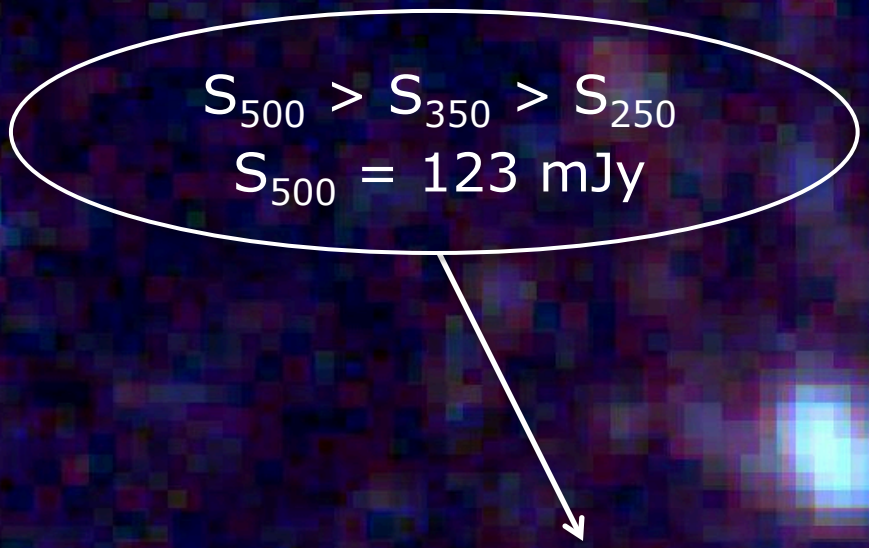
"The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 312725"

L. Ciesla,

M. Béthermin, M. Sargent, M. Boquien, T. Diaz-Santos, E. Daddi, D. Elbaz, S. Heinis, J. Richard, D. Burgarella, et al.


$S_{500} > S_{350} > S_{250}$
S_{500} = 123 mJy



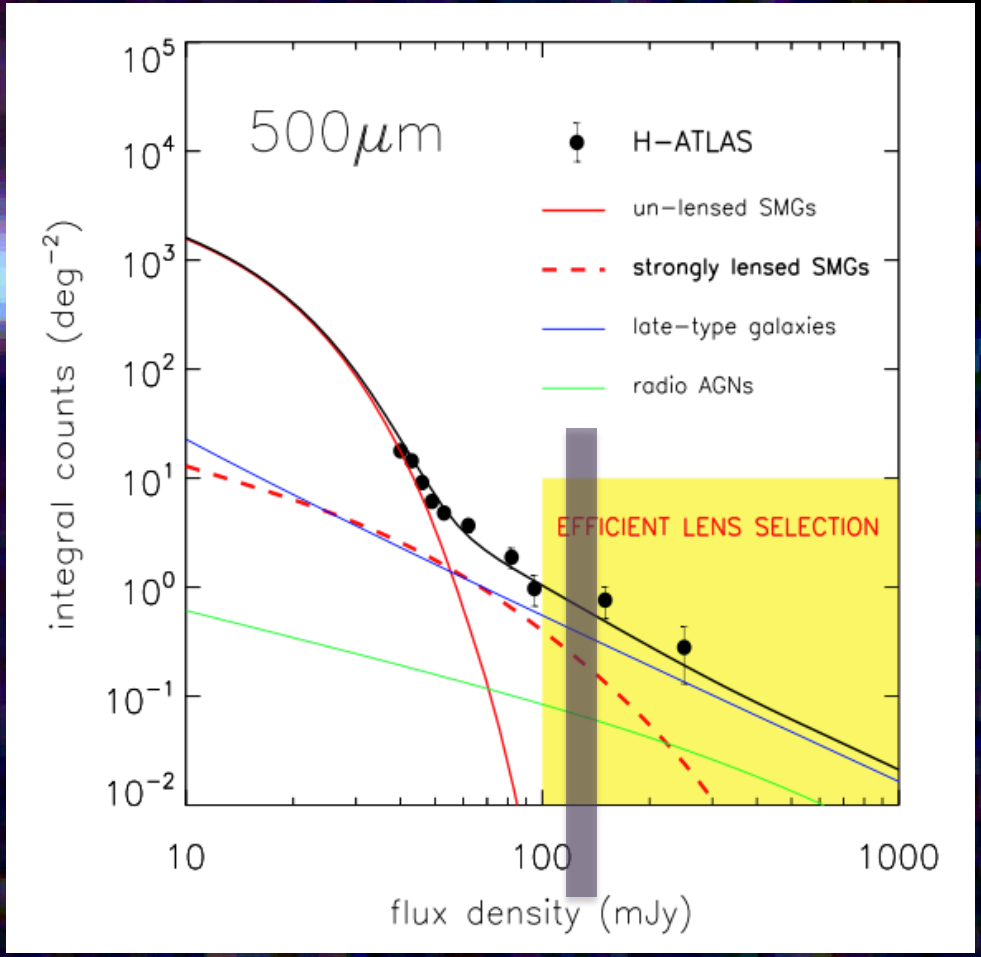
Herschel Reference Survey
(PI: S. Eales, Boselli+10)

- SPIRE obs of 323 local galaxies
- Maps from 4'x4' to 12'x12'
- 0.36 deg2<Tot. cov. <1.1 deg2

