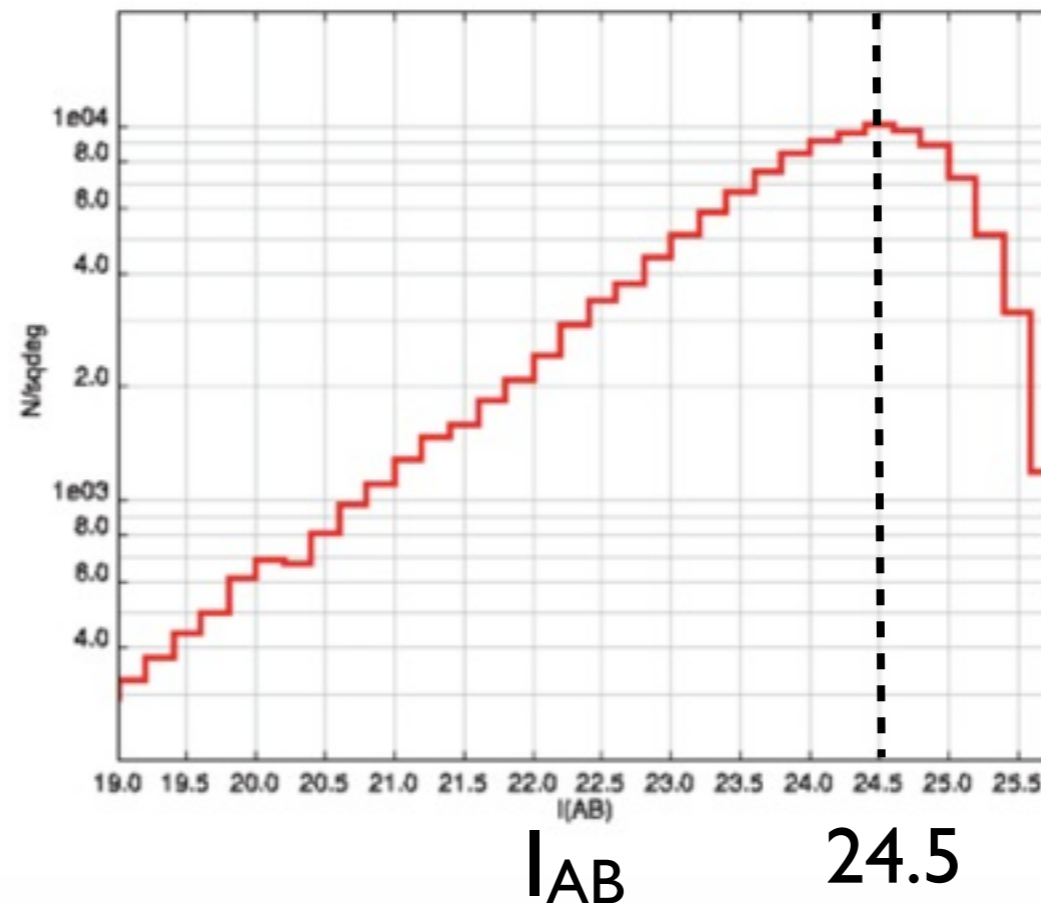$\Sigma_{crit} \sim D_S / D_L D_{LS}$

Σ = surface mass density

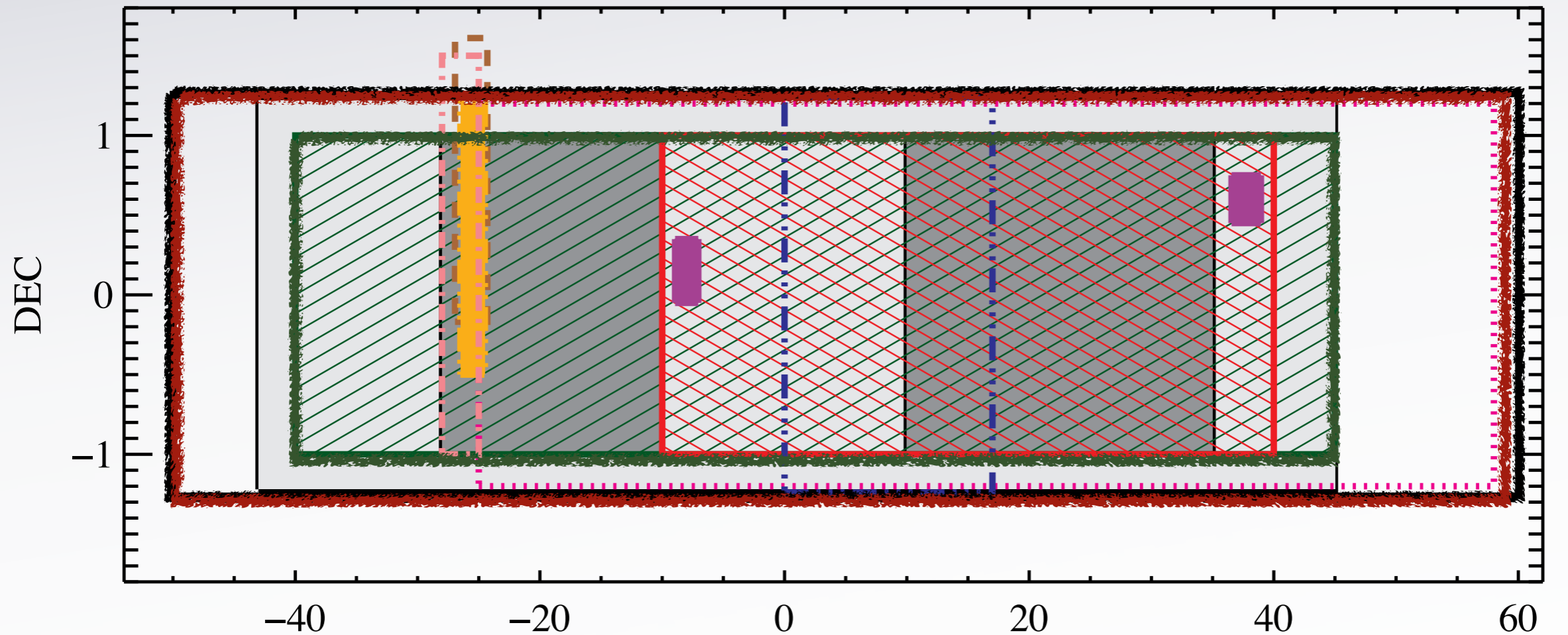- Amplitude of power spectrum at Z_L
- $R = (D_{L\text{-}CMB} \, D_G) / (D_{LG} \, D_{CMB})$

Das et al. 2008

CS82 in a nutshell

- 170 MegaCam (1 sq.degree) pointings with slight overlaps
- Same area as CFHTLS wide field !!
- Mostly between -40<Ra<+45 and -1<Dec<+1, "Stripe 82"
- 30 minutes observations, 4x410s science images
- I-band depth: ~23.5 mag for galaxies, ~ 24 mag for point sources

I_{AB} 24.5
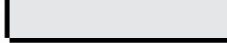
Where is Stripe 82 ?

Imaging :

▬▬▬	Stripe 82 SDSS imaging (ugriz, i<22.75, 270 deg^2)
▨▨▨	CFHT Stripe−82 survey (170 deg^2, i<23.5, seeing<0.8")
∙∙∙∙∙	UKIDDS LAS, K$_{vega}$=18.4
▬ ▬ ▬	UKIDSS: DXS Field 4
∙−∙−∙−	CFHTLS W4
▨▨▨	WISER (this proposal), K$_{AB}$=22

Spectroscopy :

▢	BOSS (220 deg^2, 40,000 redshifts)
▬▬▬	DEEP2 and PRIMUS
▬▬▬	VVDS
−∙∙−∙∙−	Wiggle−z

Radio :

