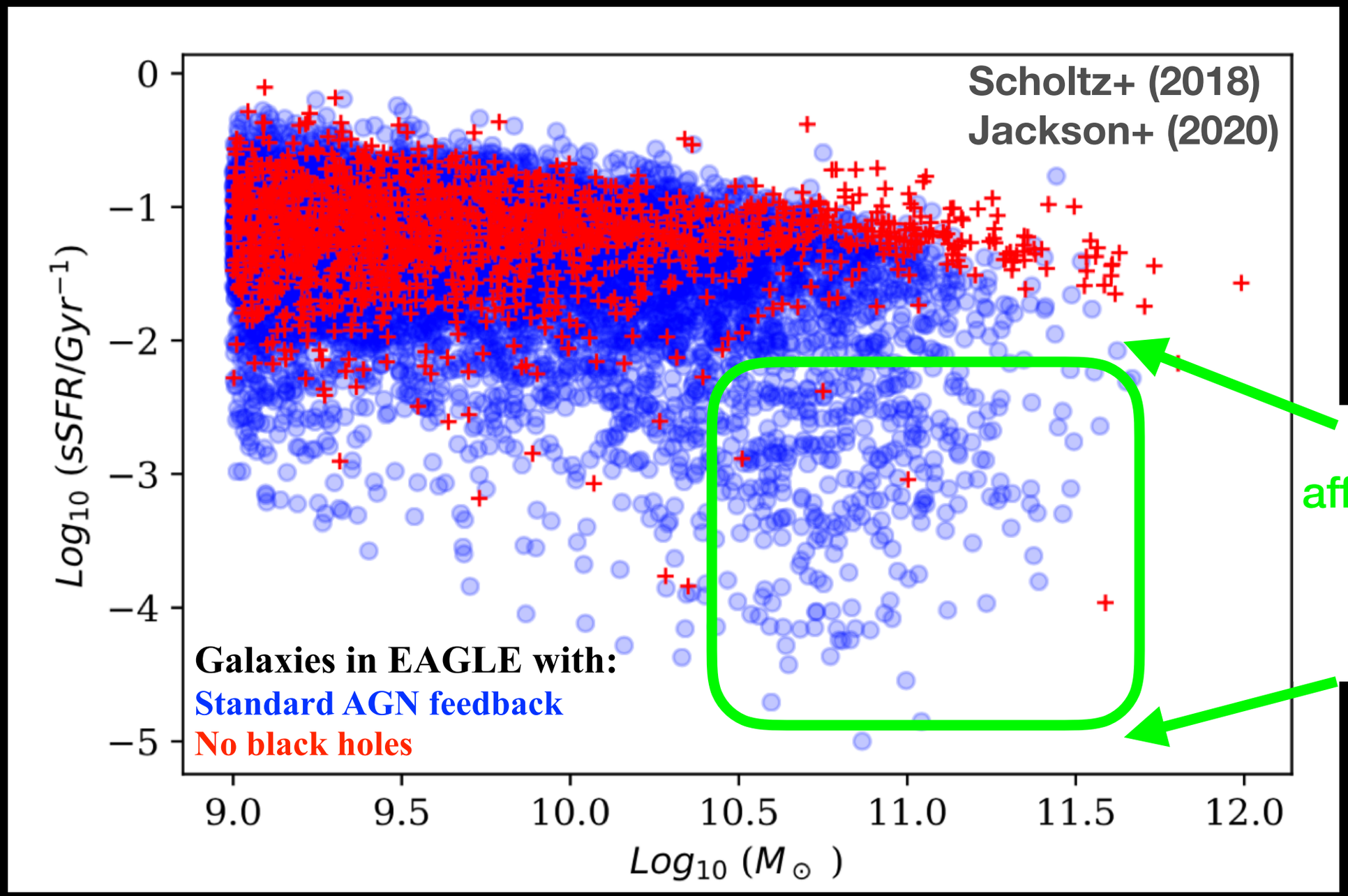
DAVID ROSARIO (DURHAM) (he/his)

WHAT HAPPENS WHEN AN AGN IRRADIATES MOLECULAR GAS?

