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Gas distribution [redacted] lensed "normal" galaxy at z~2

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- We have conducted several imaging surveys to identify clusters of galaxies for cosmological applications

- Red-sequence Cluster Survey 1 (RCS1)

  - 100 sq deg

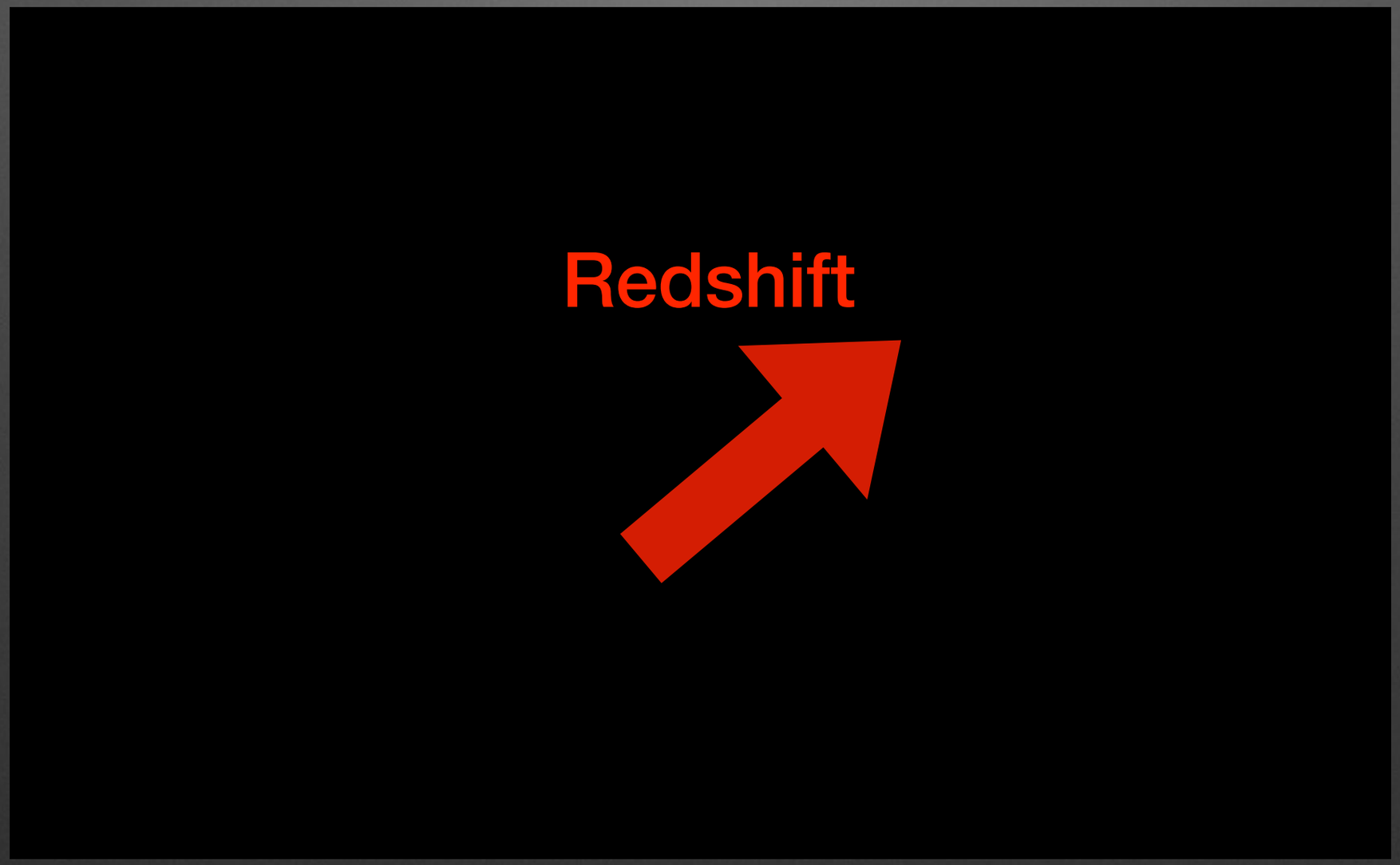
  - R and z bands

- Red-sequence Cluster Survey 2 (RCS2)

