

Spatially Offset Active Galactic Nuclei: *The Hubble Space Telescope Perspective*

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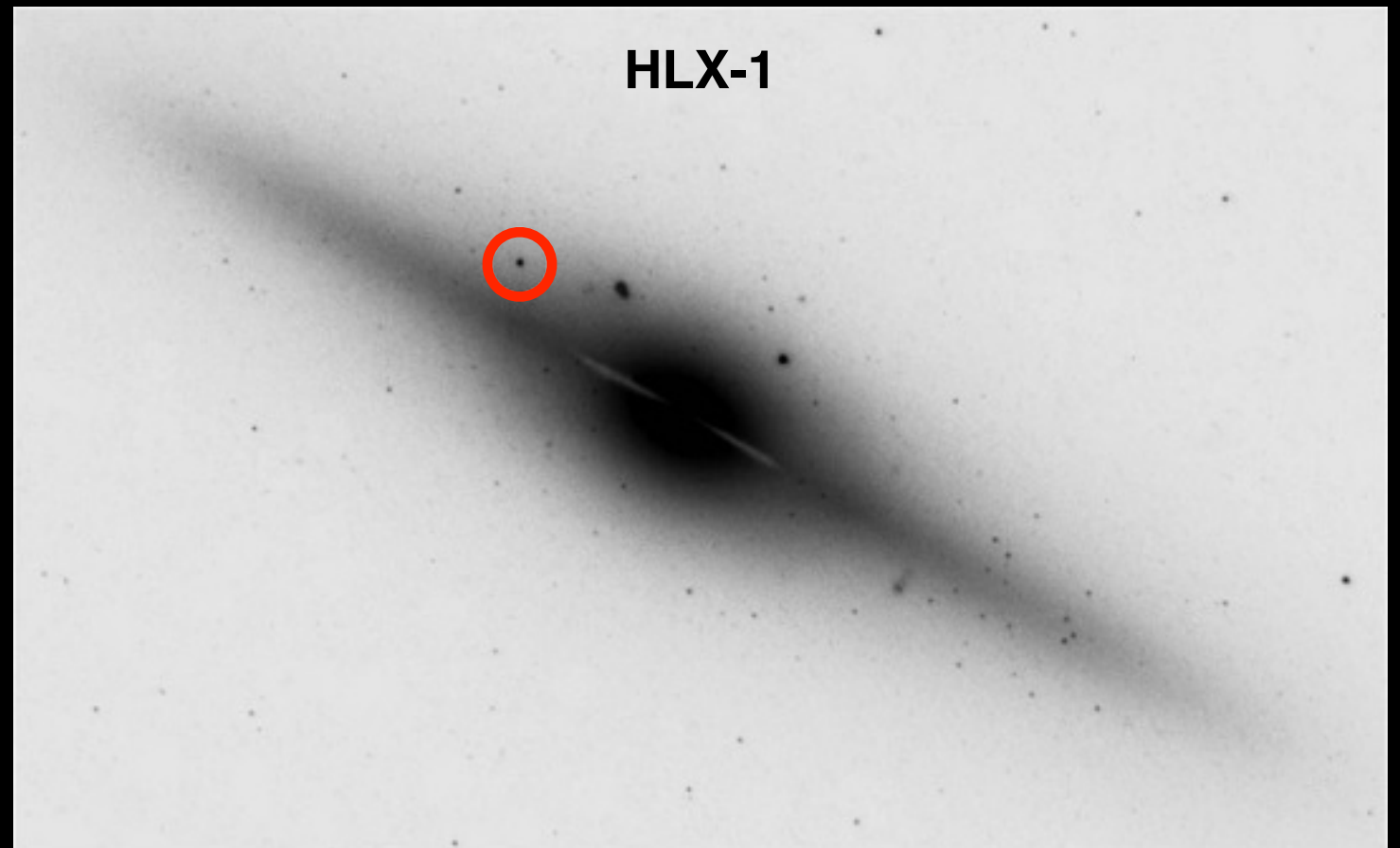
Role of galaxy mergers in the buildup of black hole mass