The Remarkable Case of NGC 2110

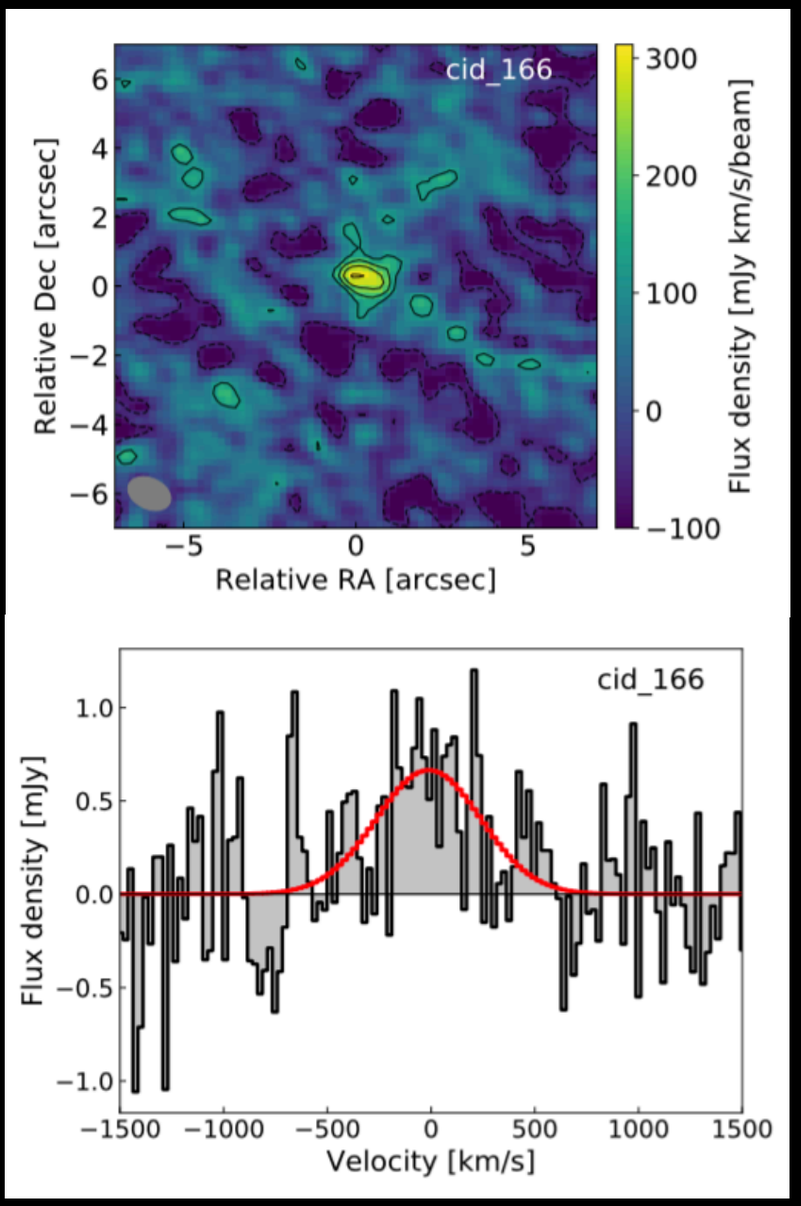
WHY SHOULD WE CARE ABOUT MOLECULAR GAS IN DISTANT AGN?