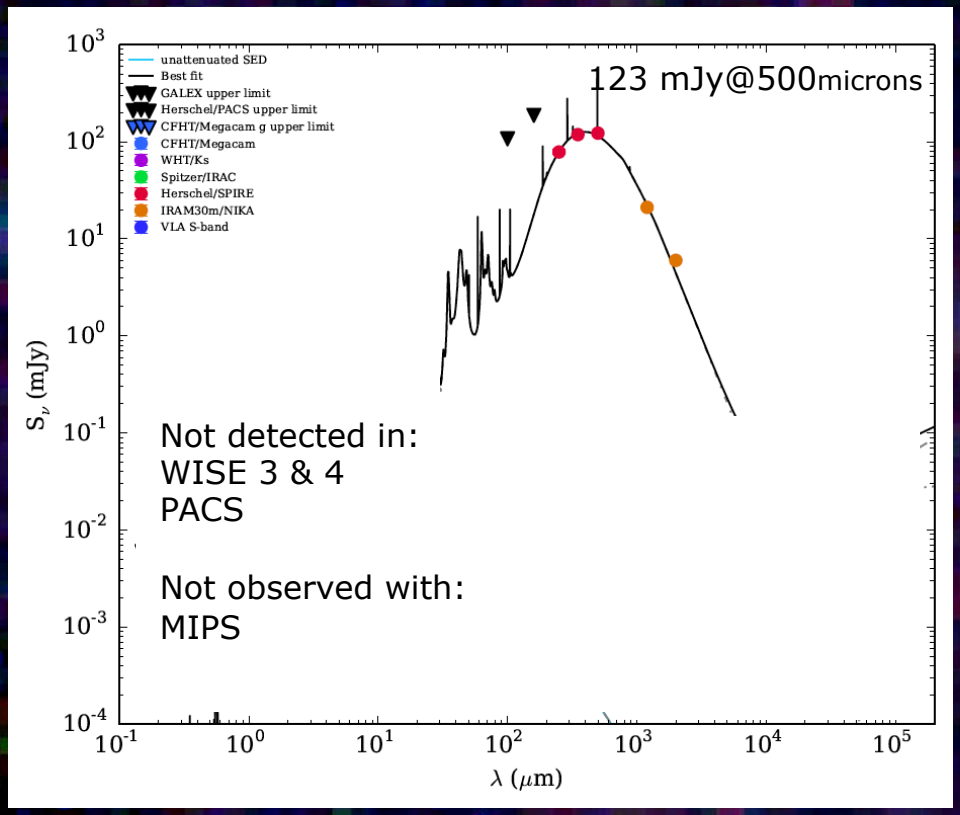
$S_{500} > S_{350} > S_{250}$

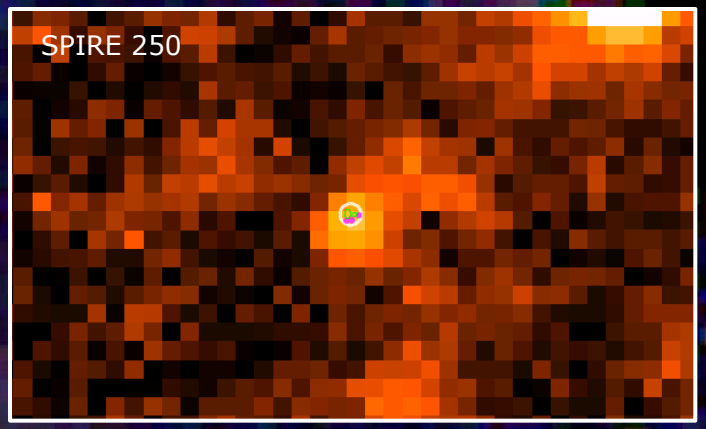
$S_{500} = 123$ mJy

Negrello+10

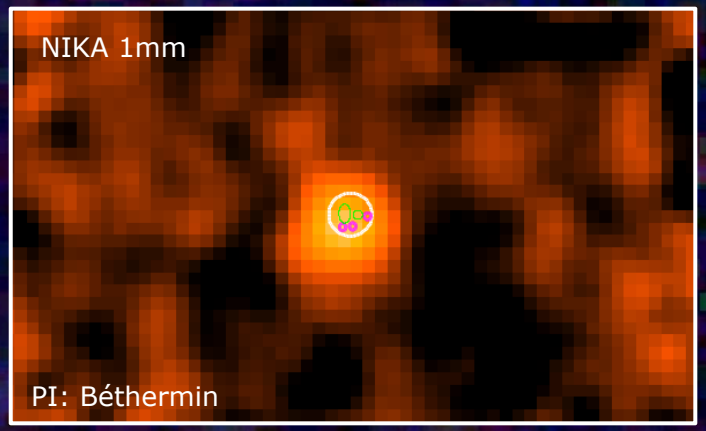


The submillimeter source



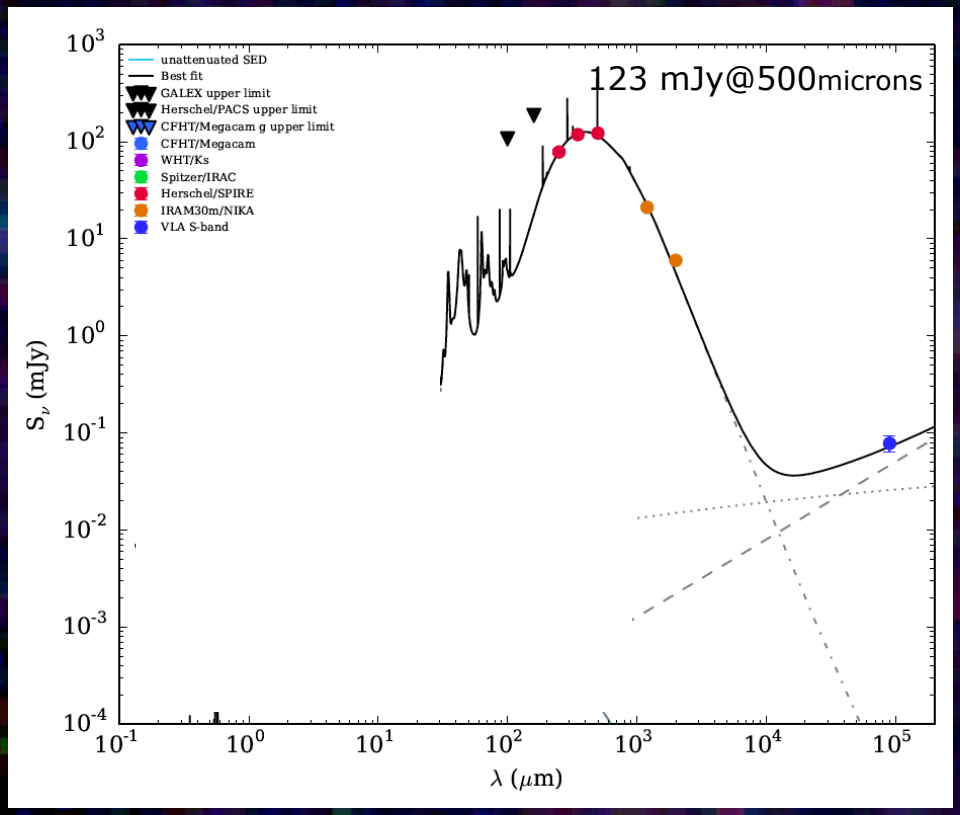


7" diameter

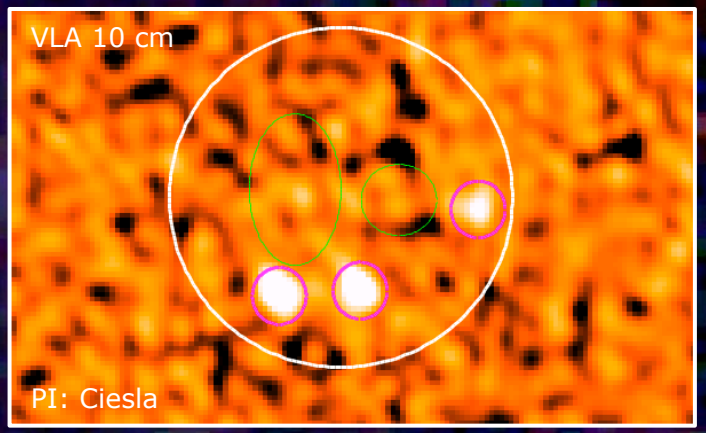


From submm flux: $z_{IR} \approx 3.8$, log LIR = 10^{14} Lsol → Must be lensed!

