

Quantifying the environment of Ly α blob I:
Ly α imaging of a powerful radio galaxy at $z=4.1$,
associated with a giant Ly α nebula

Tomoki SAITO (Kavli IPMU, WPI, UTokyo)

tomoki.saito@ipmu.jp

Y. Matsuda (NAOJ), A. Inoue (Osaka Sangyo)

C. Lacy, I. Smail, C. Baugh (Durham), A. Orsi (PUC),

I. Tanaka, T. Kodama (NAOJ), C. De Breuck (ESO),

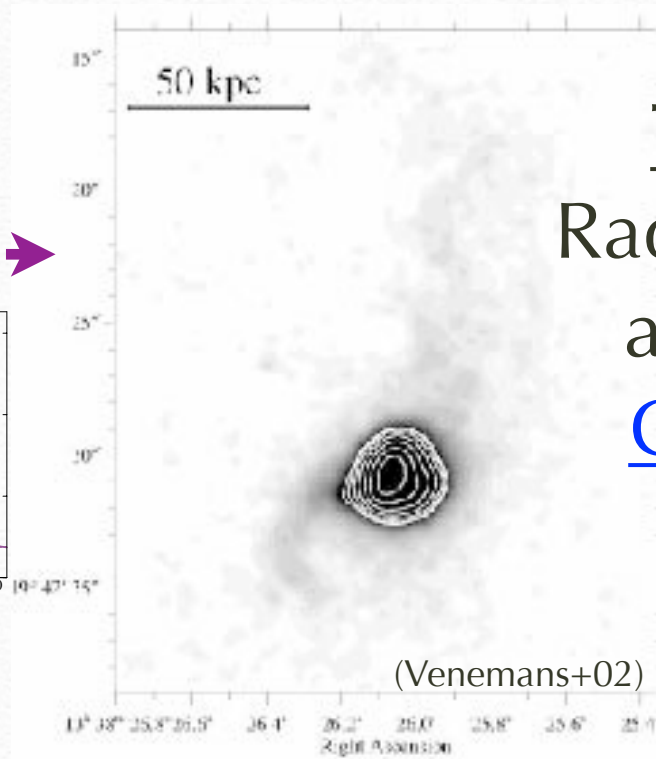
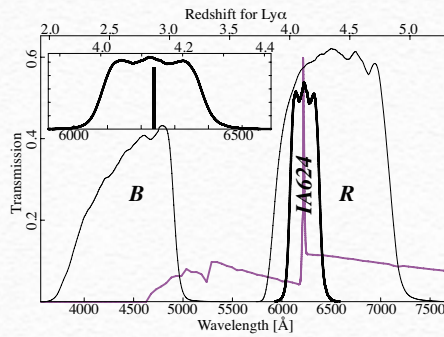
T. Yamada (Tohoku), K. Ohta (Kyoto), Y. Taniguchi (Ehime)