  - 1000 sq deg

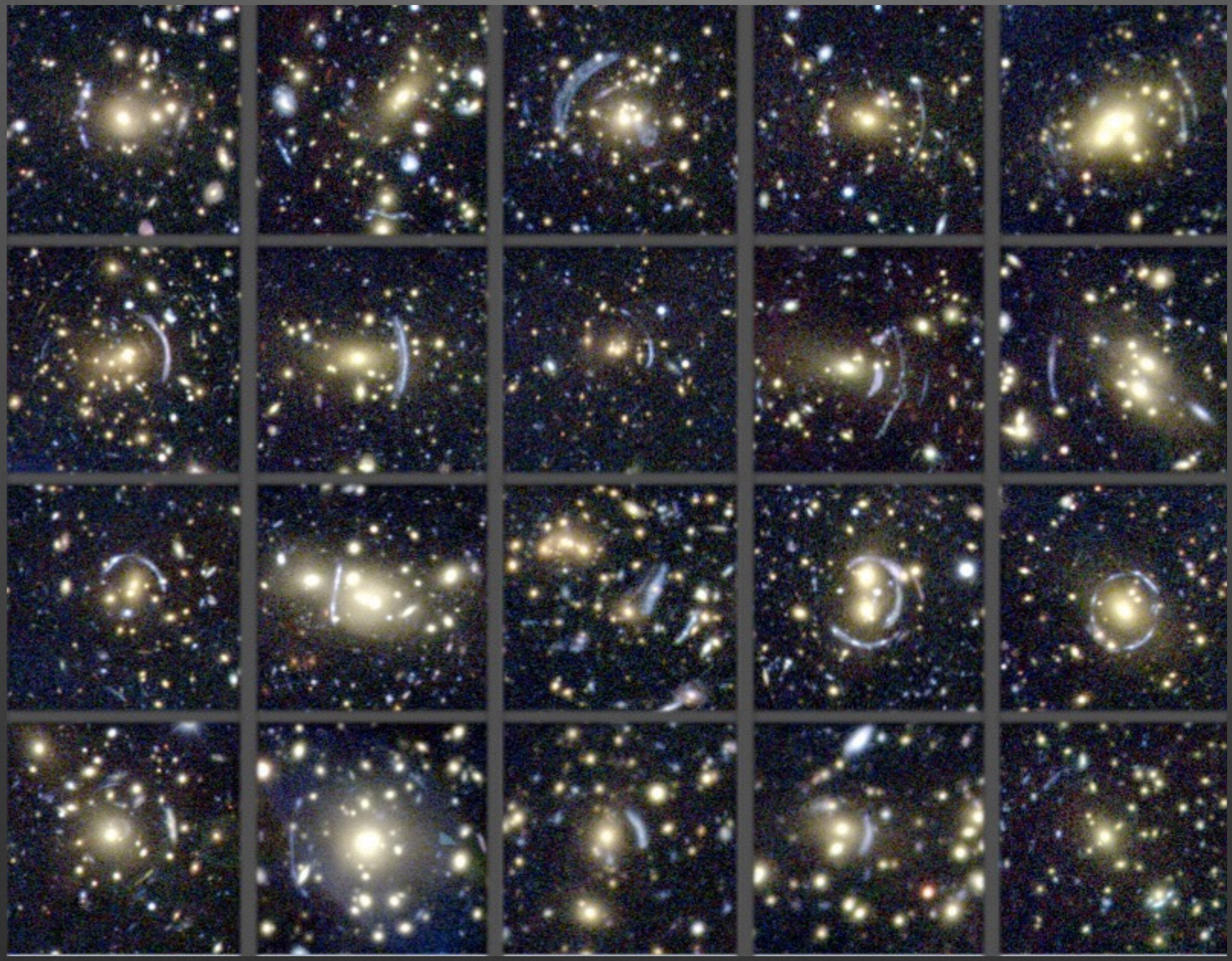
  - gr(i)z bands

We have used the homogeneity of the early-type population as a tracer of massive clusters



