H-ATLAS and ALMA

HATLAS J142935.3-002836 a major merger at z=1.027 (Messias et al. 2014b, Timmons et al. 2015)

Herschel-ALMA Archive Workshop
2015.Apr.16

THE TEAM

Herschel-ATLAS and ALMA

HATLAS J142935.3-002836, a lensed major merger at redshift 1.027

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EXTINCTION AND NEBULAR LINE PROPERTIES OF A HERSCHEL-SELECTED LENSED DUSTY STARBURST AT $Z = 1.027$

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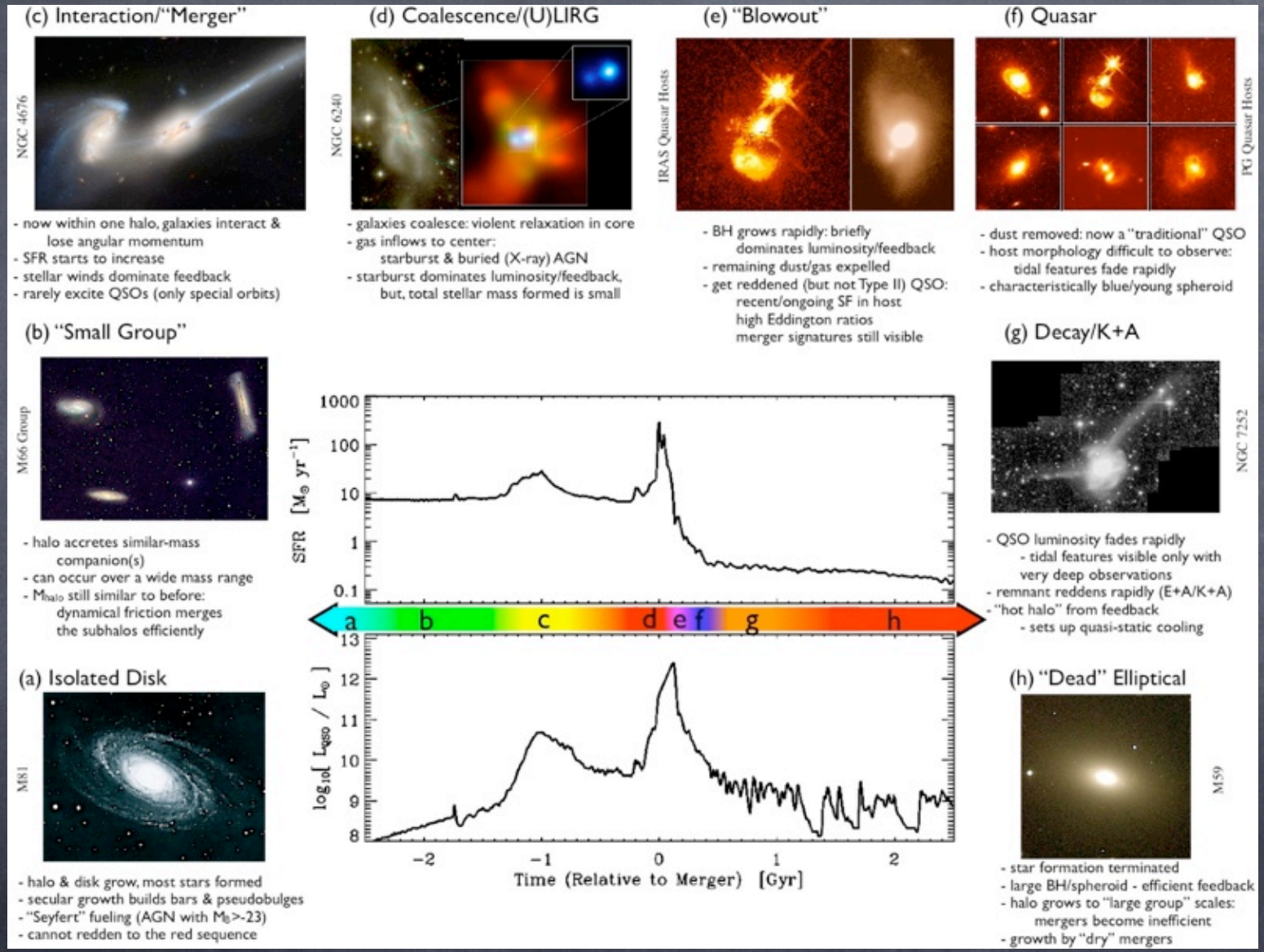
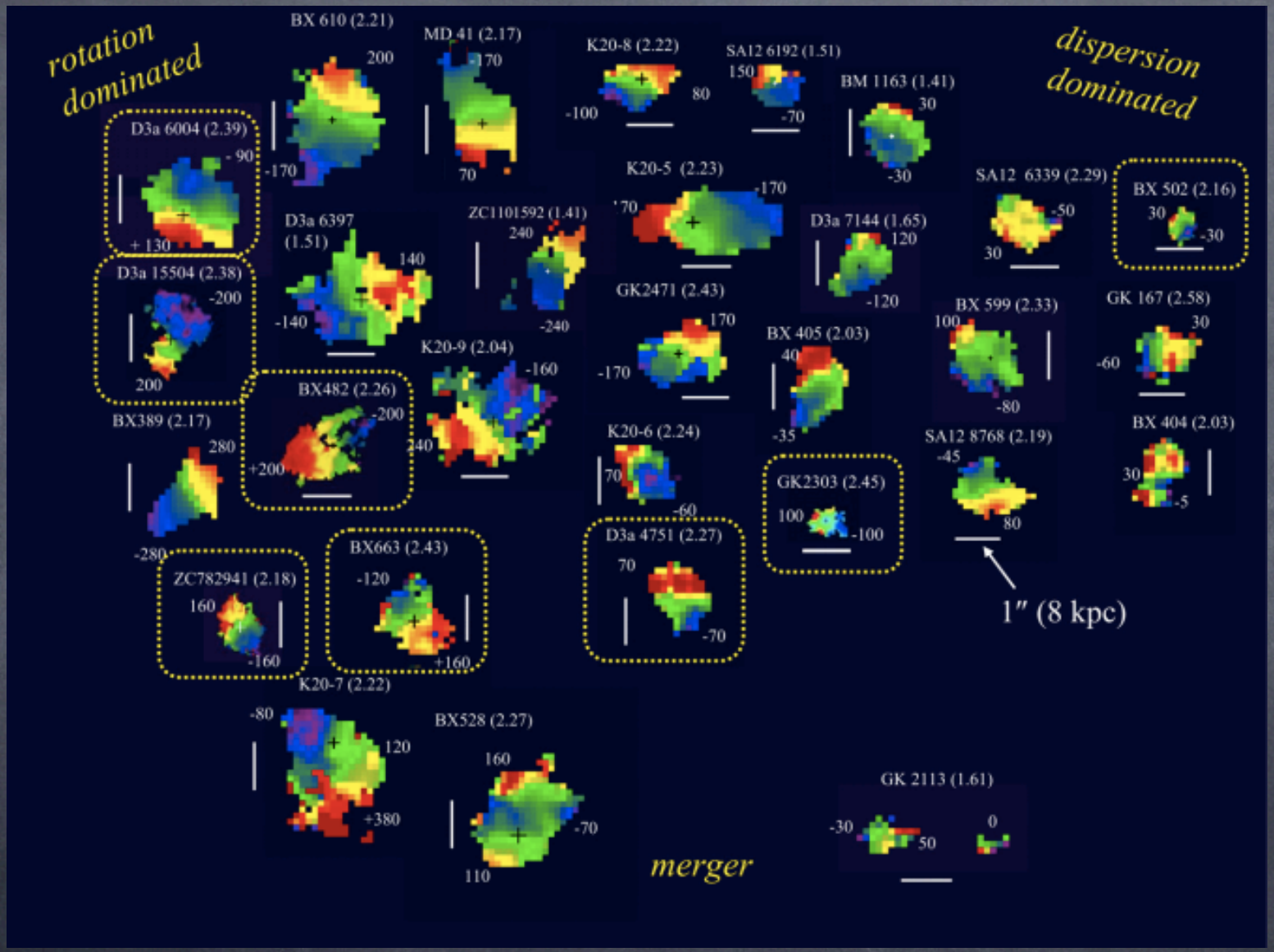
WHEN DO GALAXIES ASSEMBLE MORE MASS?