The EAGLE hydrodynamic simulation at z=0

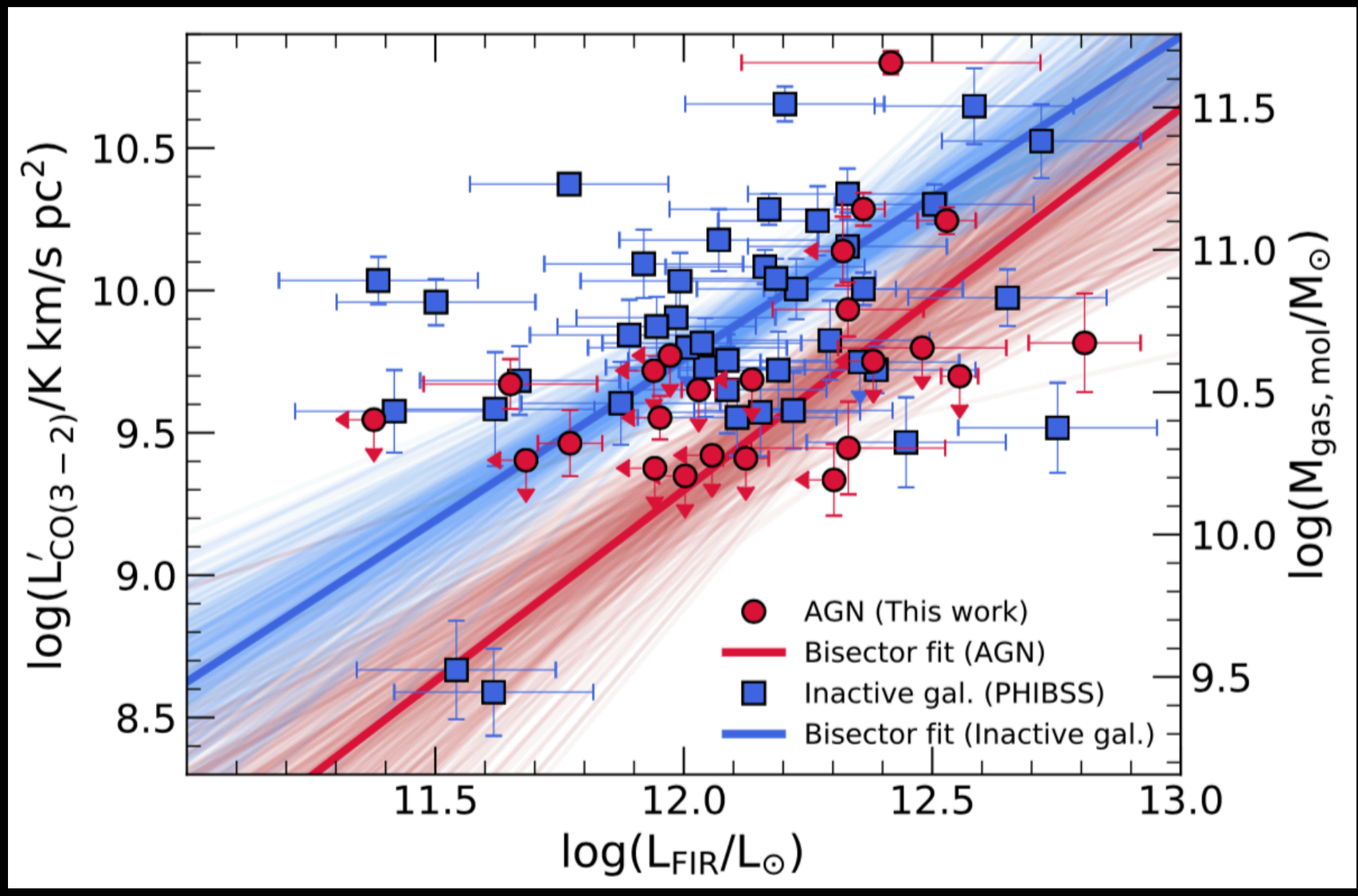


AGN feedback affects the width of the SFR-mass relationship in galaxies

WHAT DO WE KNOW ABOUT MOLECULAR GAS IN DISTANT AGN?



Circosta+ (2020)