The submillimeter source: radio morphology

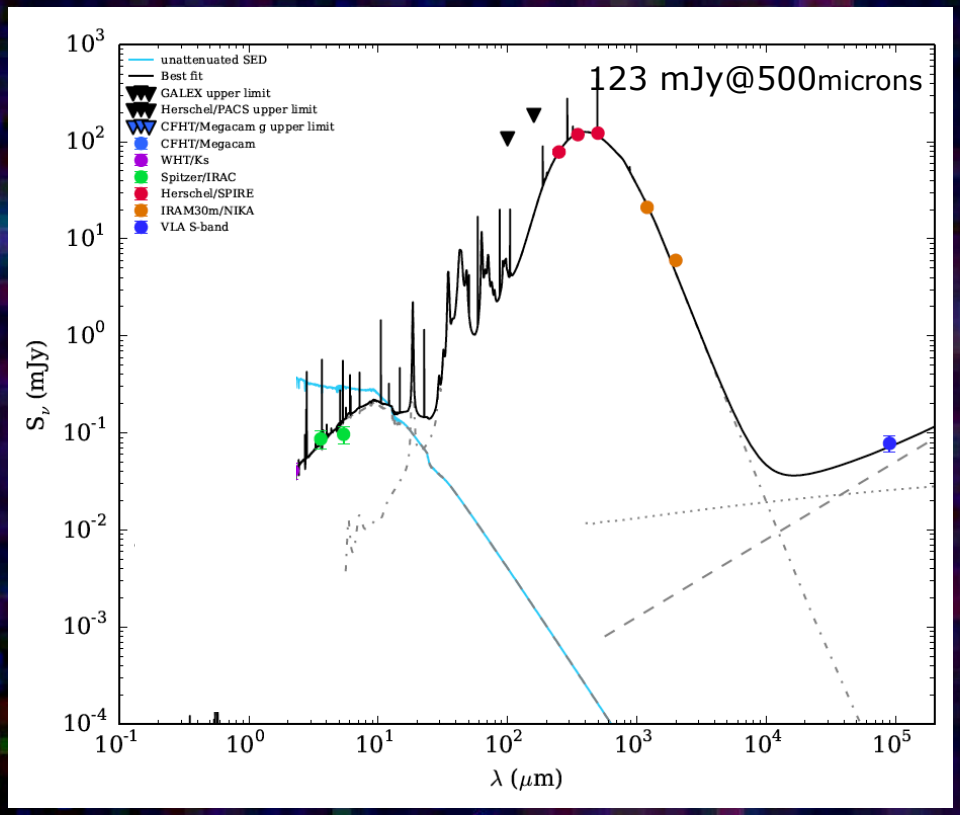


7″ diameter

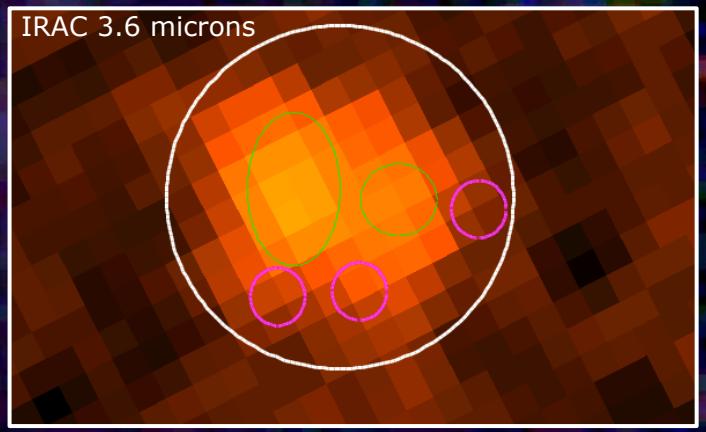


From radio morpho: multiple counterpart → Must be lensed!

The optical counterpart: IRAC morphology

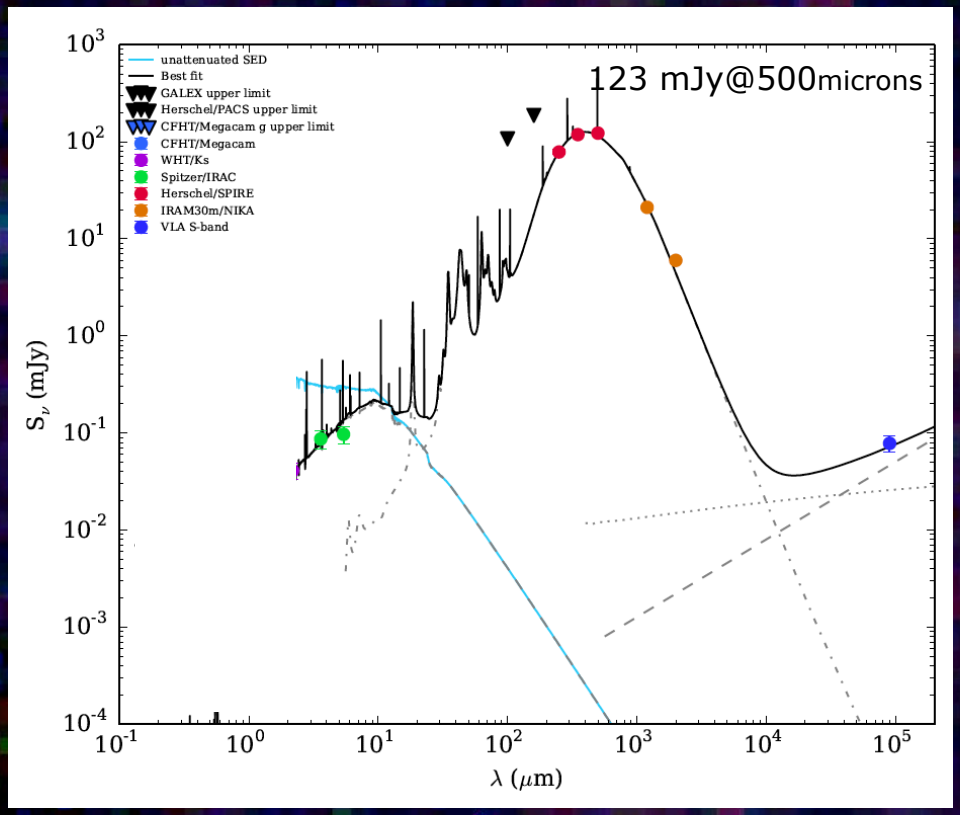


7″ diameter



From NIR morpho: IRAC and VLA sources offset → Must be lensed!