RCS2 J232727.6-020437
M ~3×10^{15} $M_{\odot}$, z = 0.7

Sharon et al. 2015



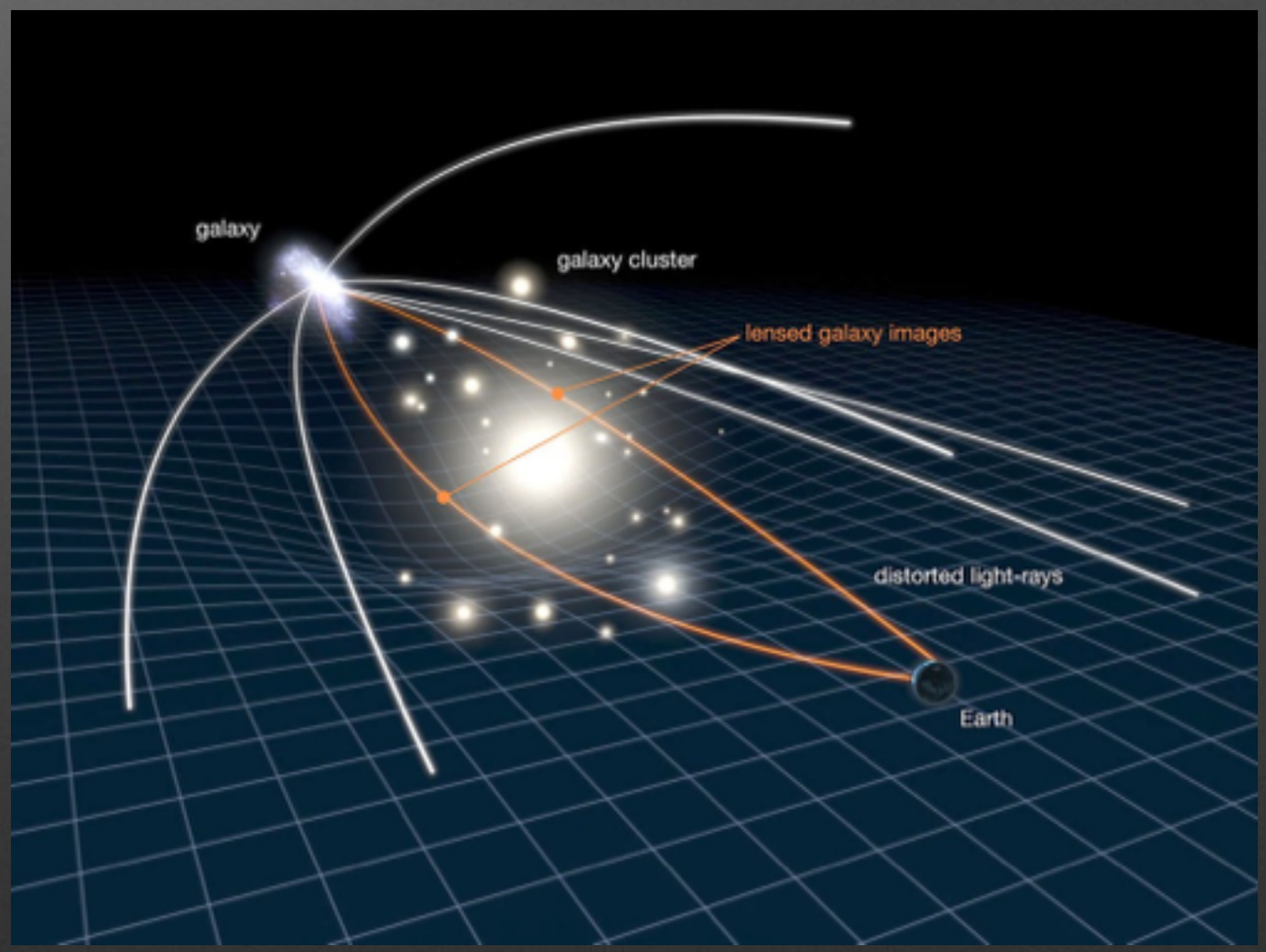
One of the brightest arcs known

RCS2 J032727-132627
M ~10^{15} $M_{\odot}$, z_{CL} = 0.56
z_{arc} = 1.7, r_{AB} = 19.1
38” length in 4 images
u ~ < 30x > from 4x to 100x