Observations

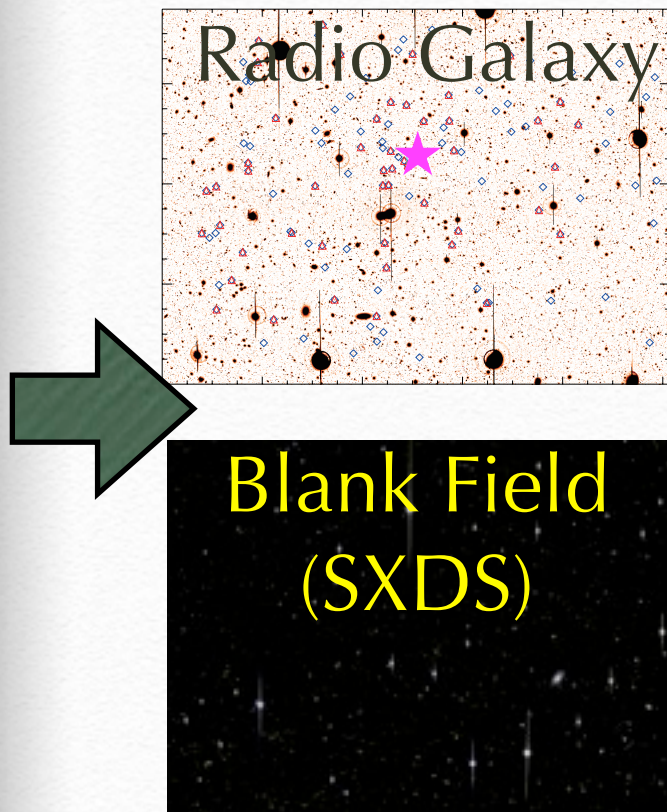


IA624 filter



TN J1338-1942
Radio Galaxy @ $z=4.1$
associated with a
Giant Ly α nebula
>100 kpc

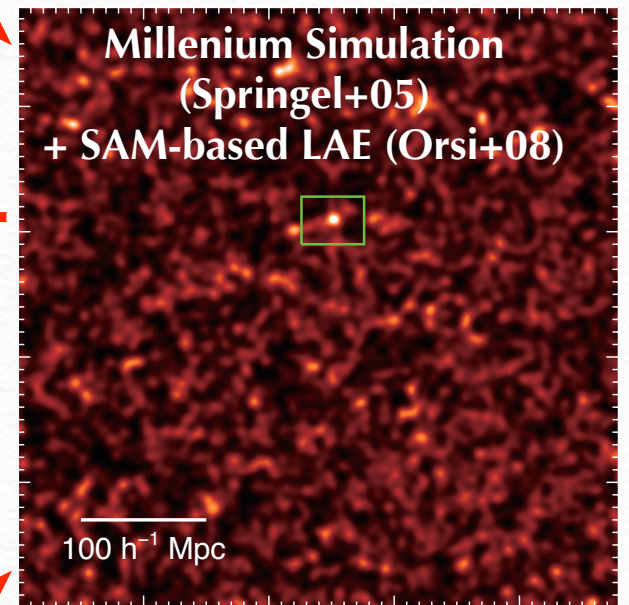
Using the LAEs..



- Density field
- LAE surface density
- Luminosity Function
- Density dependence

**Environment of
Ly α Blobs**

Simulation

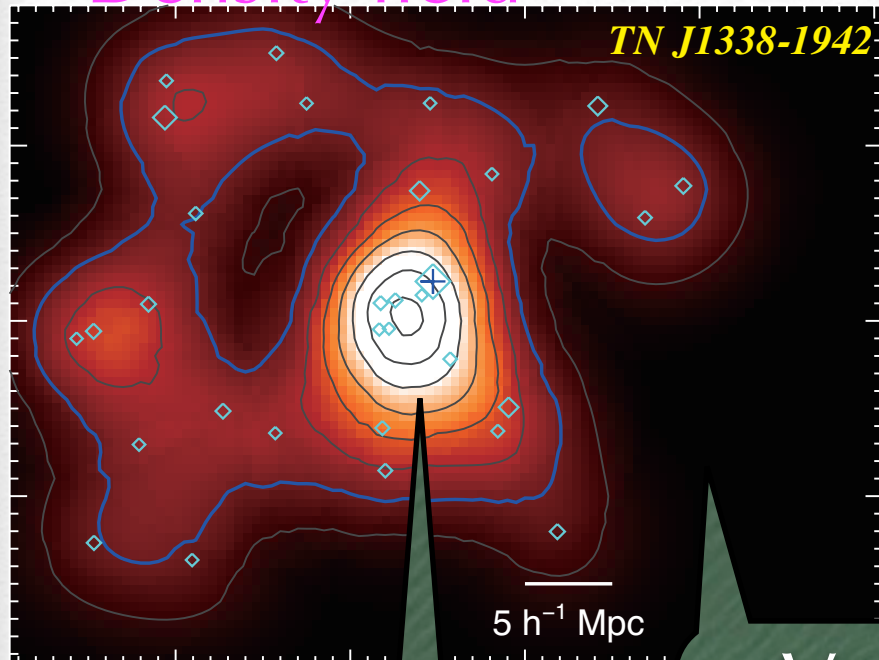


Compare w/ obs.