Summary of the system:

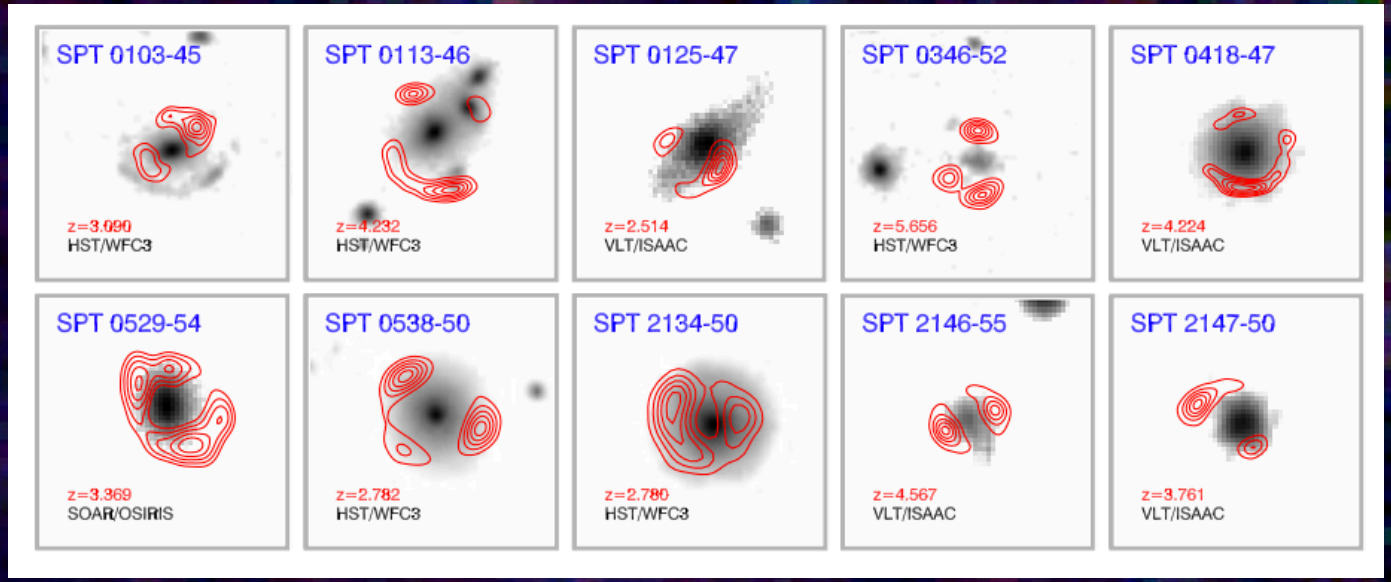


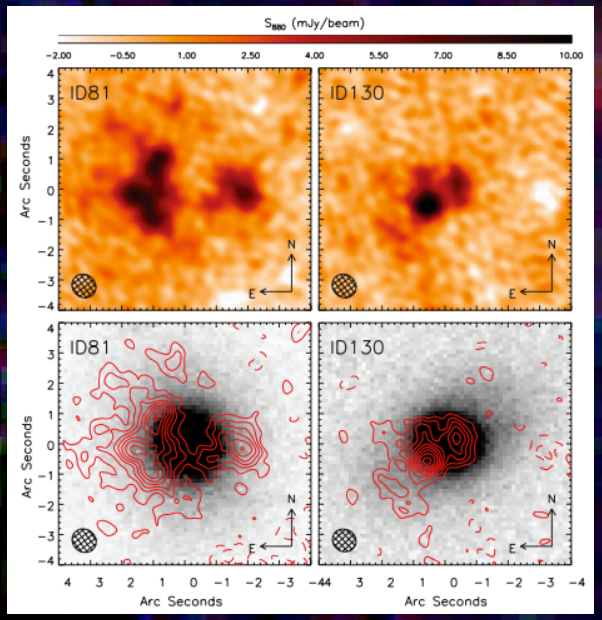
1. SPIRE+NIKA fluxes: z>3.5 and log LIR ~10^{14}Lsol
2. VLA data shows multiple radio counterparts
3. IRAC and VLA sources offset

Must be lensed! galaxy-galaxy lensing?

What do we expect from a galaxy-galaxy lensing system?

Vieira+13

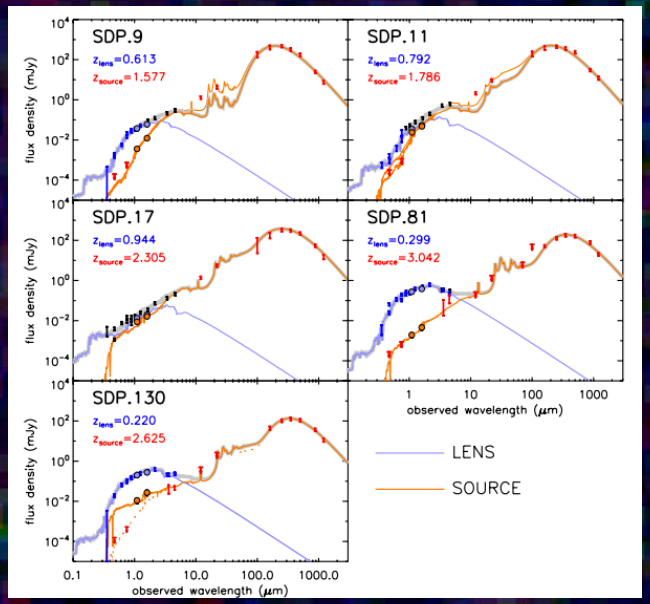




Negrello+10

★ Foreground source 0.1<z<1 (Treu+10)