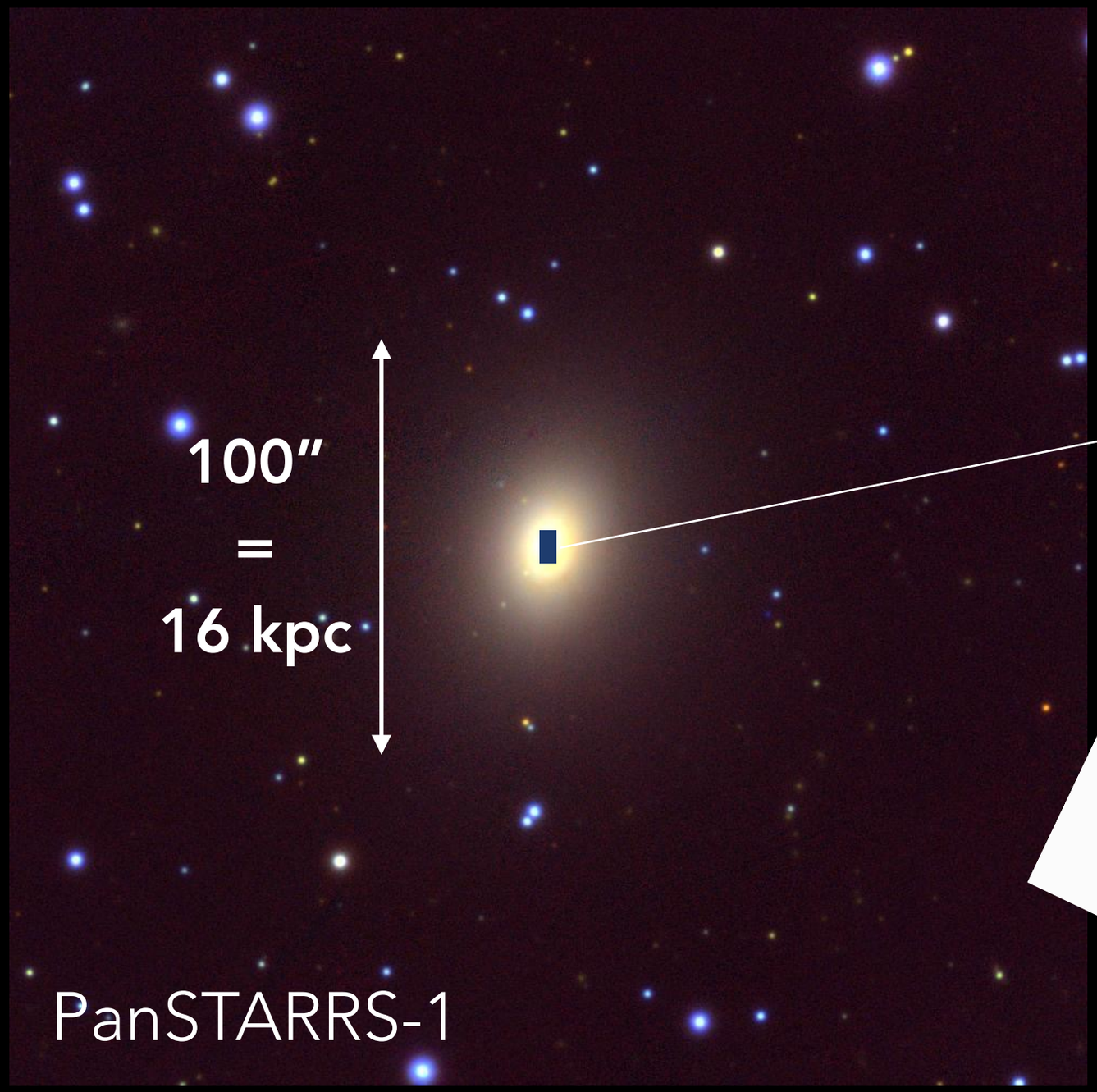


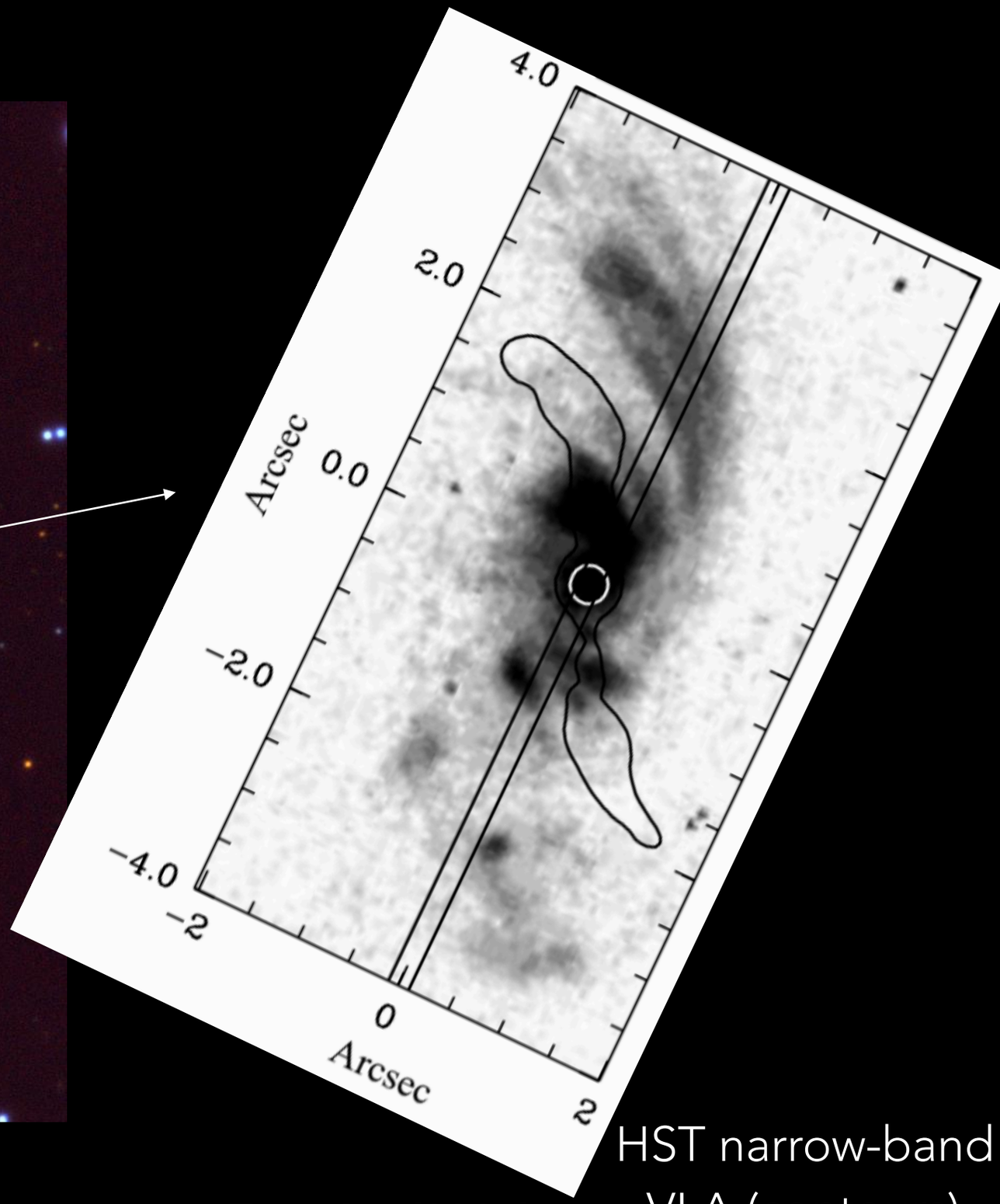
Relative to star-formation, the efficiency of low-excitation CO emission is depressed in distant AGN.