▨	VLA

CS82 observing conditions
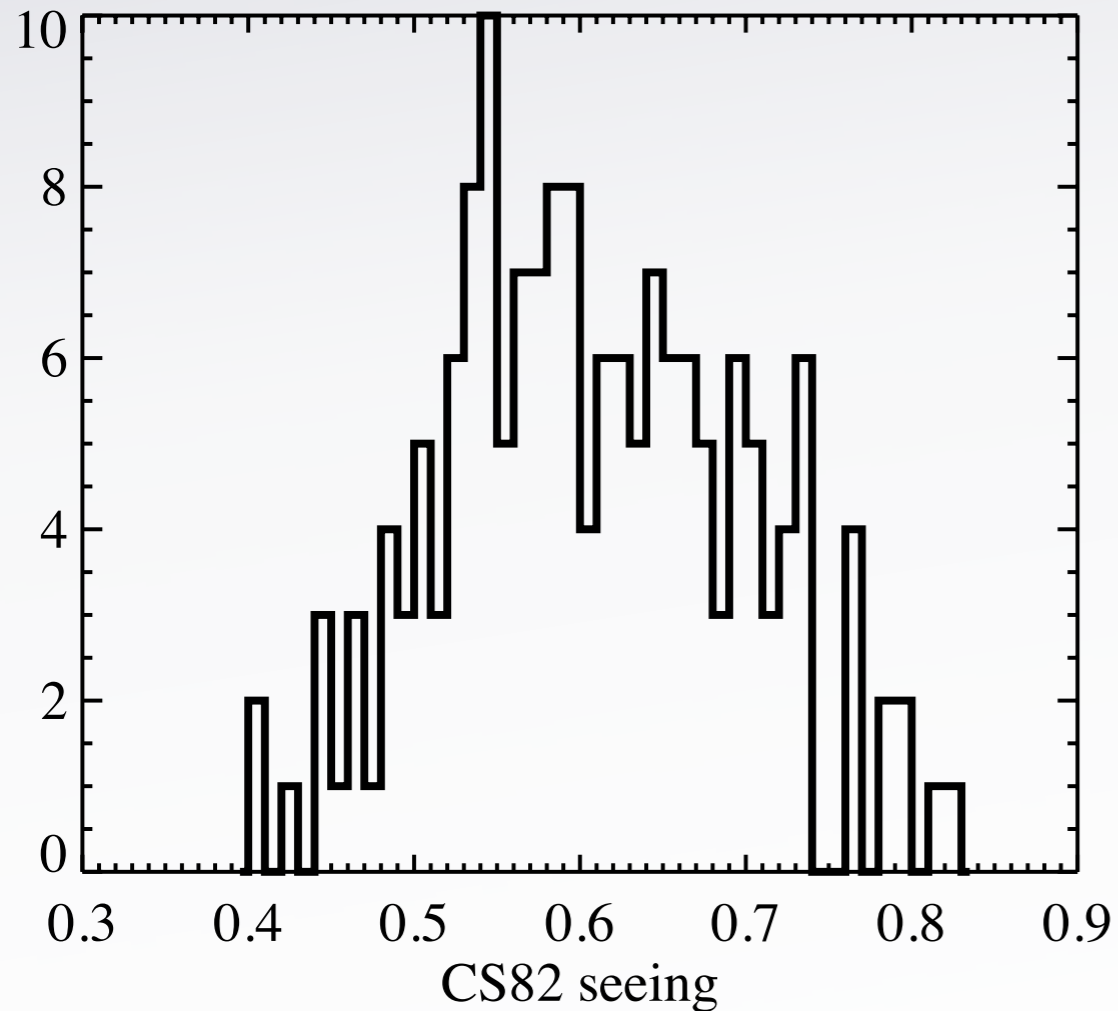
CS82 mean seeing = 0.6"
Good for kappa maps with galaxy lensing