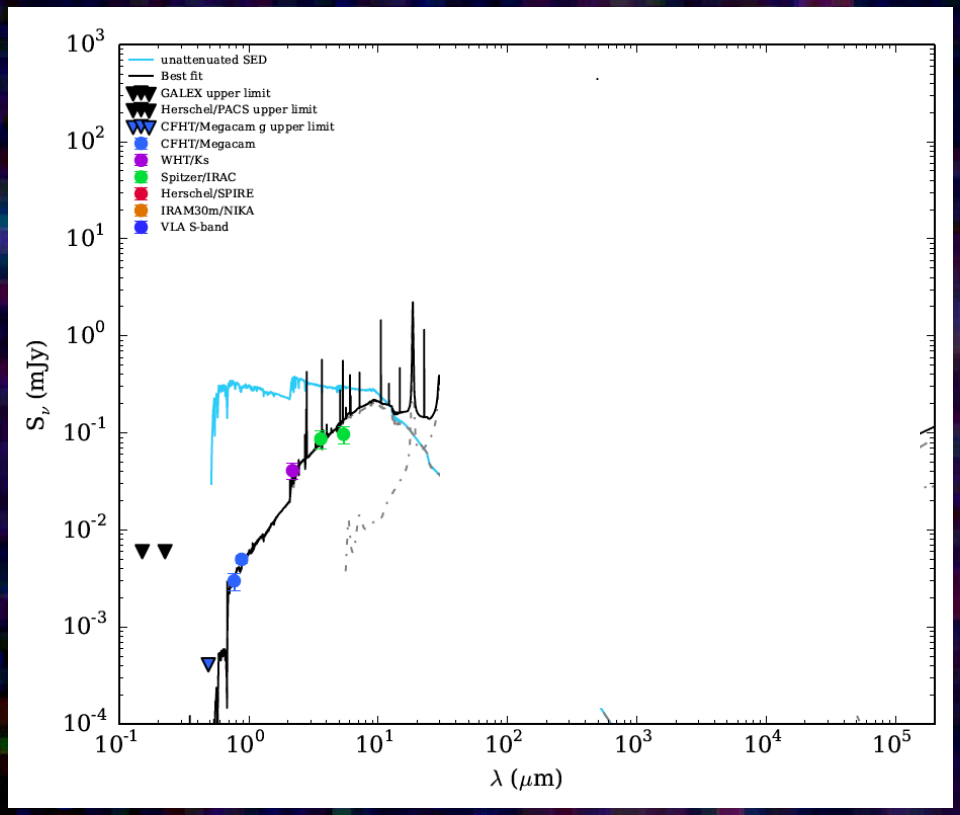
★ Mostly massive elliptical (Negrello+10)