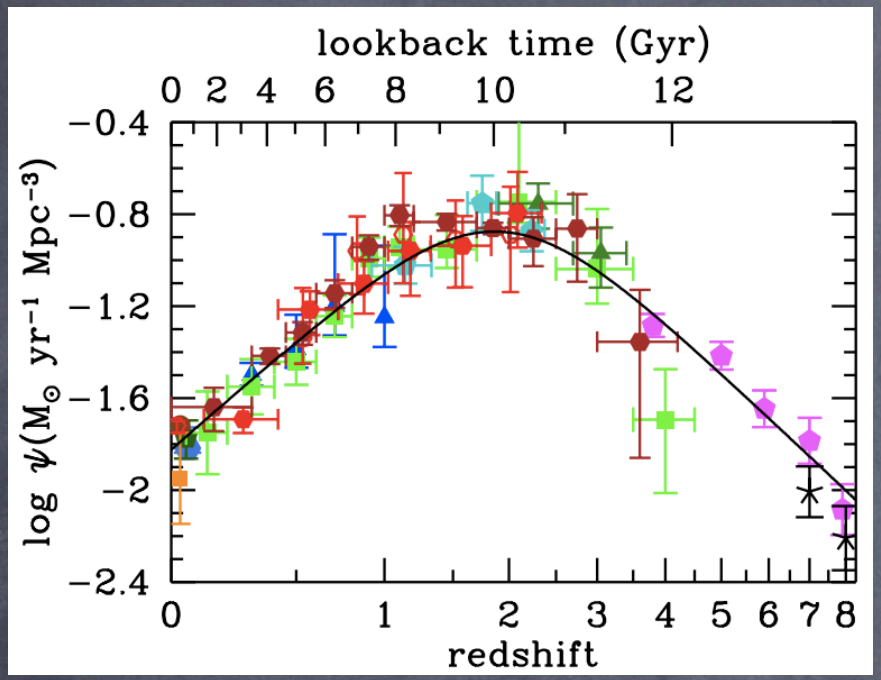
P. HOPKINS ET AL.(2008, FIG. 1)

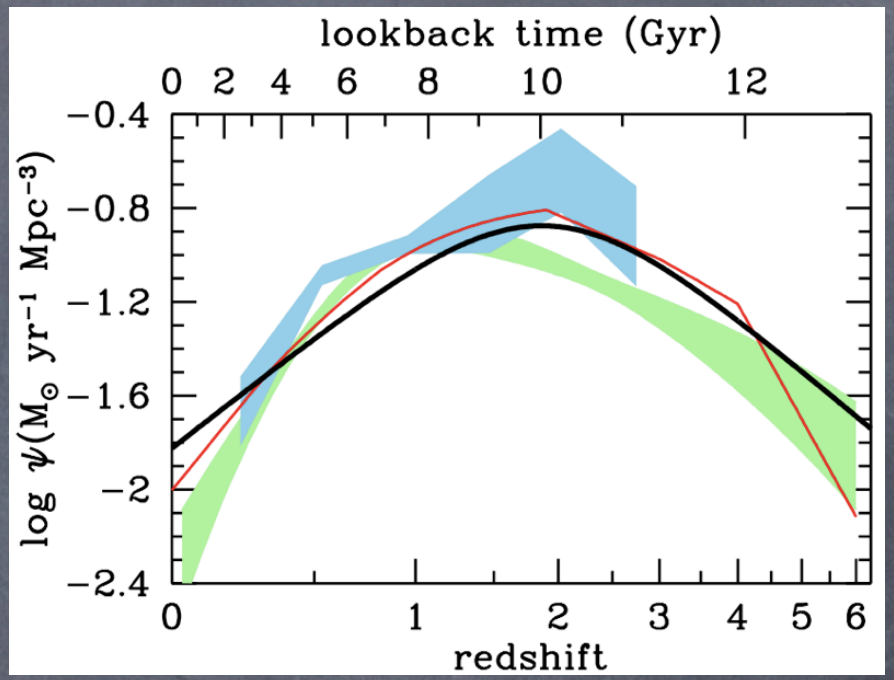
DISC VS MERGER THROUGH DYNAMICS



FÖRSTER-SCHREIBER ET AL.(2009, FIG. 17)