CS82 Redshift Distribution

CS82 galaxies for lensing

Predicted:
7 sigma detection

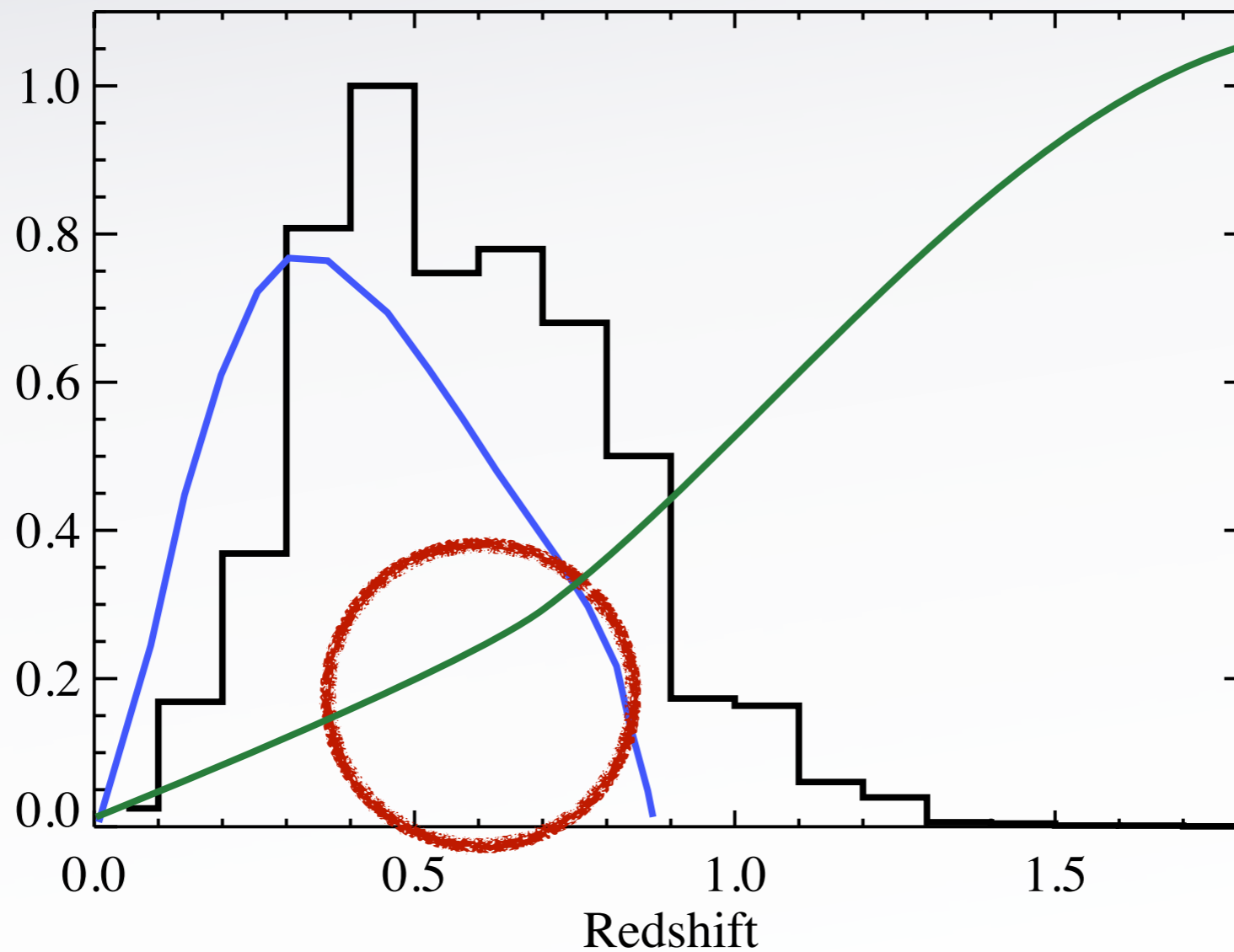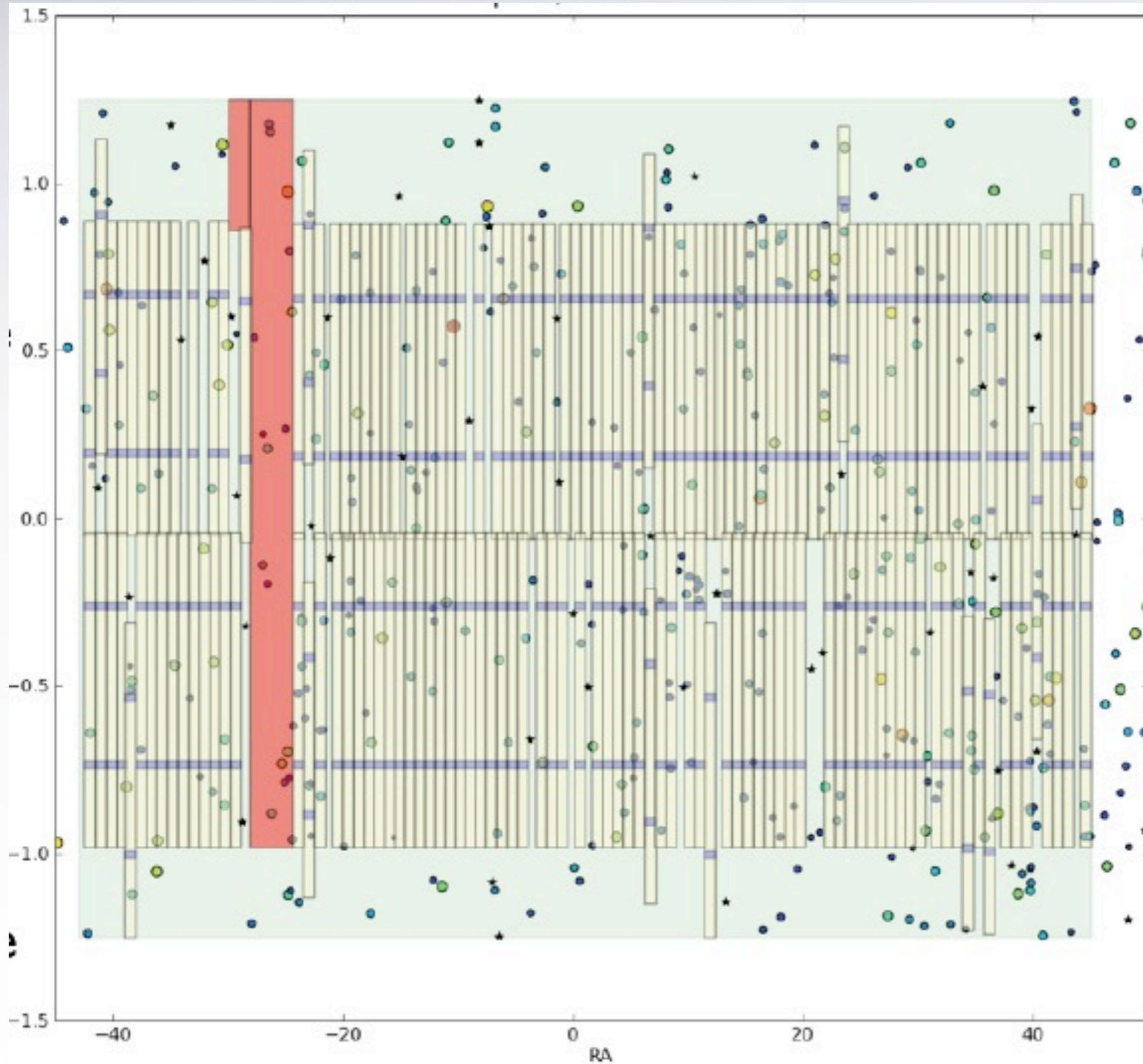Galaxy 'regular' lensing   CMB lensing