Low gas fractions and high apparent star-formation efficiencies in distant AGN.

Is this the tell-tale sign of rapid AGN quenching of star-formation at cosmic noon?

AN AGN CAUGHT IN THE ACT: THE REMARKABLE CASE OF NGC 2110

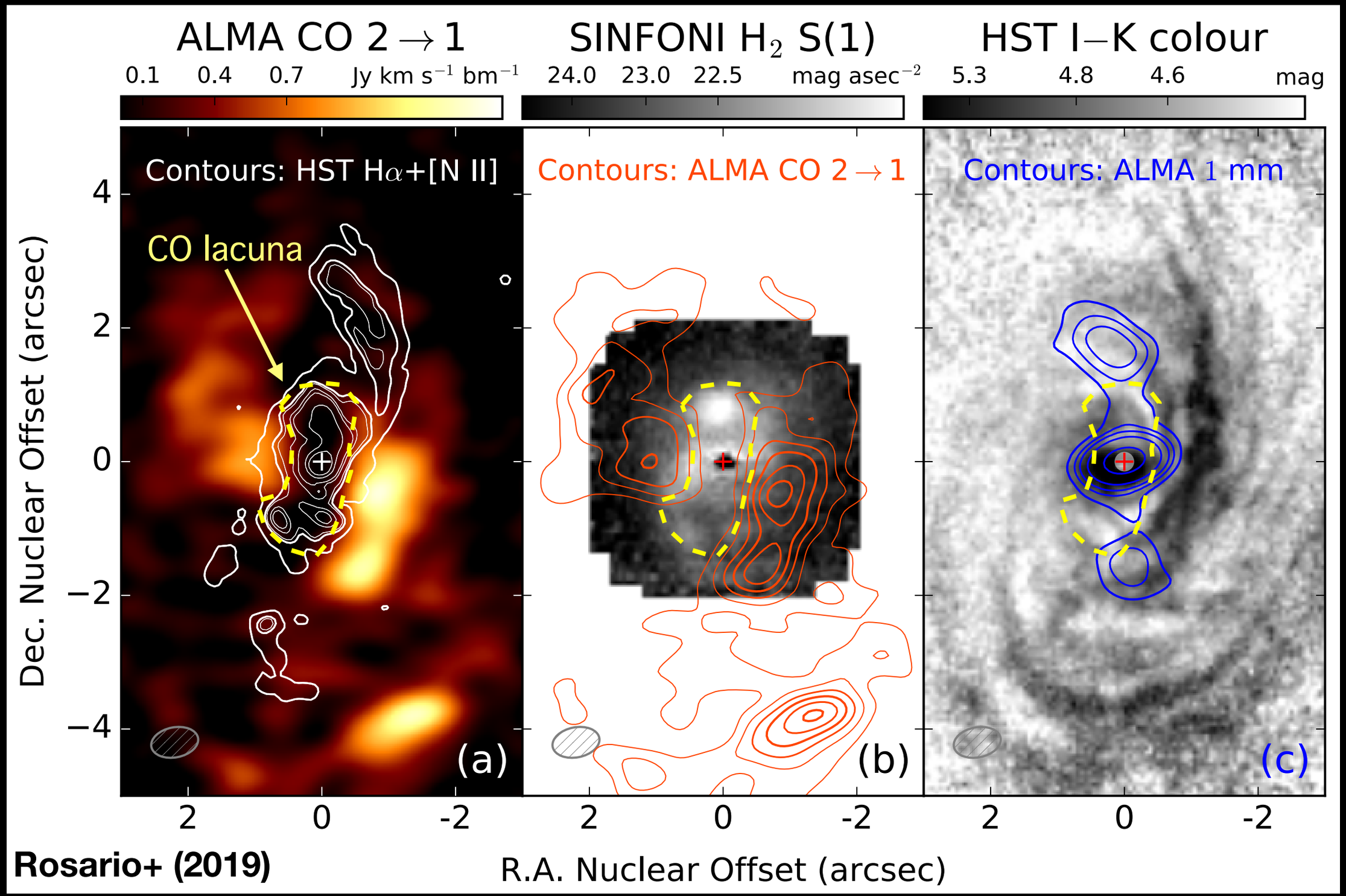




HST narrow-band
VLA (contours)

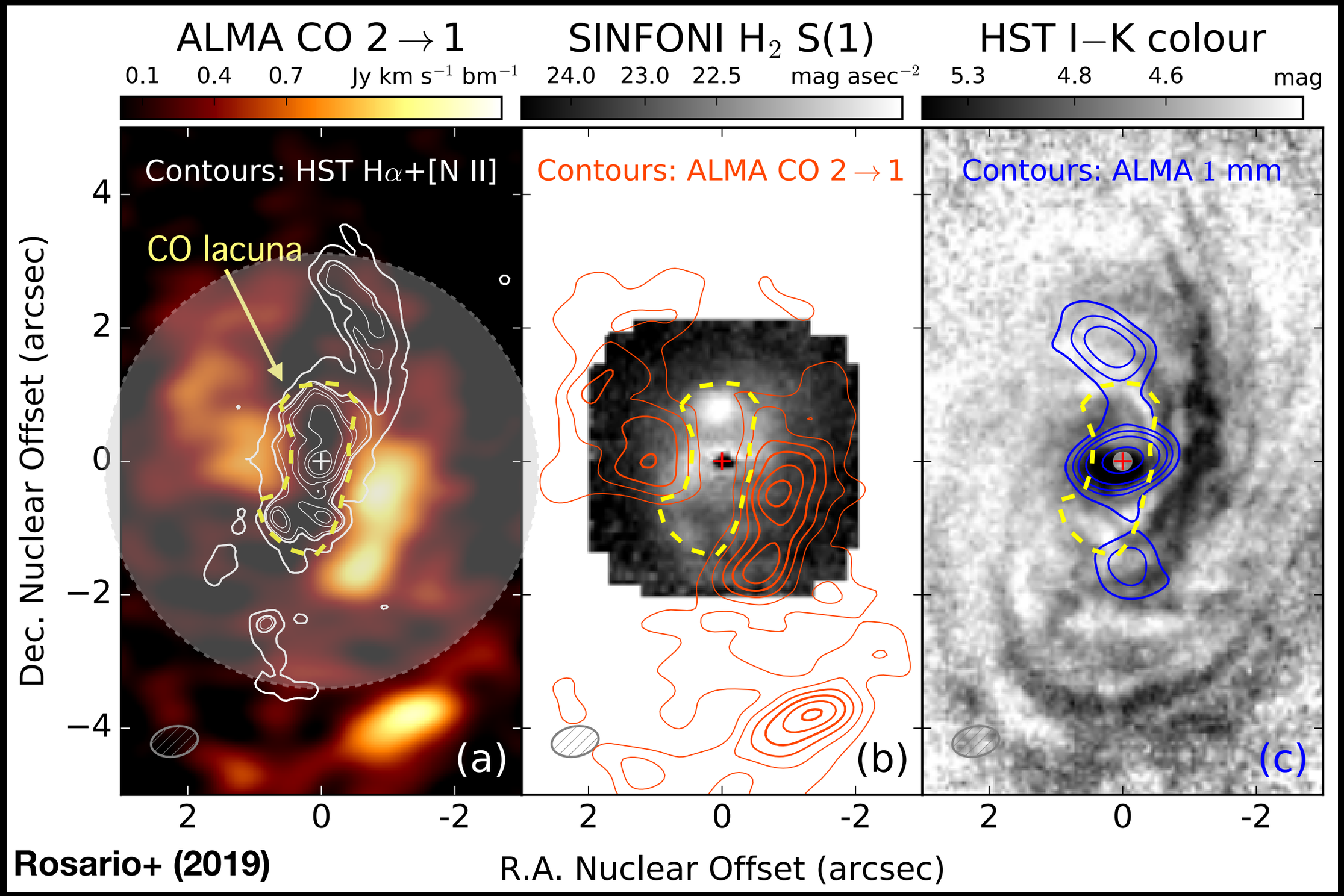
Ferruit+ (2004)