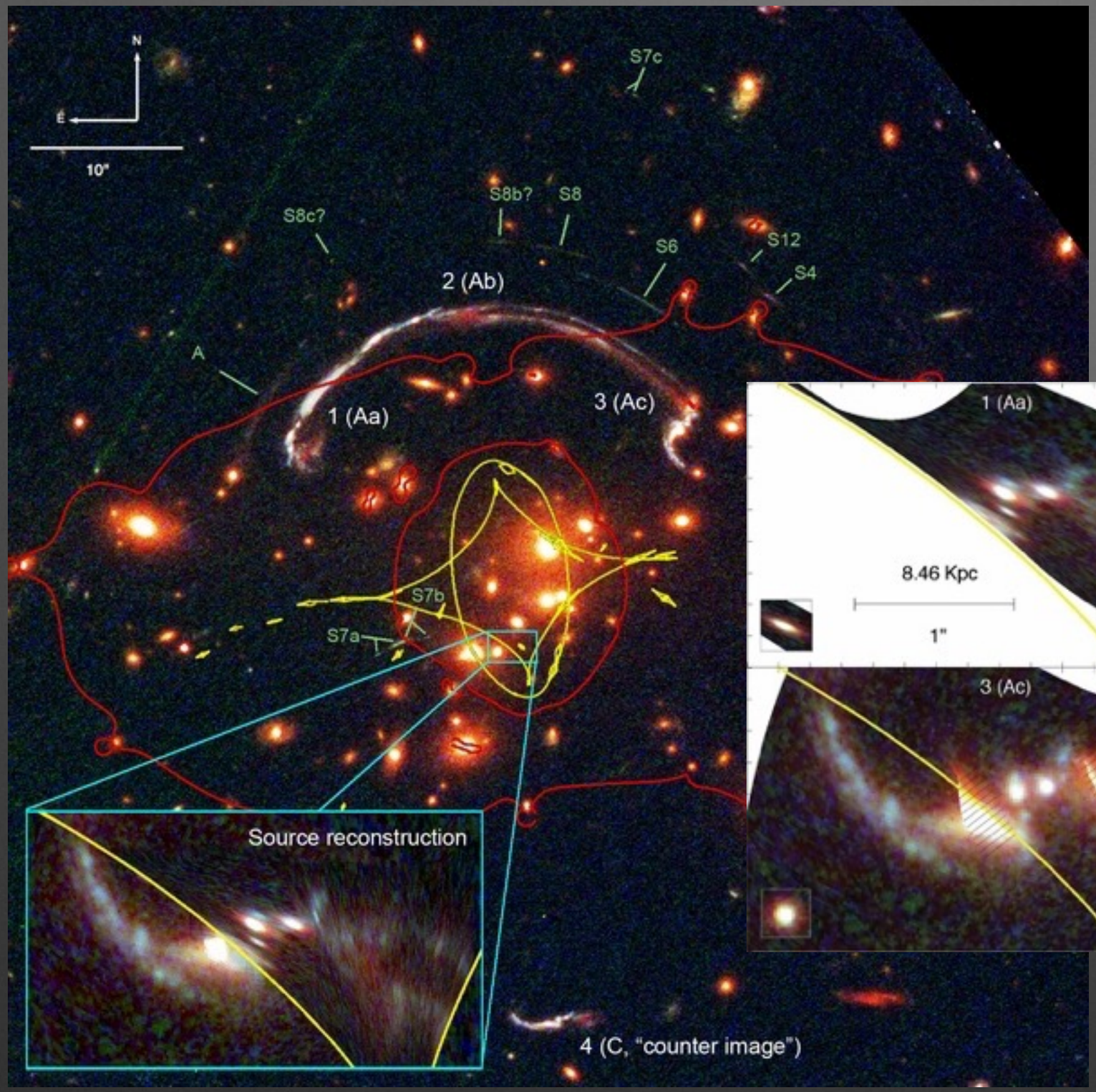
Wuyts et al. 2010

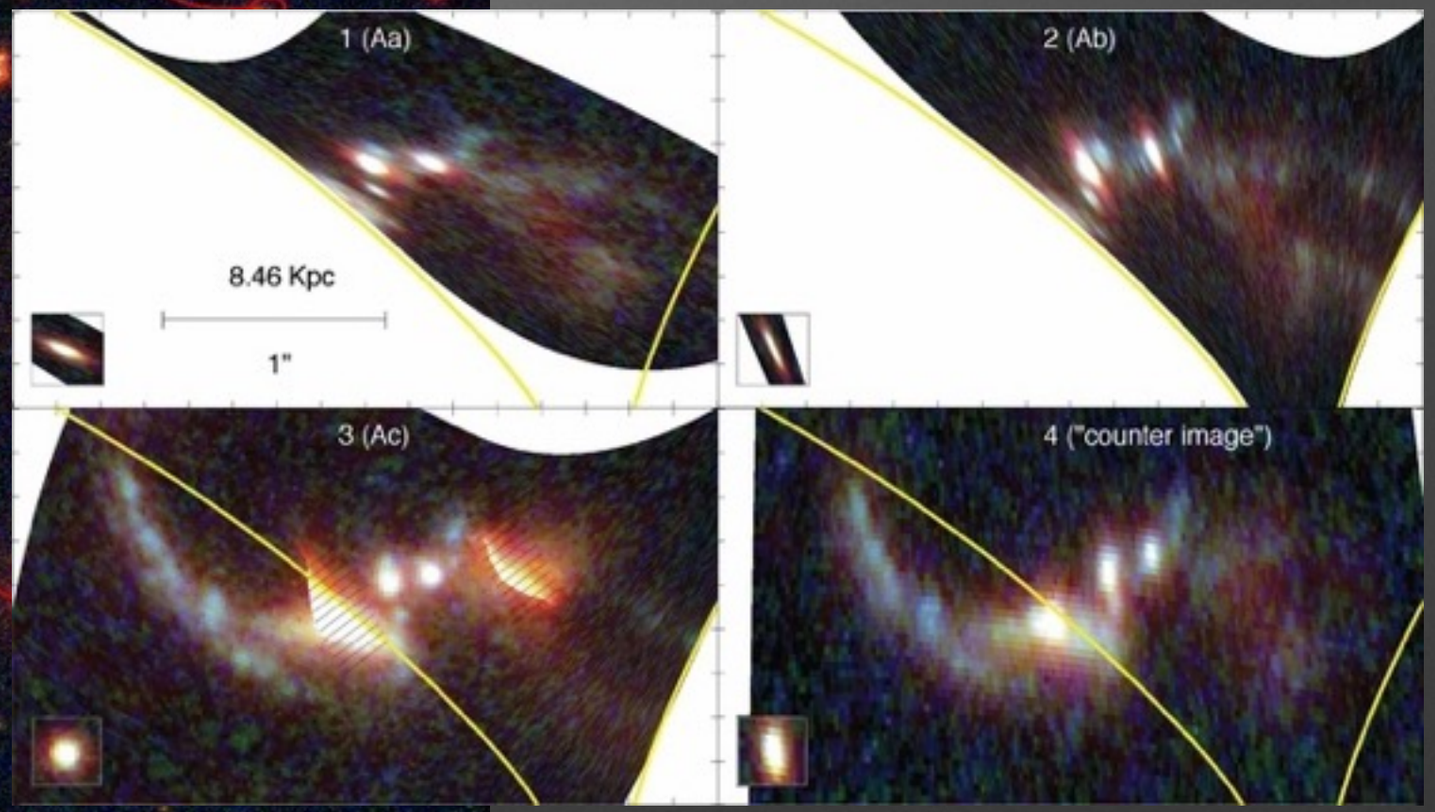
Strong lensing depends on three elements