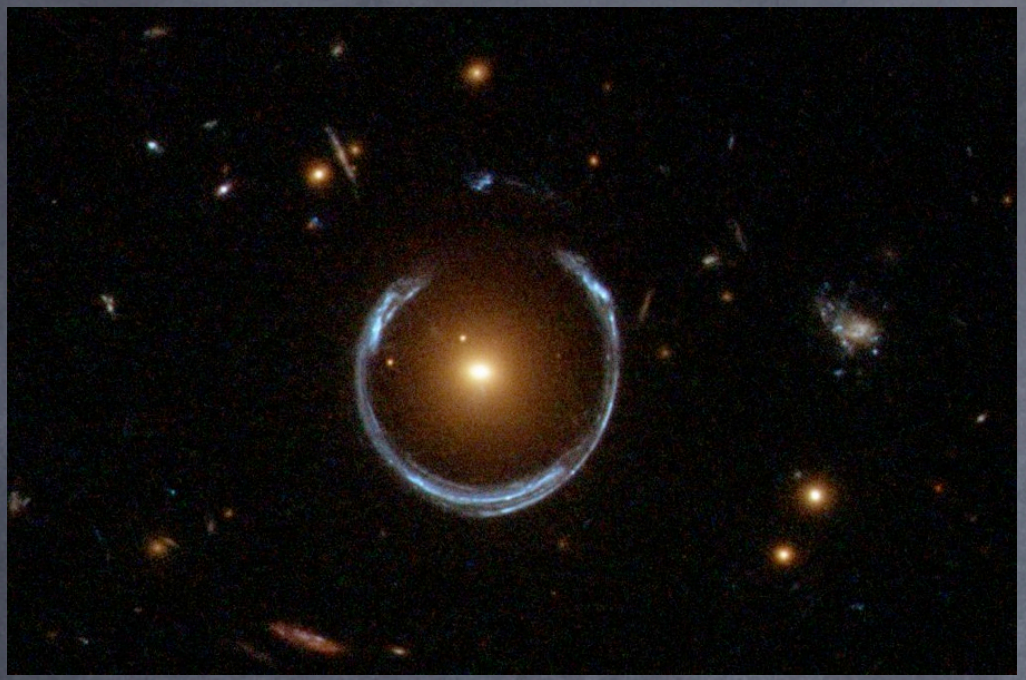
COMPARING LOW- AND HIGH-Z



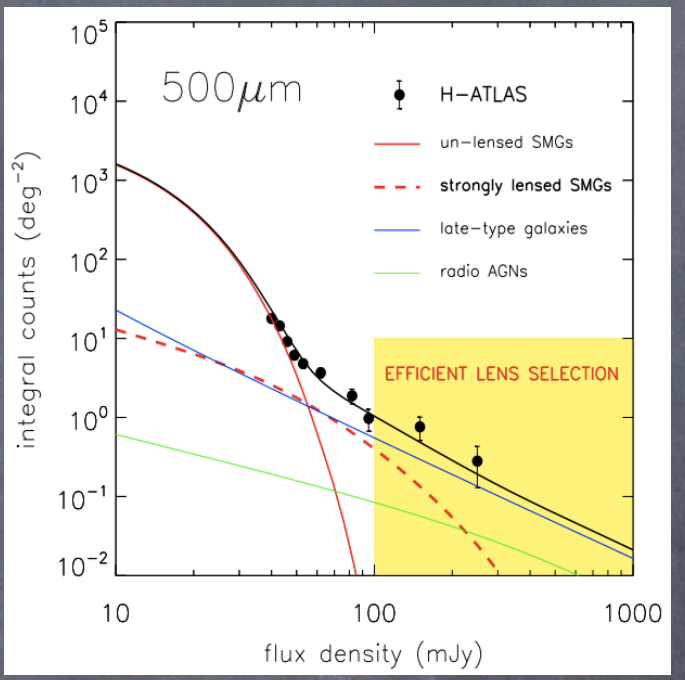


MADAU & DICKINSON (2014, FIG. 9, 15)

GRAVITATIONAL LENSING AS TOOL



ESA/HUBBLE & NASA

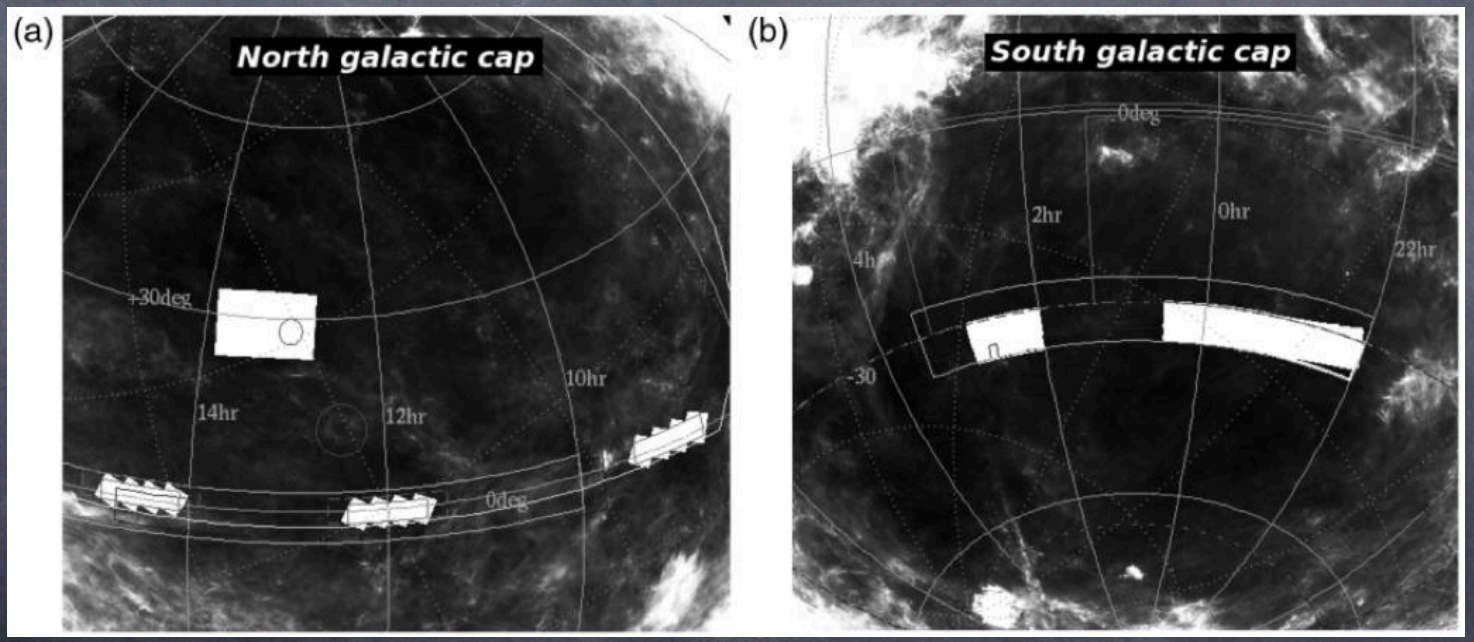


NEGRELLO ET AL.(2010, FIG. 1)