AN AGN CAUGHT IN THE ACT: THE REMARKABLE CASE OF NGC 2110



Rosario+ (2019)

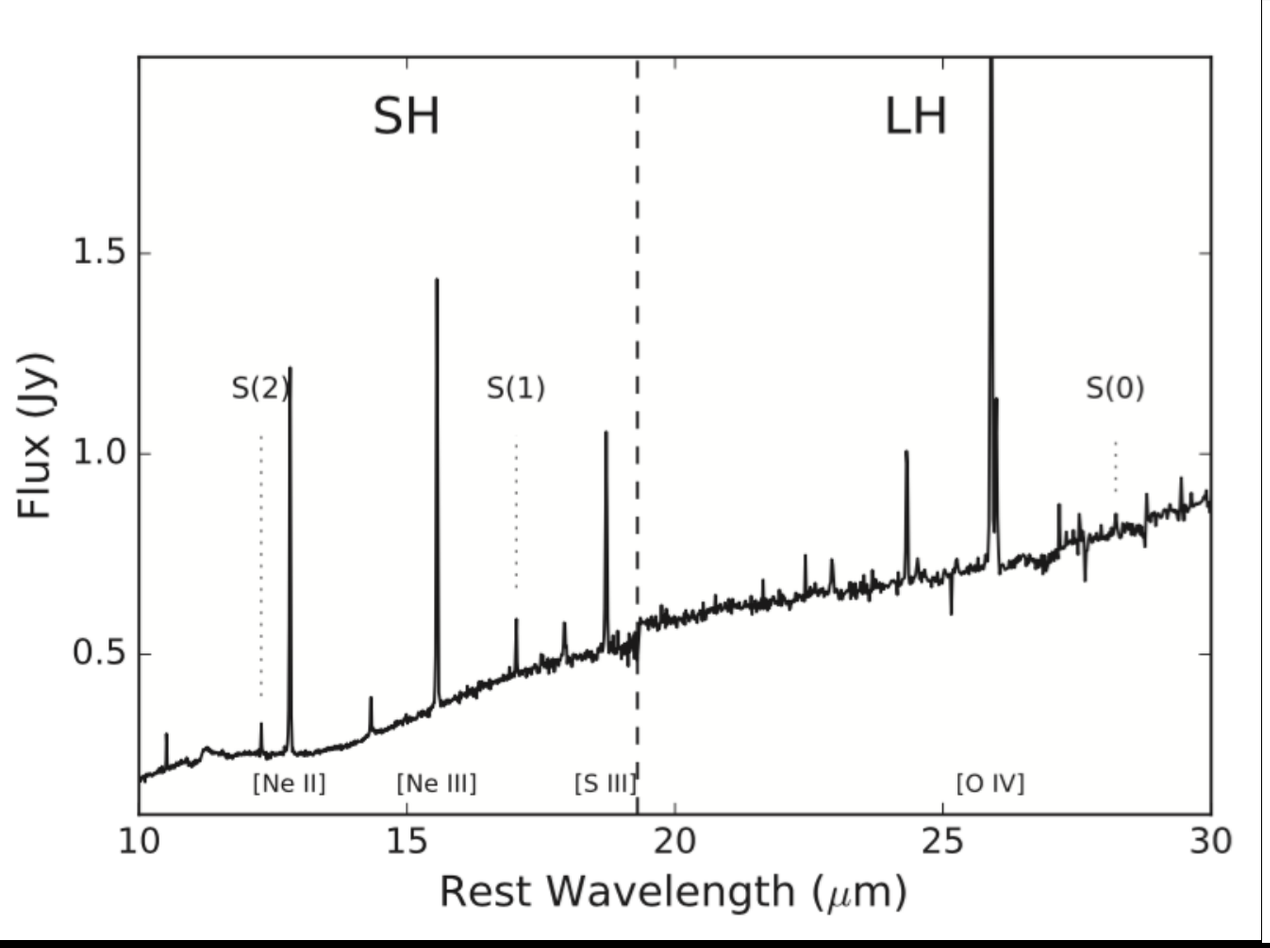
AN AGN CAUGHT IN THE ACT: THE REMARKABLE CASE OF NGC 2110