Observing strategy

Observing strategy such that we have tried to avoid massive stars

CS82 timeline: fast track

- Proposal accepted spring 2010
- Observations from August 2010 to January 2011, service mode observations insuring good seeing for the survey (seeing<0.8"), 100% observations complete
- First data reduction complete
- Mask making
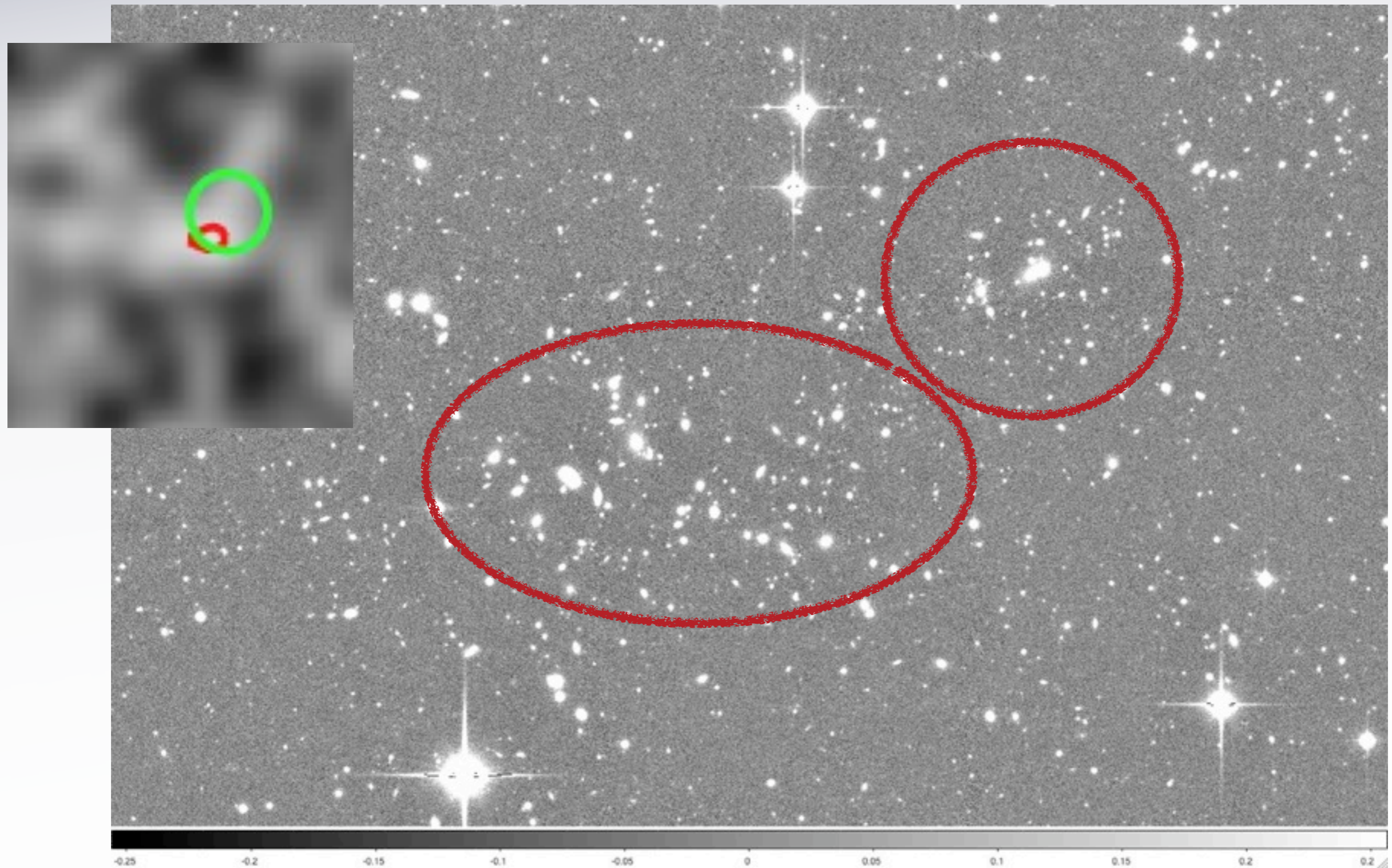- Source galaxy number density: ~ 10 per armin^2
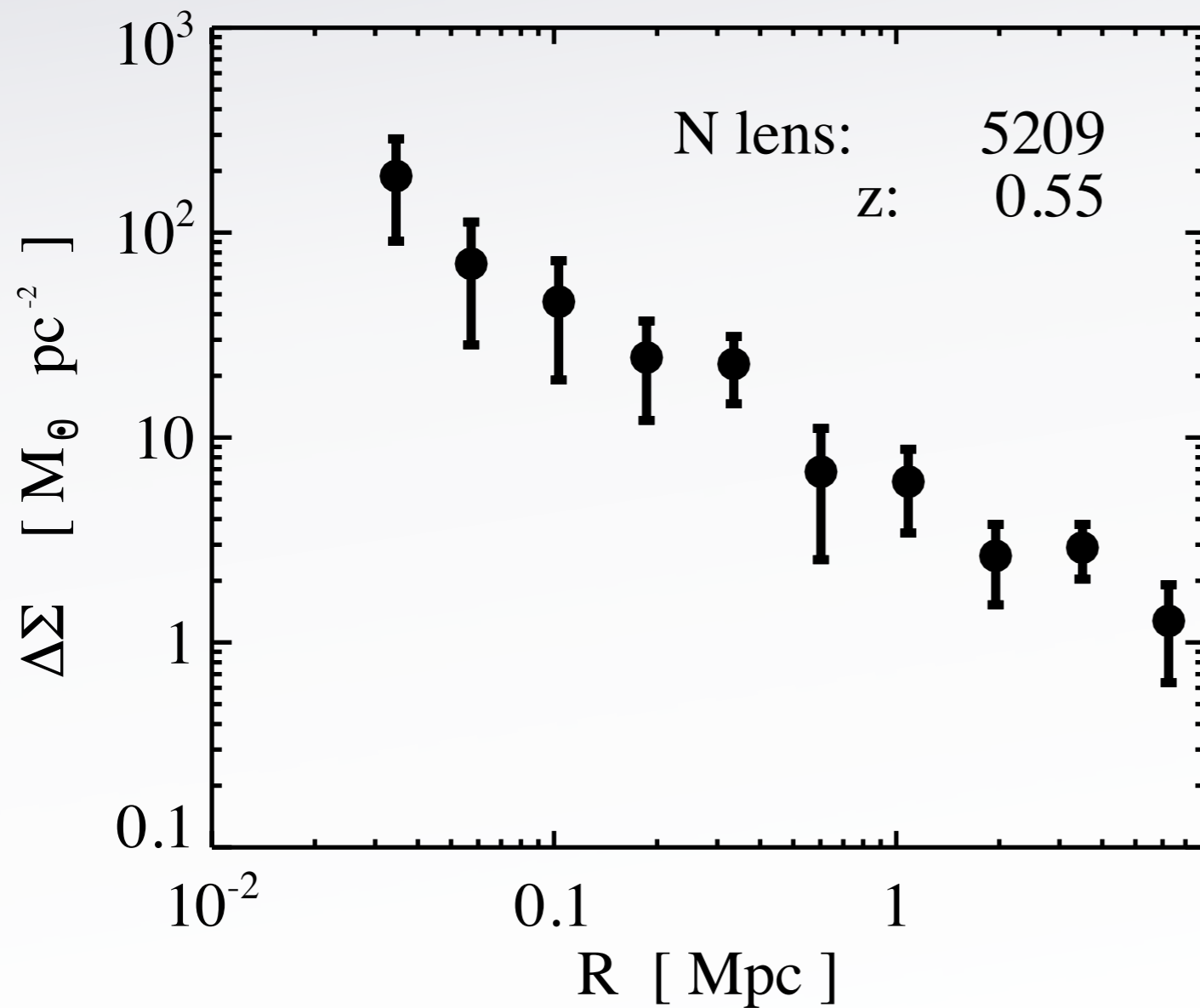
Mask making: done!