HERSCHEL - ATLAS

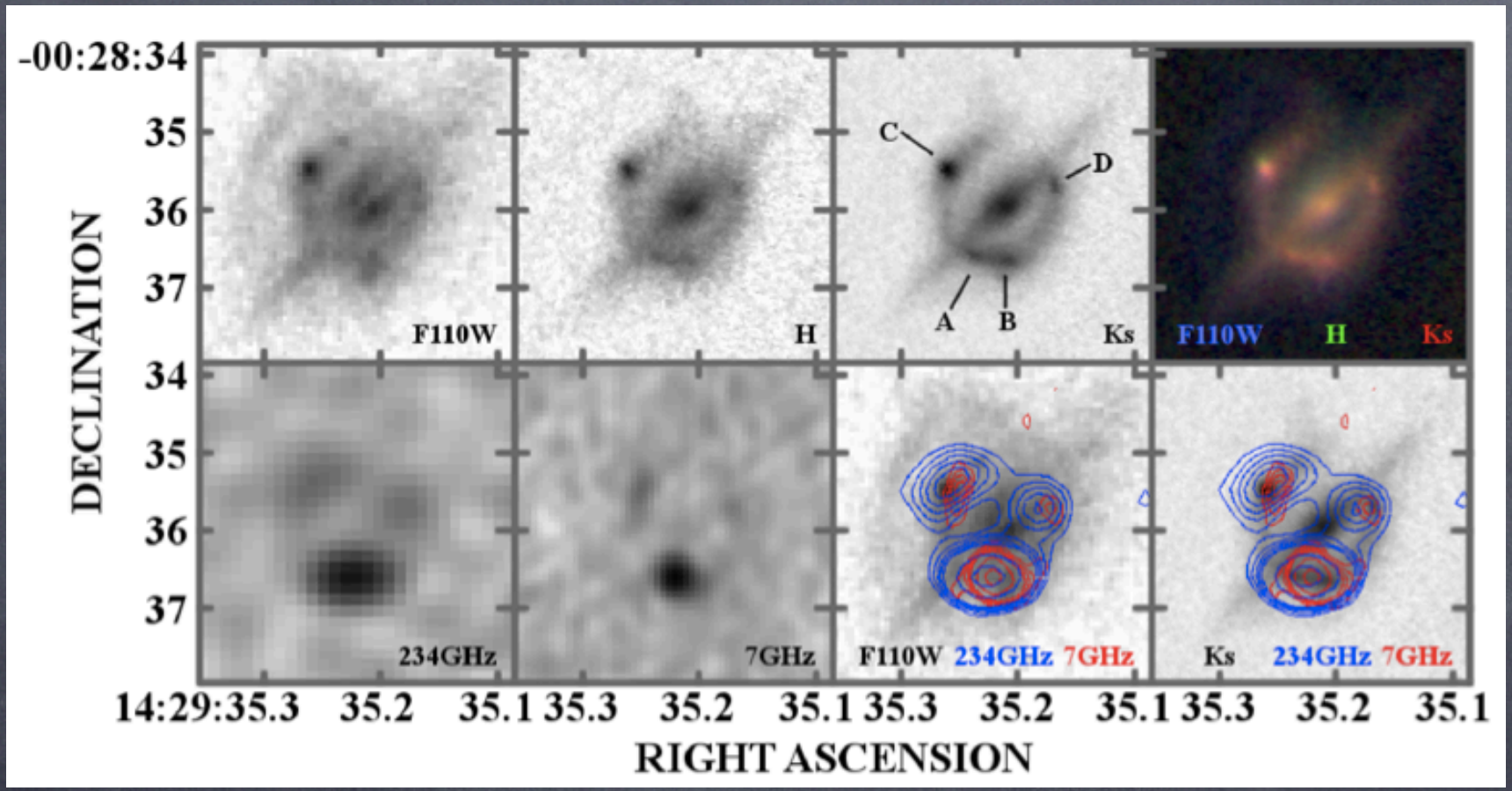
570deg ⇒ 400—1500 lensed sources?

science — milky-way, high-z universe, agn, large-scale structure, planck, ...



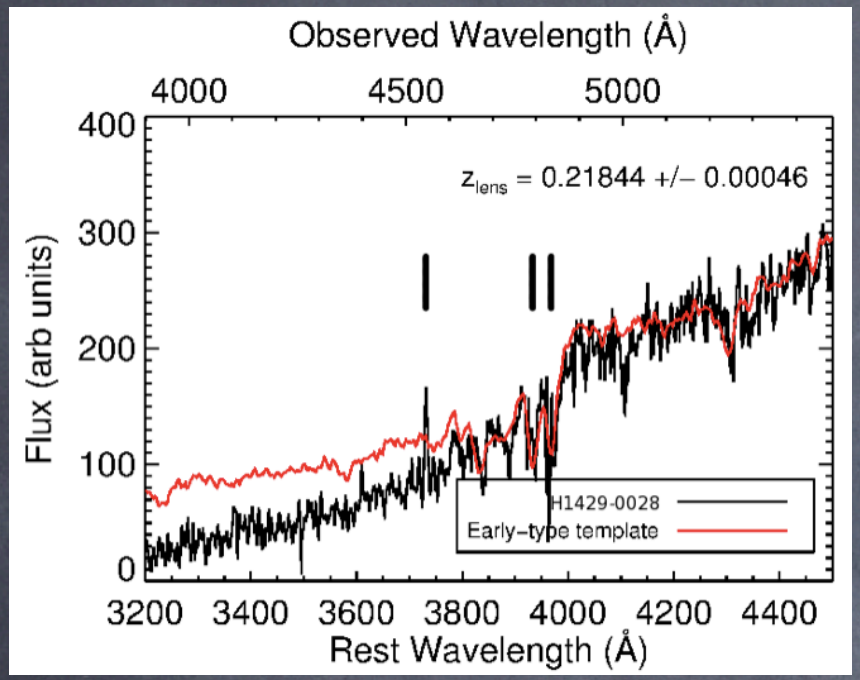
eales et al.(2010, fig. 1)