1. The lens - here the cluster of galaxies
2. The source - the distant galaxy
3. The distances - cosmology



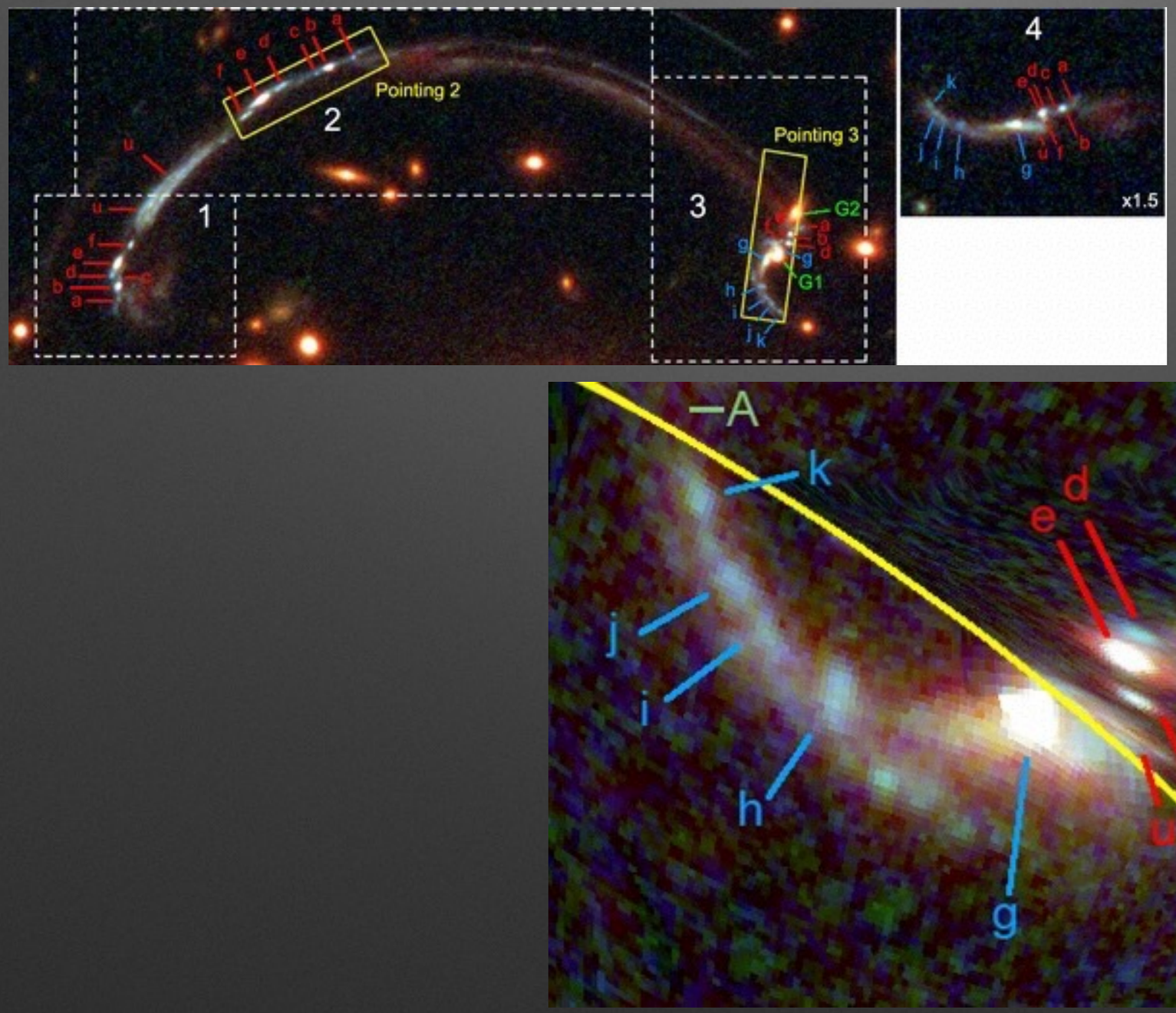