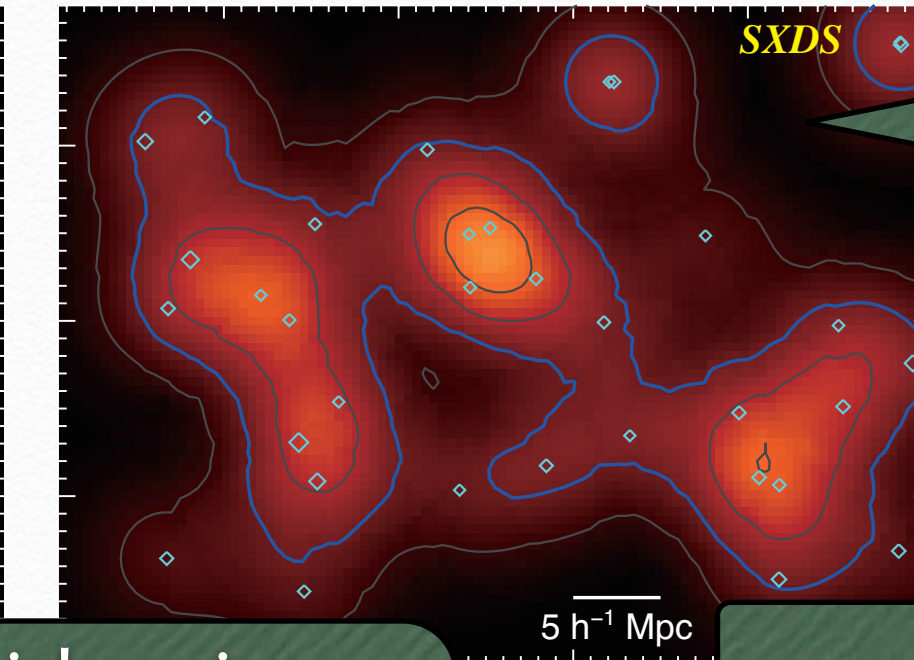
500/h Mpc

Results: Unusual field!

Density field



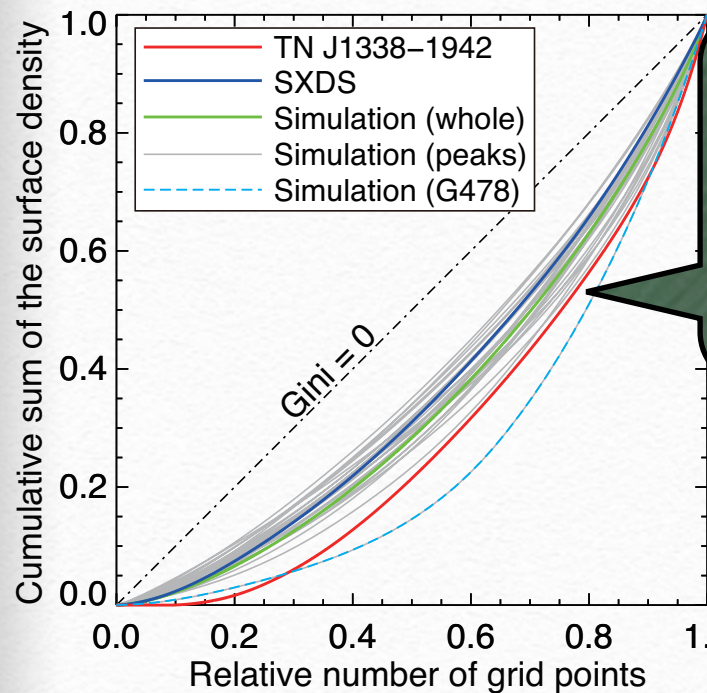
High density peak w/ $\delta \sim 4$



average density is almost same as SXDS

Void region only $\sim 10/h$ Mpc from the peak

exceptional field w/ High overdensity & High density contrast



Gini index:
0.415 (TNJ1338)
vs.
0.268 (SXDS)

Luminosity function
Highly enhanced bright end