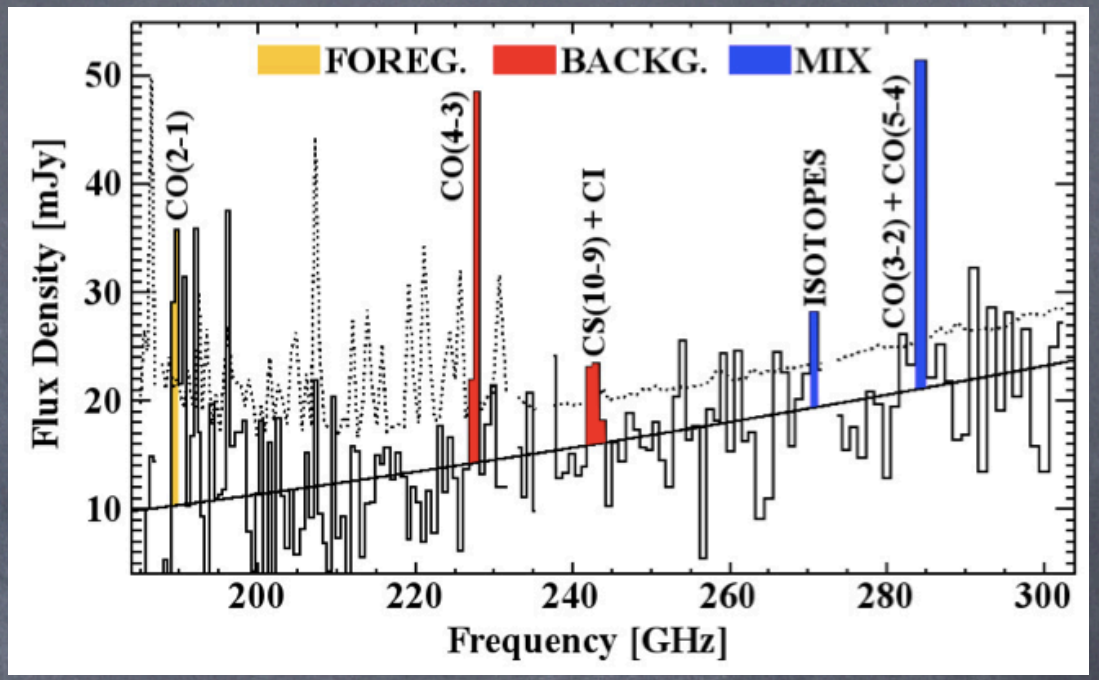
HATLAS J142935.3-002836 (H1429-0028)



MESSIAS ET AL.(2014B, FIG. 1)