HST imaging
Lens model

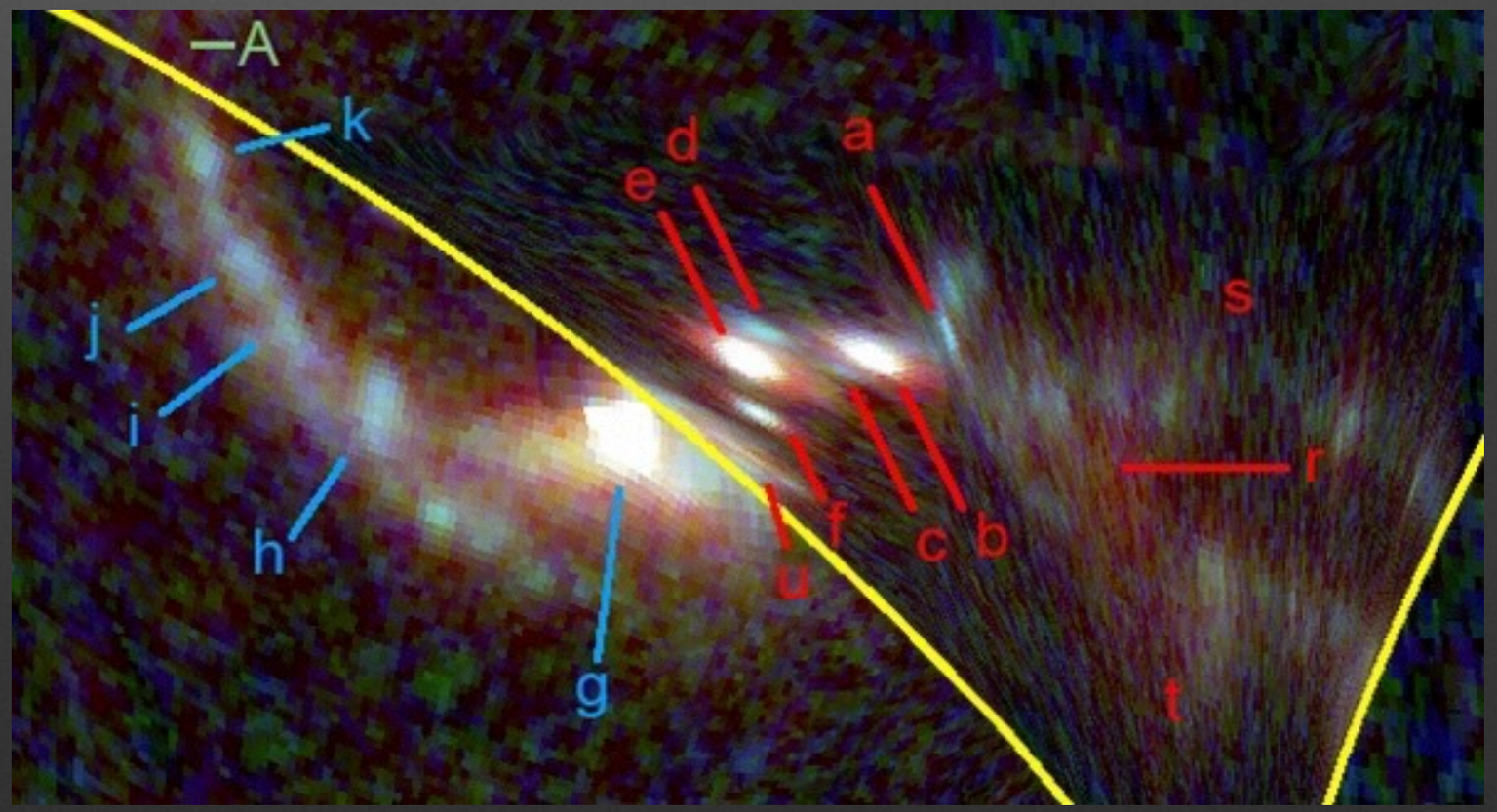




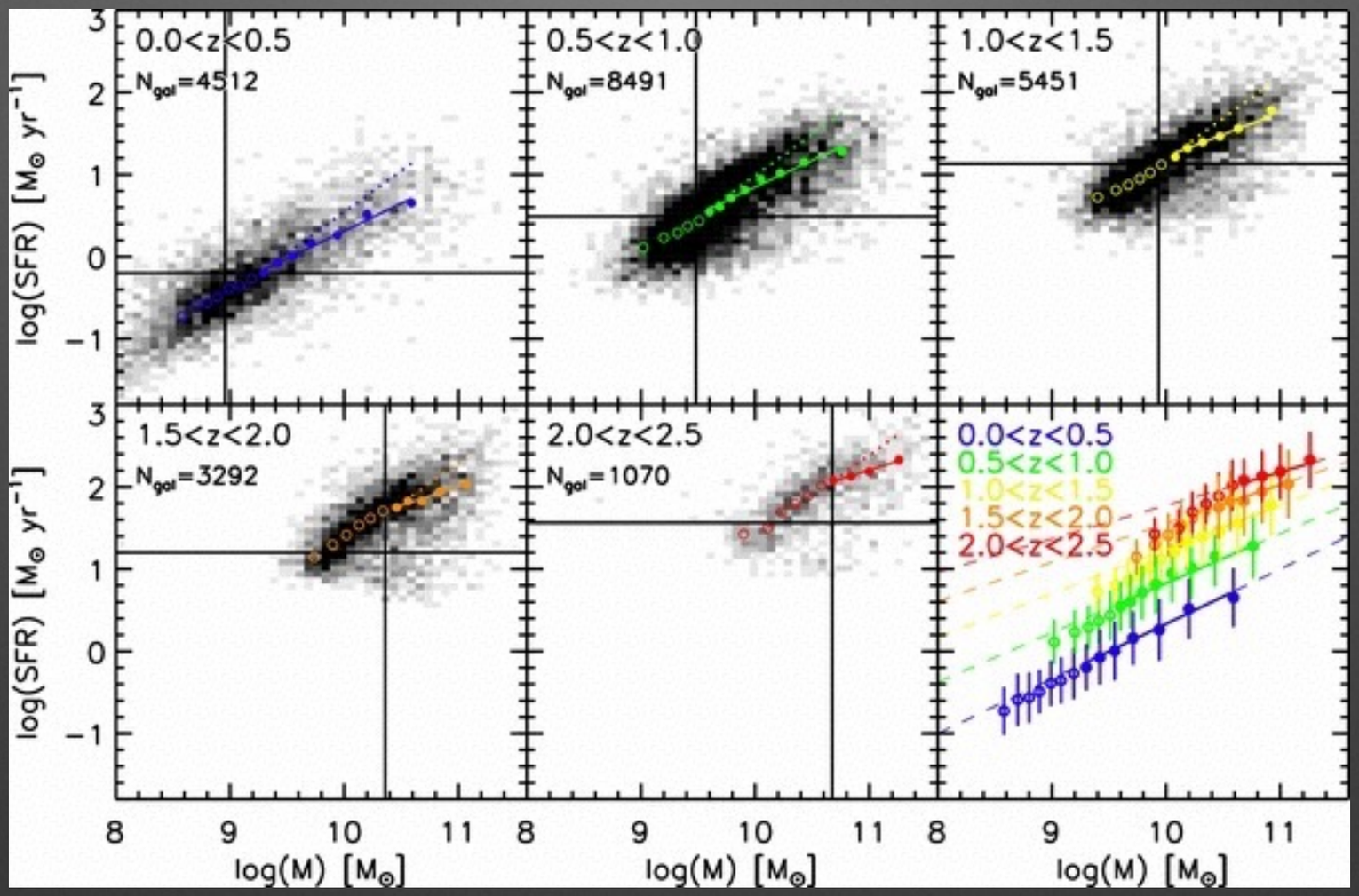
Sharon et al 2012

An accurate model allows us