Asteroids/image defects
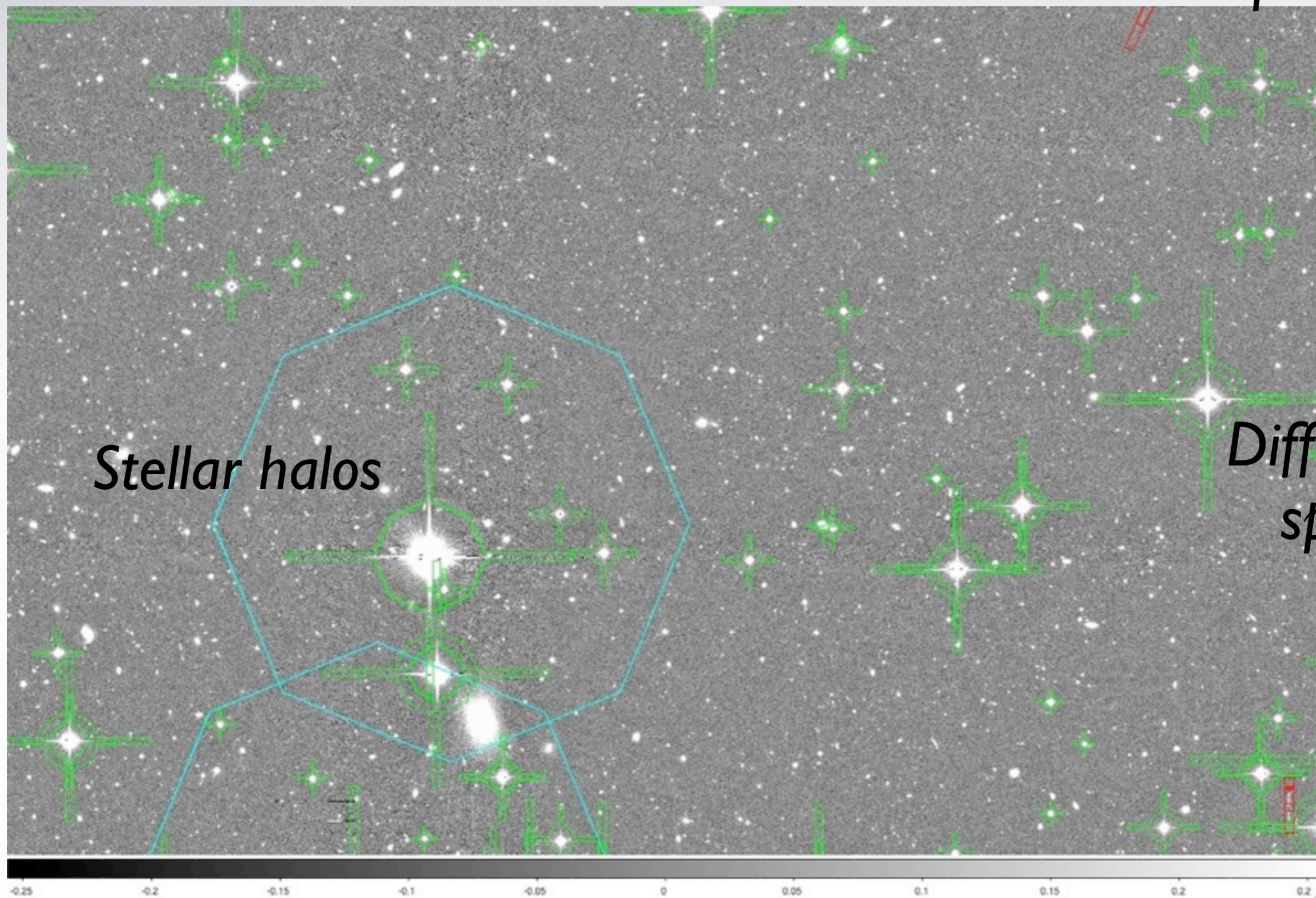
Stellar halos

Diffraction spikes

What I will show you next time .....

z=0.4 cluster, $N_{gal} \sim 15$

Yes, we have strong lensing signals ...

galaxy-galaxy lensing around a sample of spectroscopic lens galaxies at z=0.5 from BOSS

Summary

- CS82: "traditional" weak lensing survey, 170 deg^2

- Covers Stripe 82 - overlaps with ACT

- In the process of making kappa maps

- CMB-galaxy lensing cross-correlations

- Stay tuned!