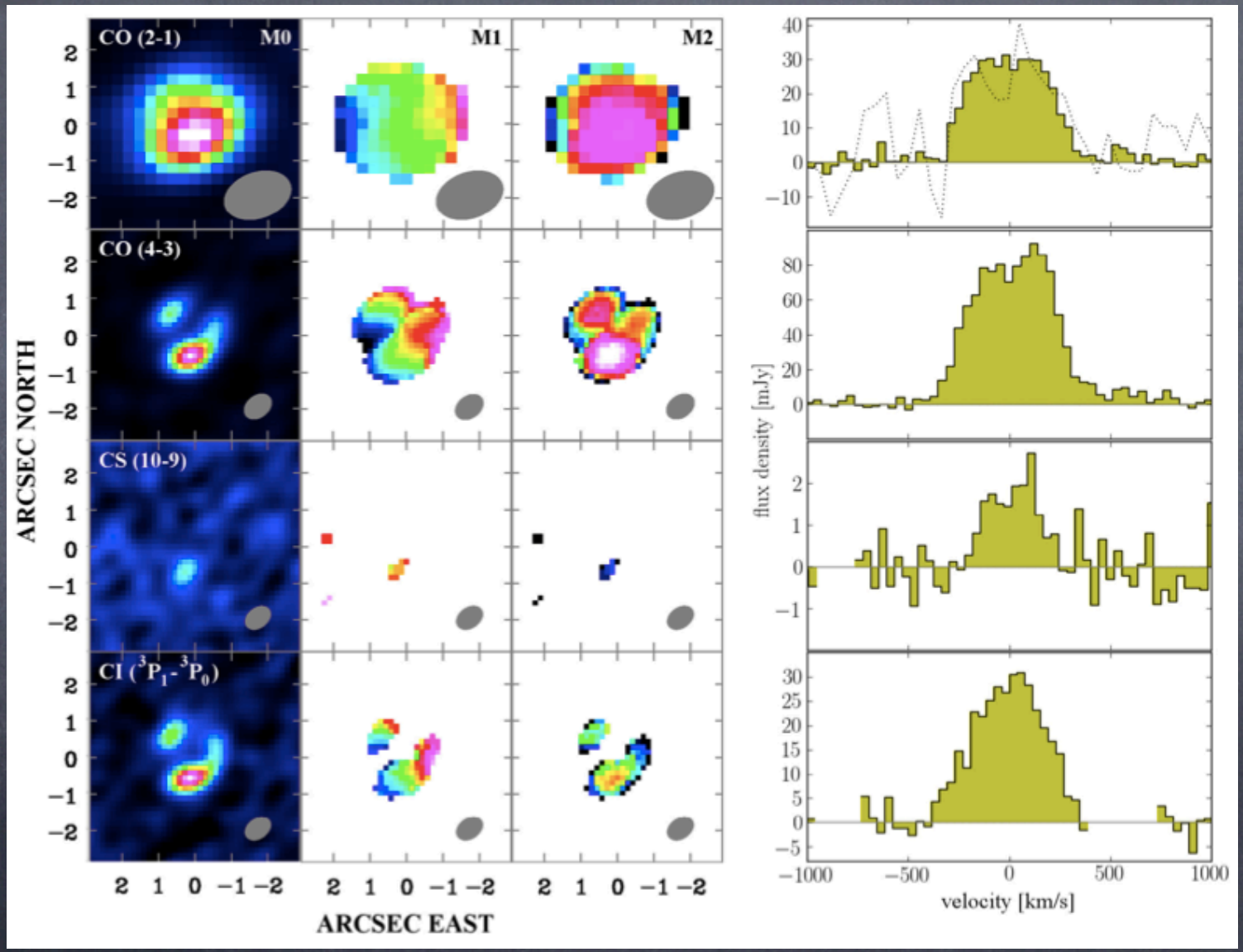
H1429-0028 — FOLLOW-UP SPEC I





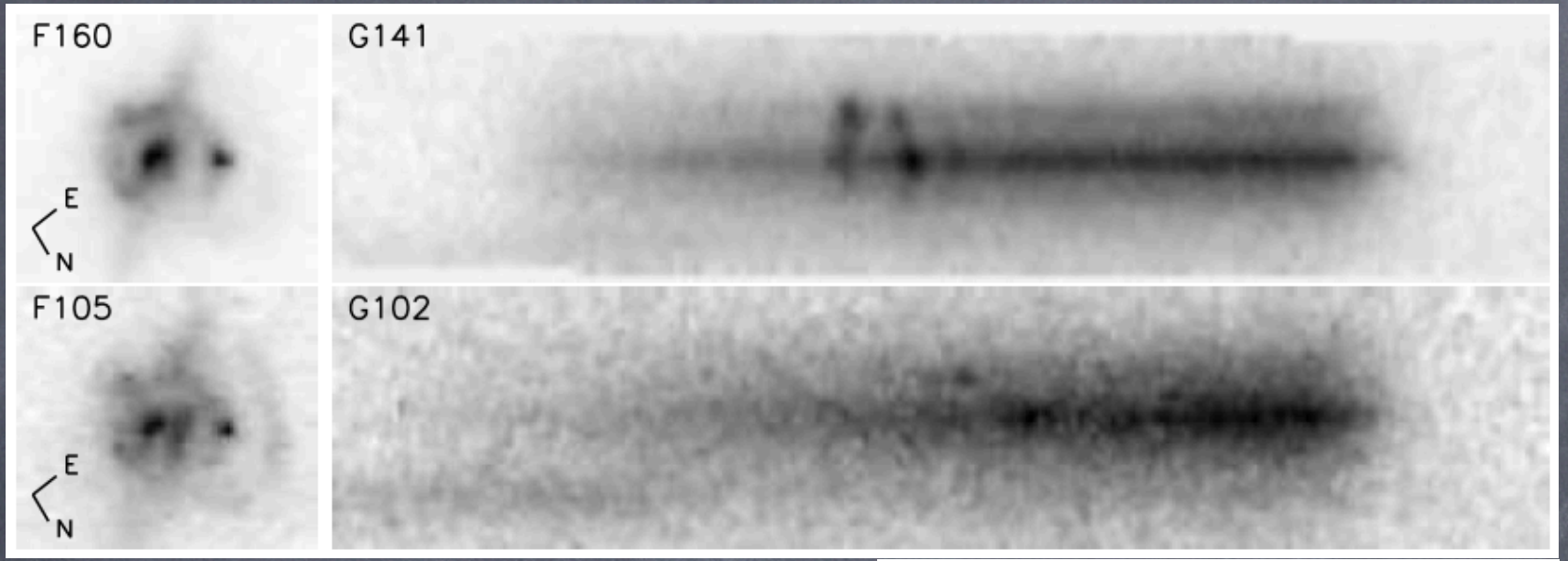
MESSIAS ET AL.(2014B, FIG. 2&3)

H1429-0028 — FOLLOW-UP SPEC II

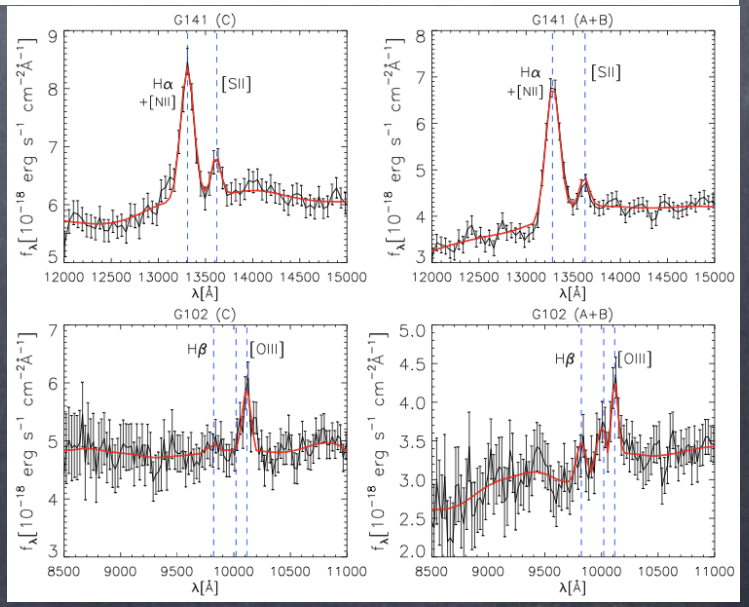


MESSIAS ET AL.(2014B, FIG. 4)