to study this galaxy in a x100 pc scale





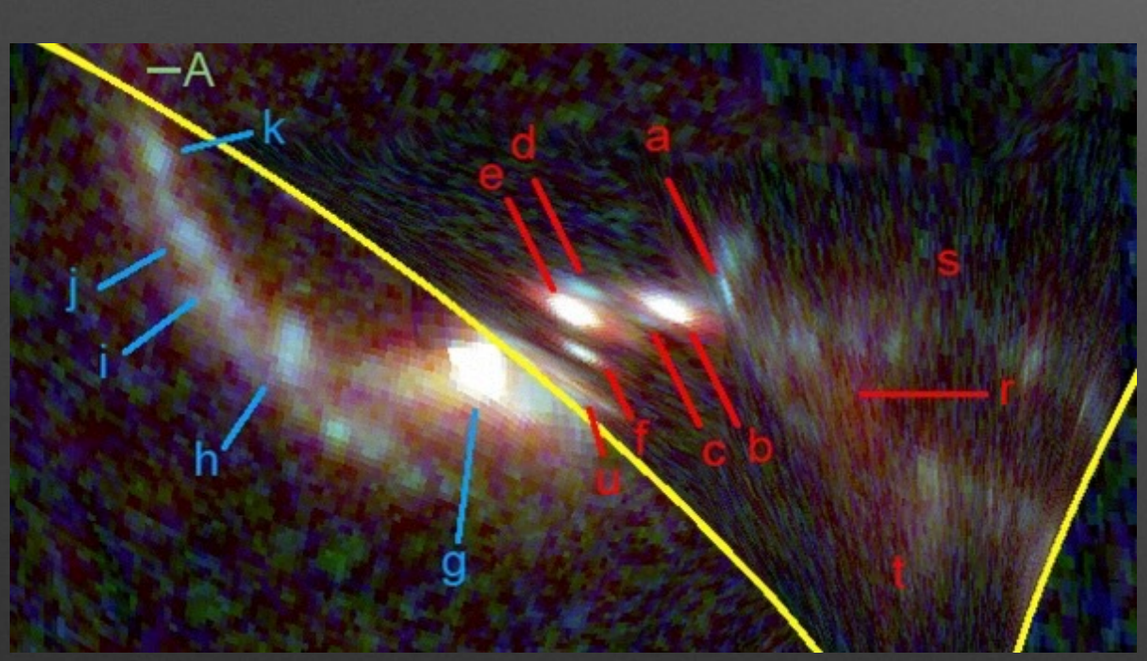
SFR mass sequence for star forming galaxies (integrated quantities)