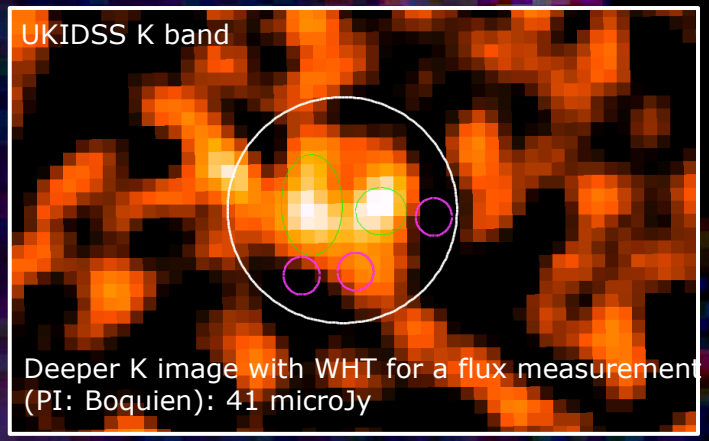


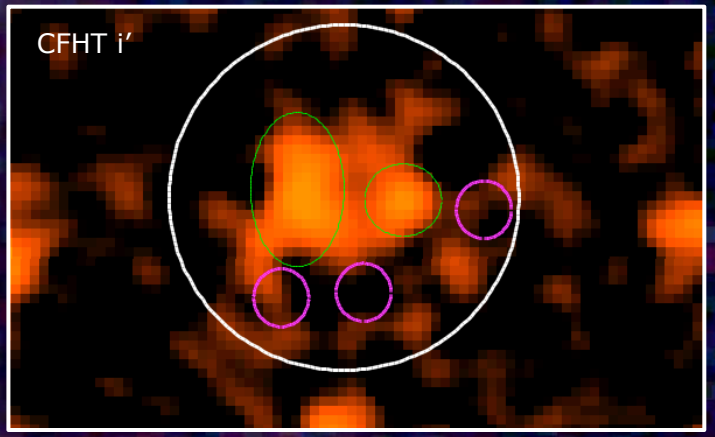
Negrello+14

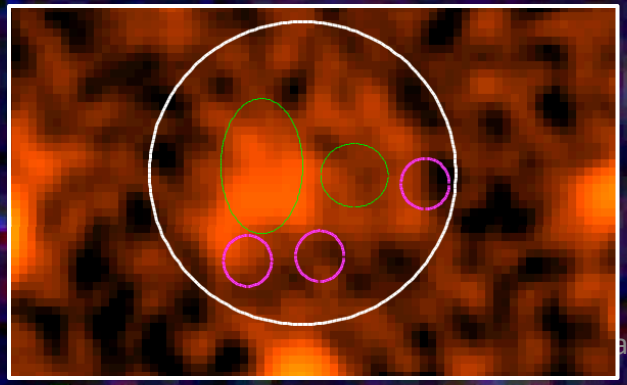
The optical source: ancillary data

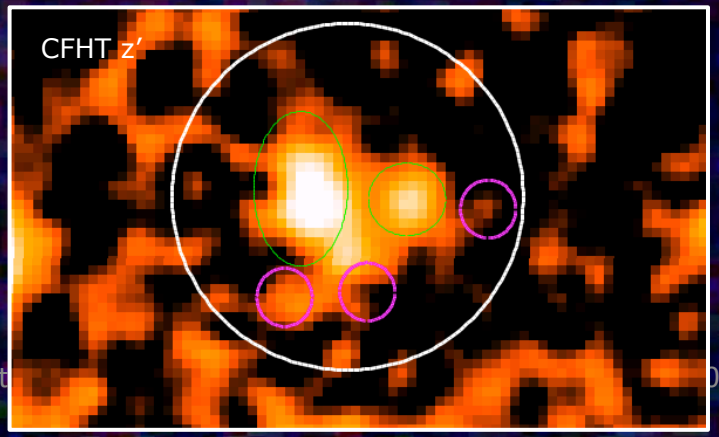
7″ diameter



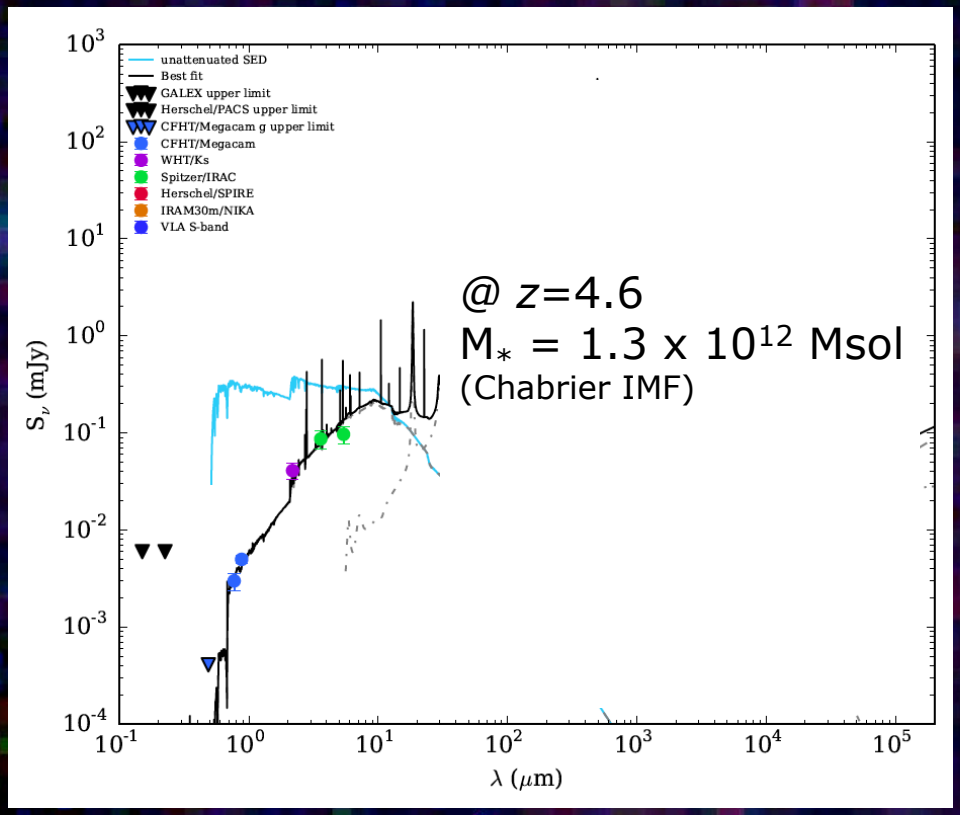


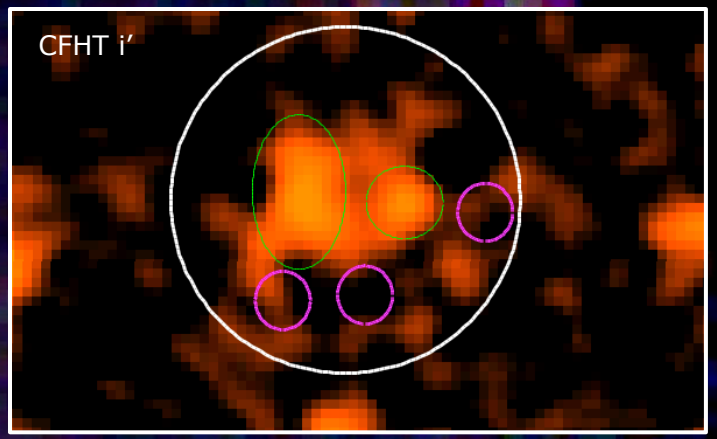


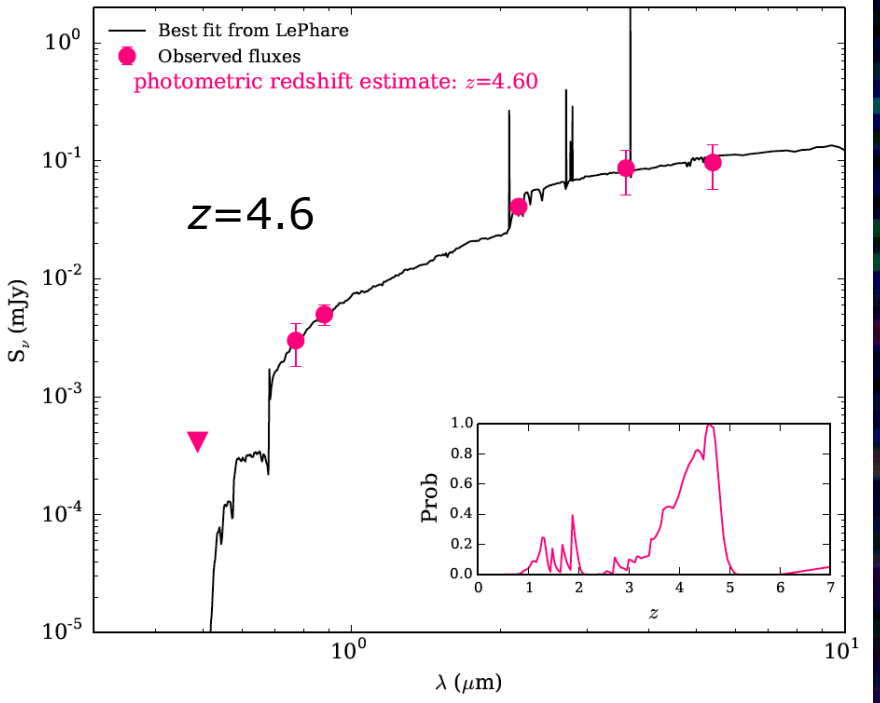




The optical source: photometric redshift



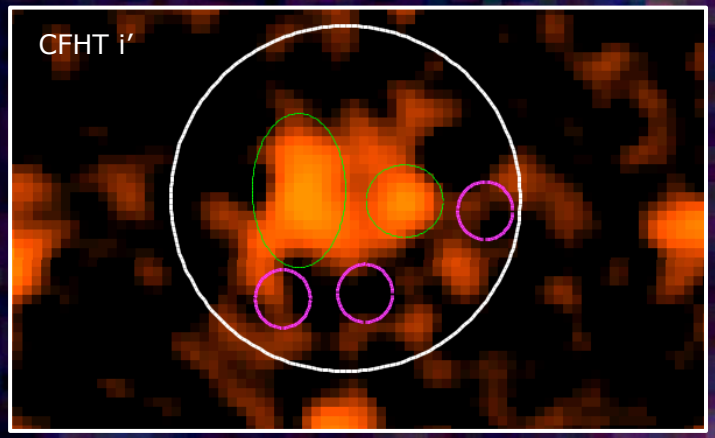


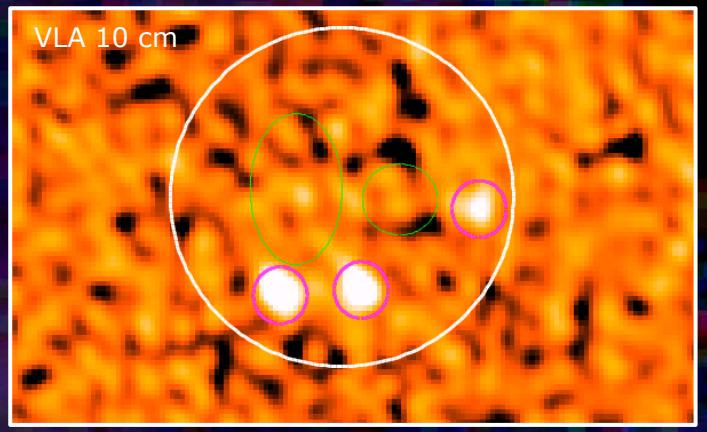


GAZPAR

http://gazpar.lam.fr/

What is the nature of RHRS1?