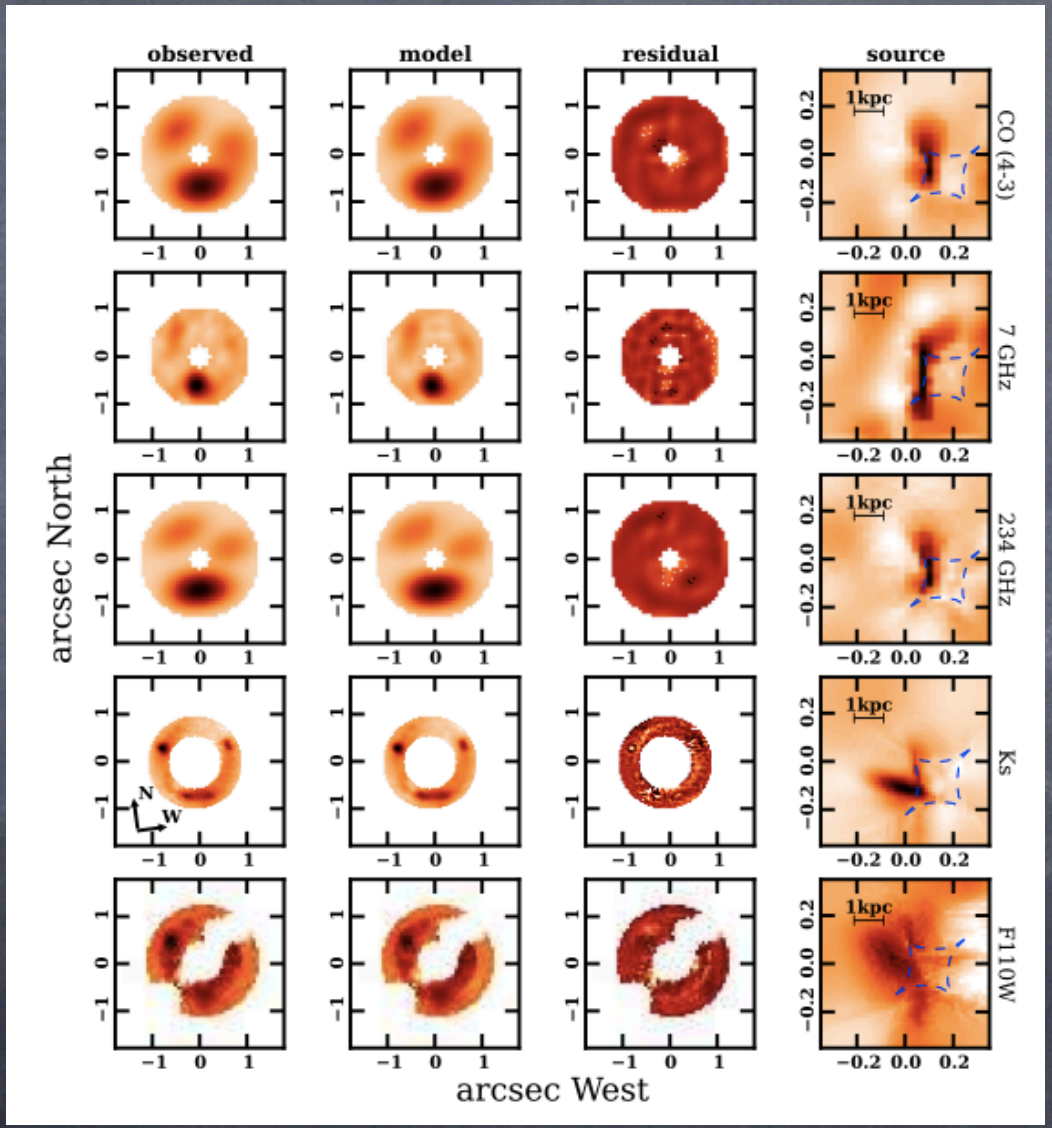
H1429-0028 — FOLLOW-UP SPEC III



TIMMONS ET AL.(2015, FIG. 2&3)

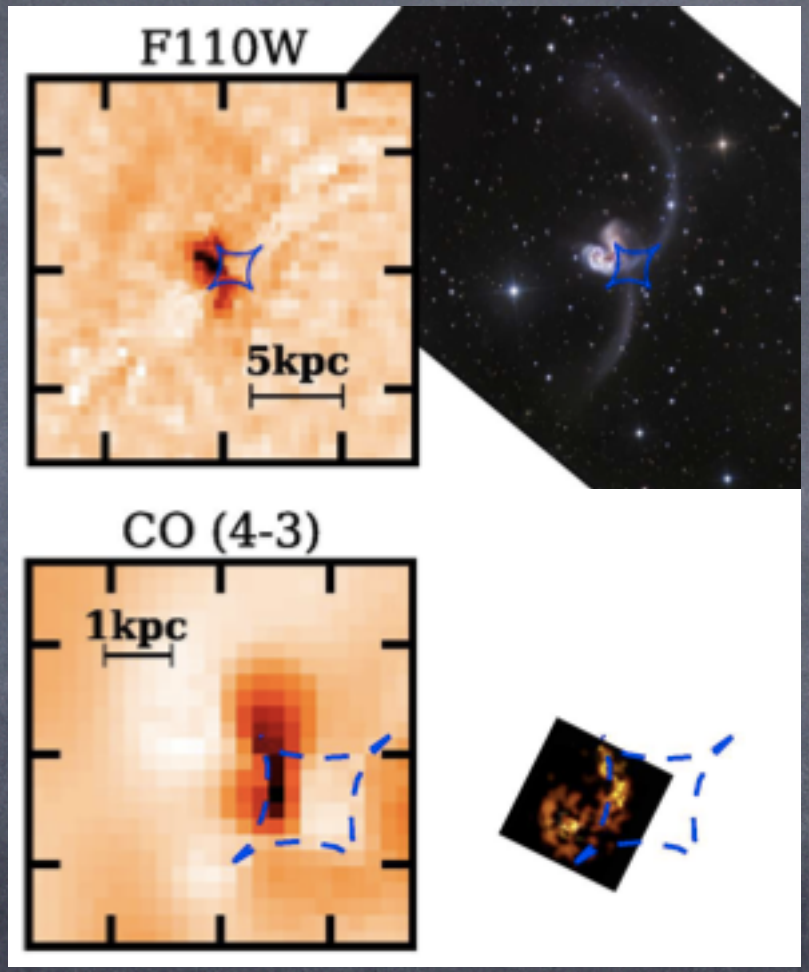


H1429-0028 — SOURCE-PLANE RECON



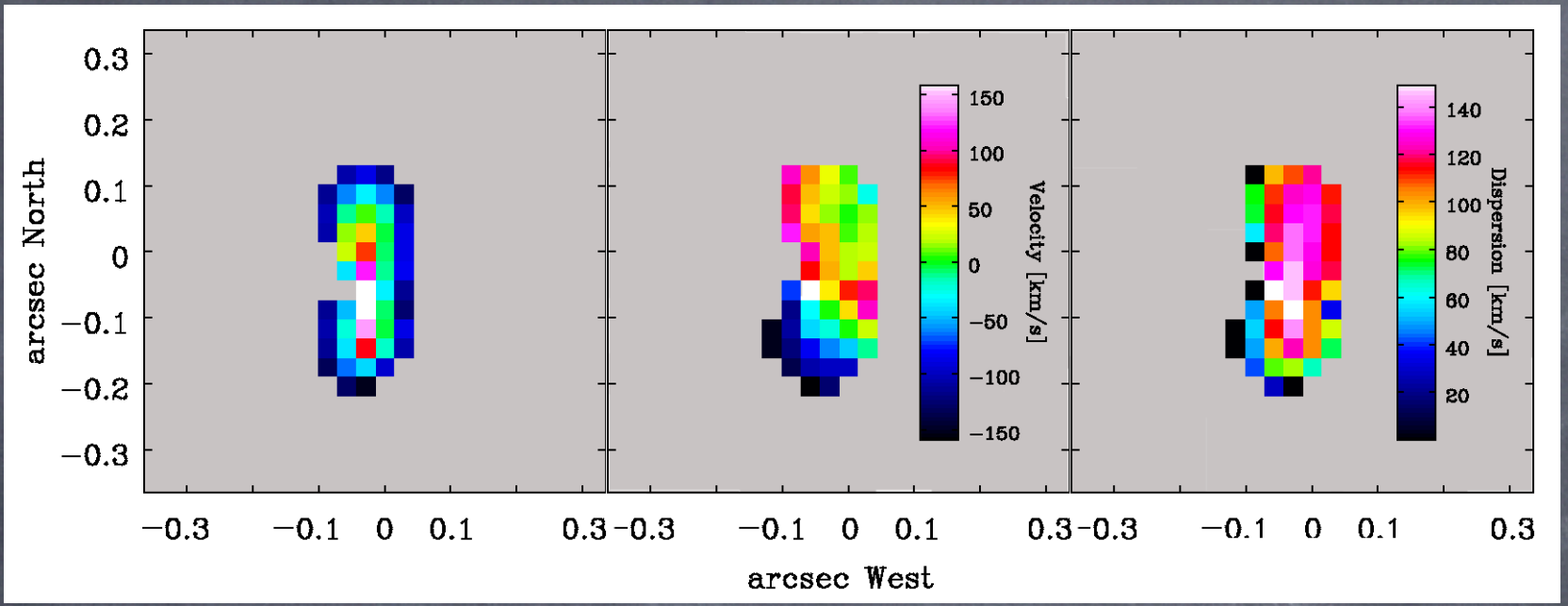
MESSIAS ET AL.(2014B, FIG. 8)