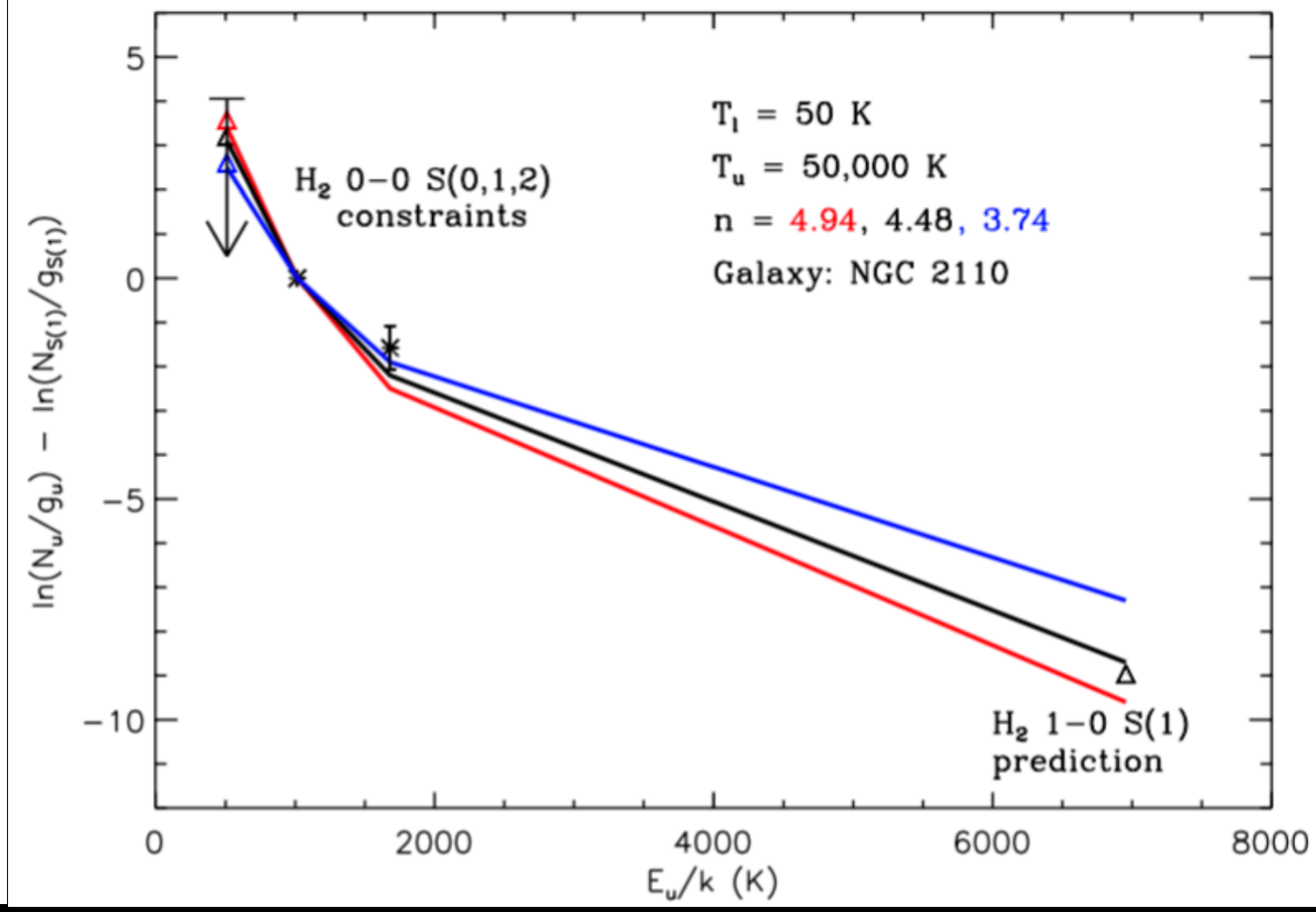
Rosario+ (2019)

THE AGN SUPPRESSES CO EMISSION BUT DOES NOT DESTROY H_2

Spitzer/IRS spectrum



H_2 excitation diagram



Rosario+ (2019)

The similarity of CO (2-1) and hot H2 line emission also supports this notion.

Take home messages:

AGN feedback can be localised because the nuclear radiation field is anisotropic.

Depressed CO emission does not directly imply a lack of molecular gas.

The gas content and distribution of distant AGN host galaxies are different from z=0. Could this produce a more pronounced suppression of CO emission?