1 $z_{phot} \approx 4.6$

2 $M_* \approx 10^{12} M_{sol}$

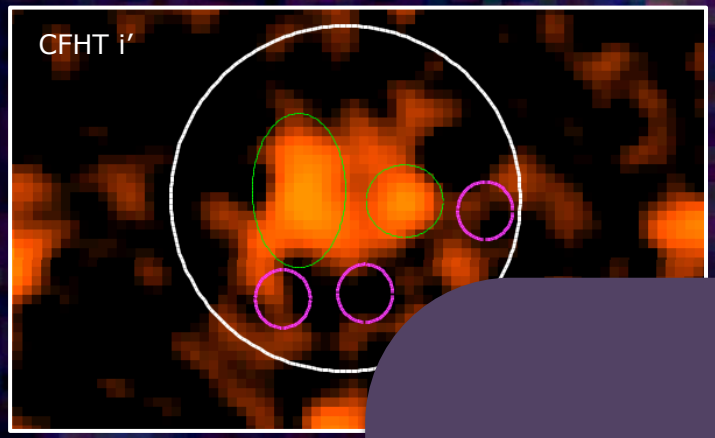
3 At least two sources

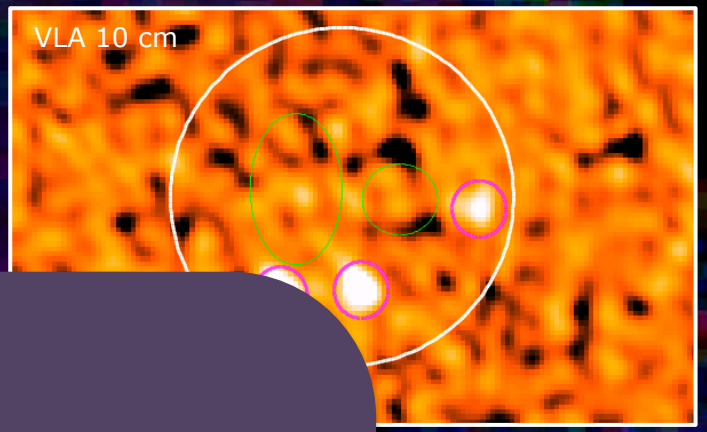
1 $z_{IR} \approx 3.8$

2 log LIR $\approx 10^{14} L_{sol}$

3 VLA data shows multiple radio counterparts

What is the nature of RHRS1?





What is this source?

- One single unlensed system?
- A galaxy-galaxy lensing system?

1 $z_{phot} \approx 4.6$

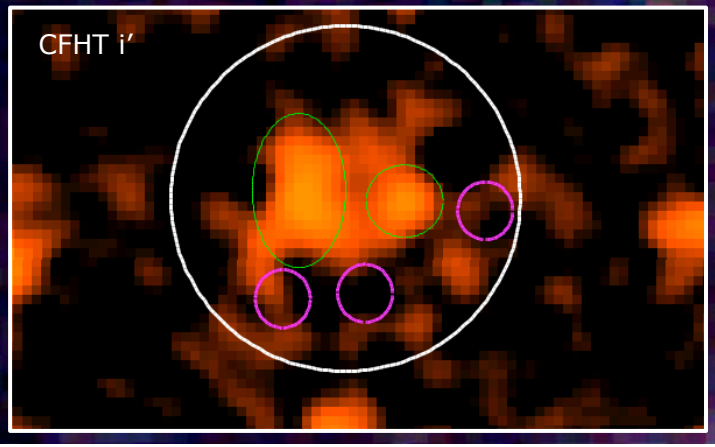
2 $M_* \approx 10^{12} M_{sol}$

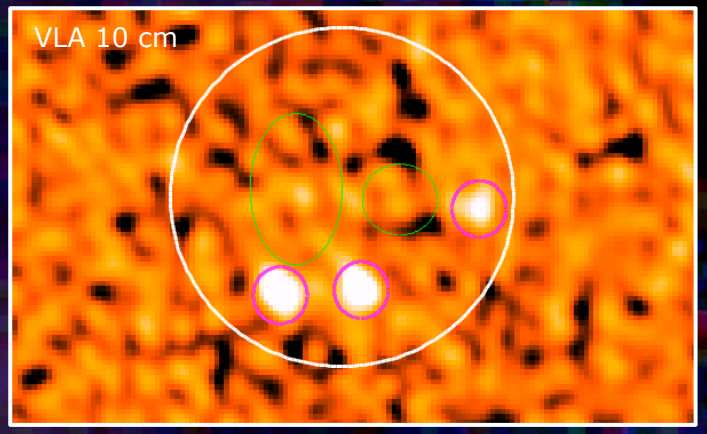
3 At least two

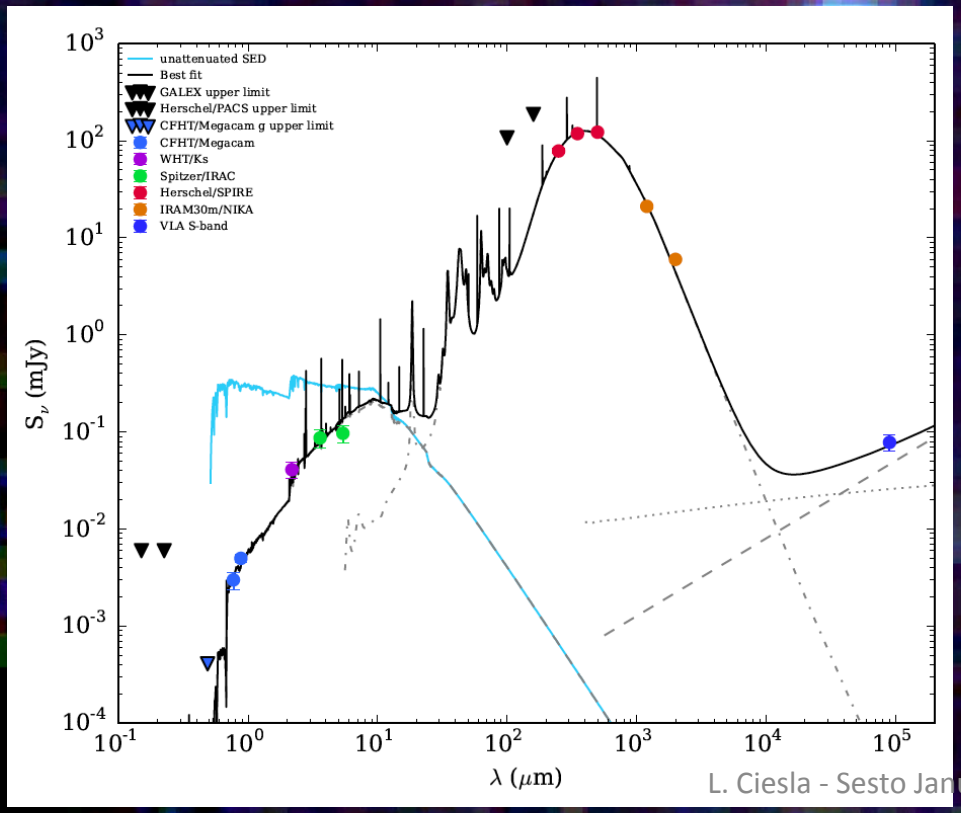
^{4}Lsol

ws multiple
rparts

What is the nature of RHRS1? One single unlensed system?