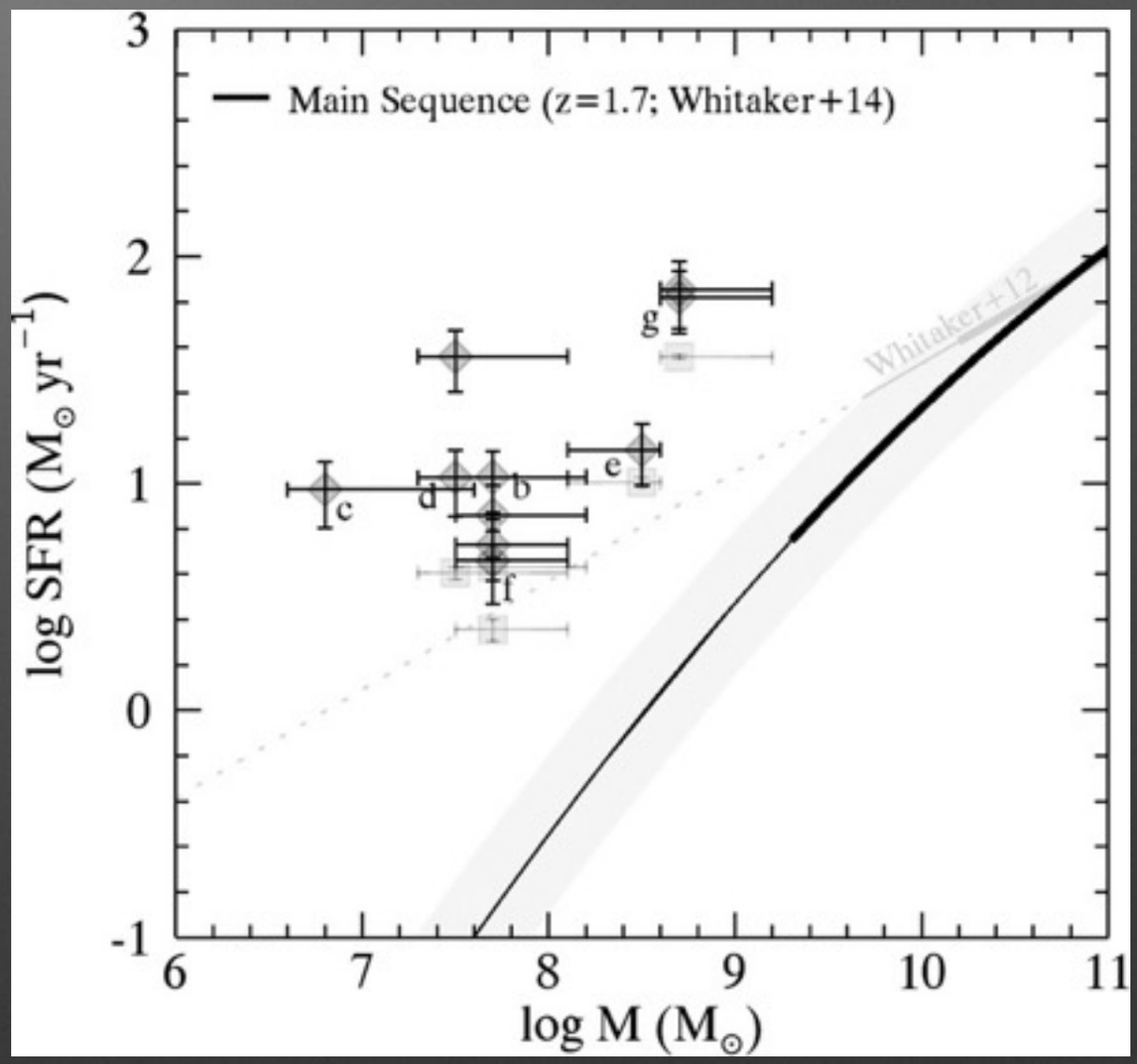


Whitaker et al 2012

RCS0327 provides an opportunity for probing low mass galaxies at high redshifts

*individual clumps





Whitaker et al 2014