H1429-0028 — A TOY MODEL



MESSIAS ET AL.(2014B, FIG. 9)

H1429-0028 — SOURCE-PLANE DYNAMICS



MESSIAS ET AL.(2014B, FIG. 10)

CONCLUSIONS THUS FAR

$M^* = 1—2 \times 10^{11}\ M_\odot$

$SFR_{SED} = 390 \pm 90\ M_\odot/YR$

$SFR_{H\alpha} = 60 \pm 50\ M_\odot/YR$

$M_{ISM} = 4.6 \pm 1.7 \times 10^{10}\ M_\odot$ [SCOVILLE+14]

$\tau_{SF} = M_{ISM}/SFR \sim 100—770$ MYR

$12+LOG(O/H) = 8.49 \pm 0.16$ ($\odot \sim 8.7$)

$FRAC_{H2} > 70\%$ (1σ) [NARAYANAN+12]

$M_{DUST} = 3.9 \pm 0.6 \times 10^8\ M_\odot$

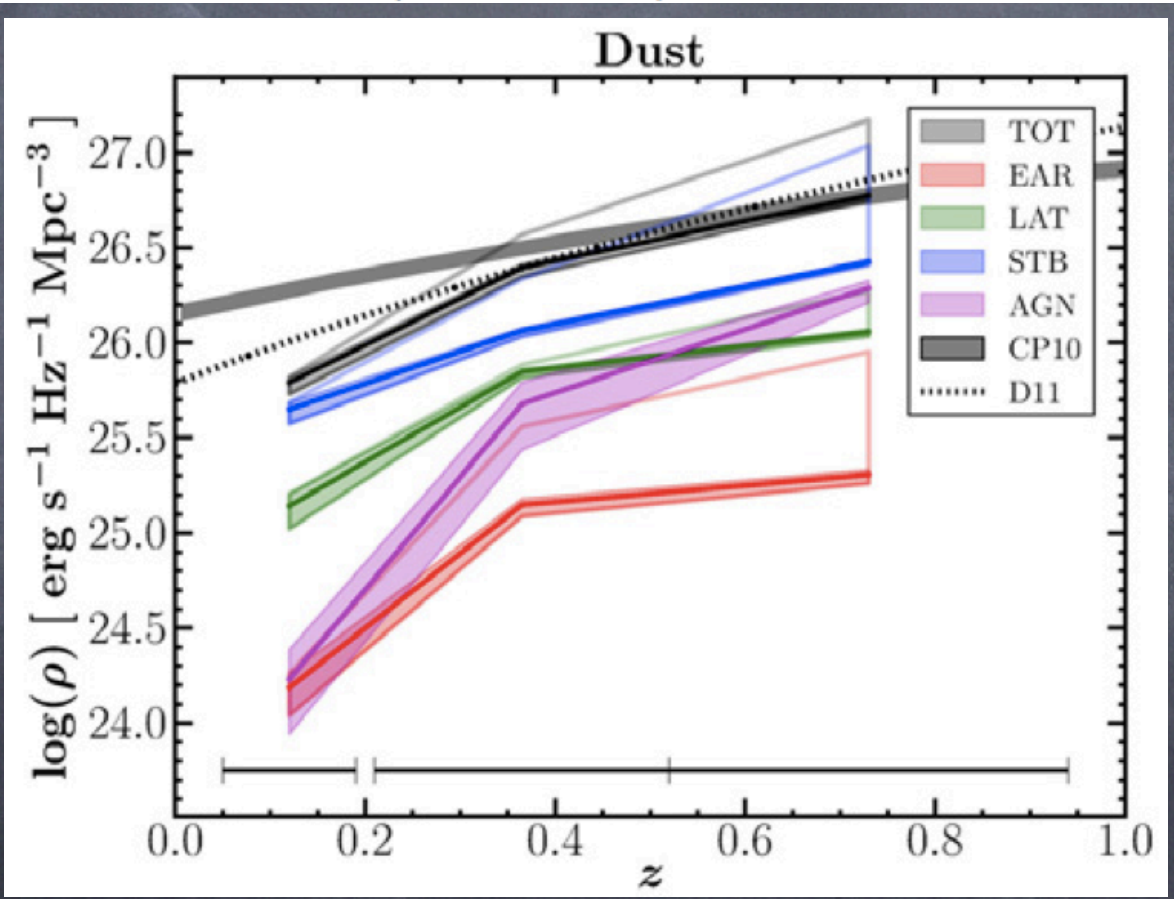
MERGER TYPE ~ $1:2.8^{+1.8}_{-1.5}$

DUST-LAINED ELLIPTICAL / S0 IN FORMATION?

ADVERTISING EXTRA WORK

HOT-DUST (690 K) LUMINOSITY DENSITY AND ITS EVOLUTION IN THE LAST 7.5 GYR

H. MESSIAS[1,2], B. MOBASHER[3], AND J. M. AFONSO[1,4]



MESSIAS ET AL.(2013, FIG. 13)