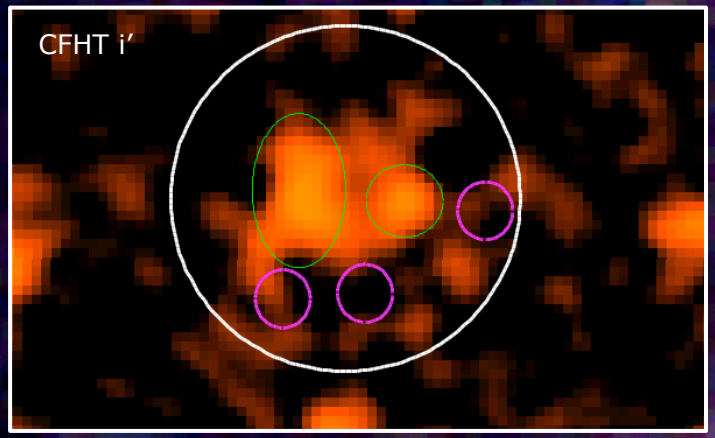


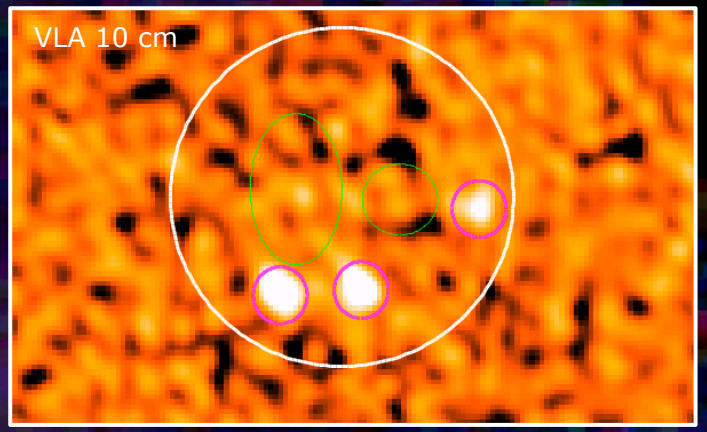
It would be a monster with:

$M_* \approx 10^{12}$ Msol

$L_{IR} \approx 10^{14}$ Lsol

What is the nature of RHRS1? A galaxy-galaxy lensing system?





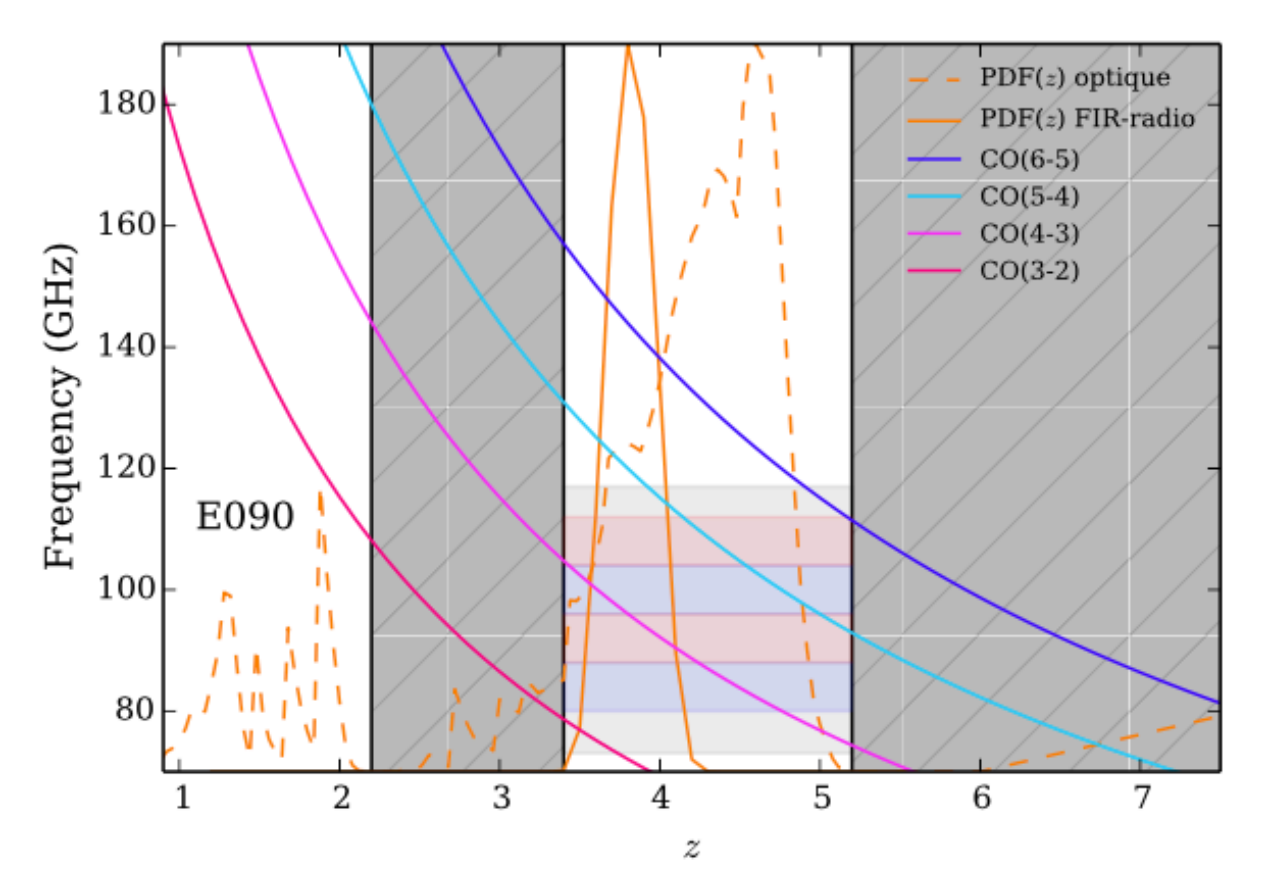
Where is the lens?

Next:

VLT/Xshooter data coming in April (PI: Diaz-Santos):
z_{spec} of the optical source

DDT for *IRAM/EMIR* submitted:
z_{spec} of the submm source + estimate of the magnification to distinguish between the two scenarios

Probability distribution function of redshift



PACS 160