Comerford et al. 2015, ApJ, 806, 219

Major merger:

BH Mass = $10^6 - 10^9 M_{\text{Sun}}$



Farrell et al. 2009, Nat., 460, 73

Minor merger:

BH Mass = $10^3 - 10^6 M_{\text{Sun}}$

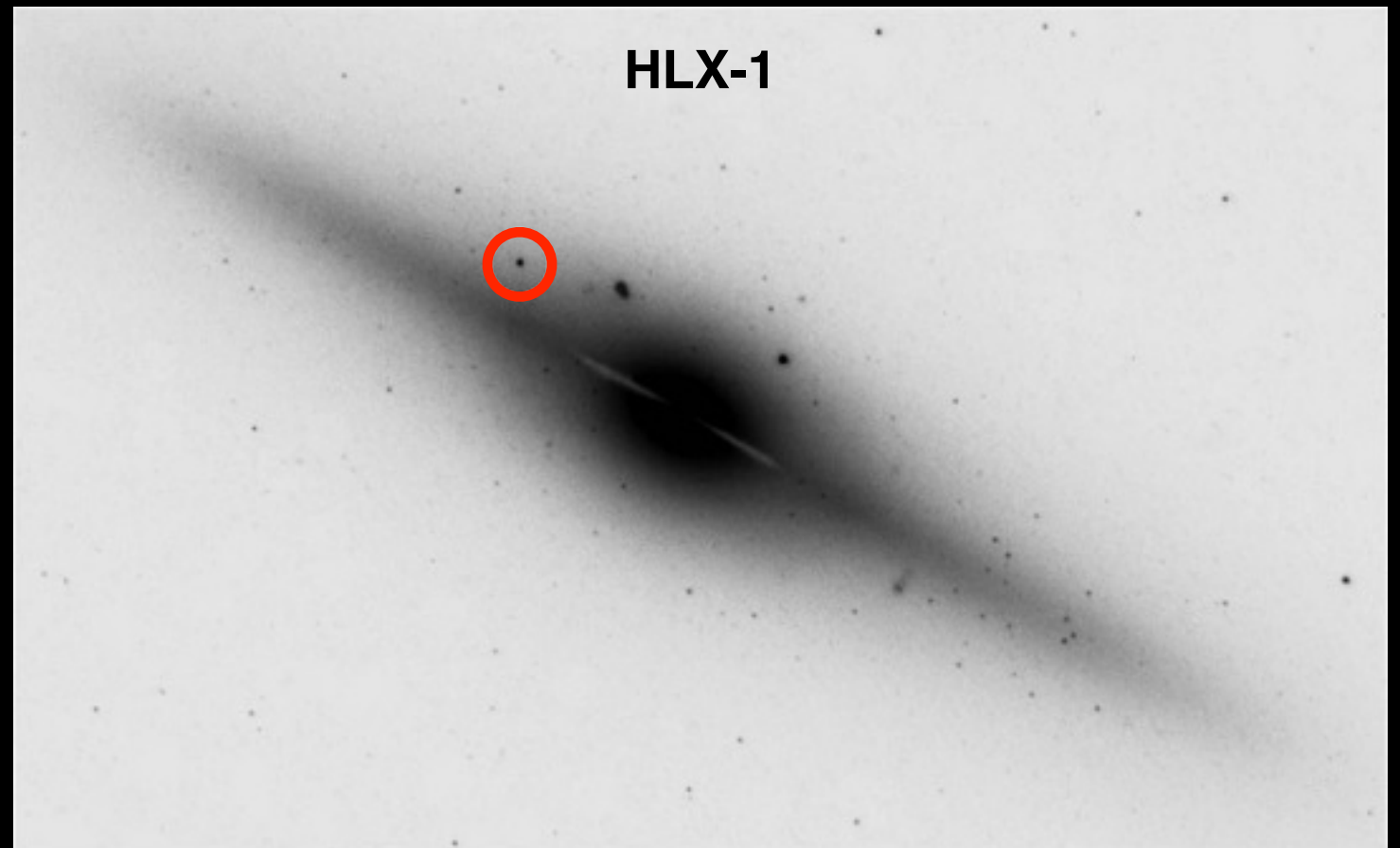
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Minor merger:

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What types of galaxy mergers trigger AGN?

Major or minor mergers?

Where does the AGN want to be?

Spatially Offset AGN

SDSS g+r+i
composite

SDSS z

2-10 keV

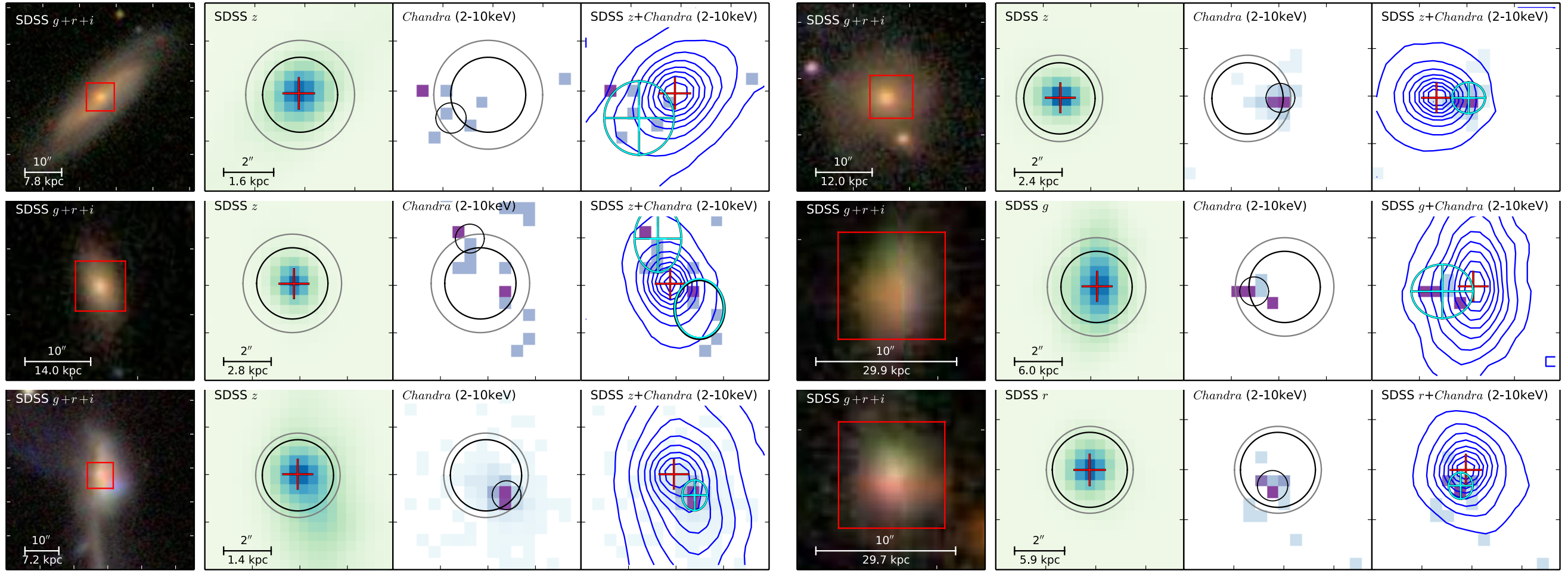
SDSS
+2-10 keV

SDSS g+r+i
composite

SDSS z

2-10 keV

SDSS
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Spatially Offset AGN

SDSS g+r+i
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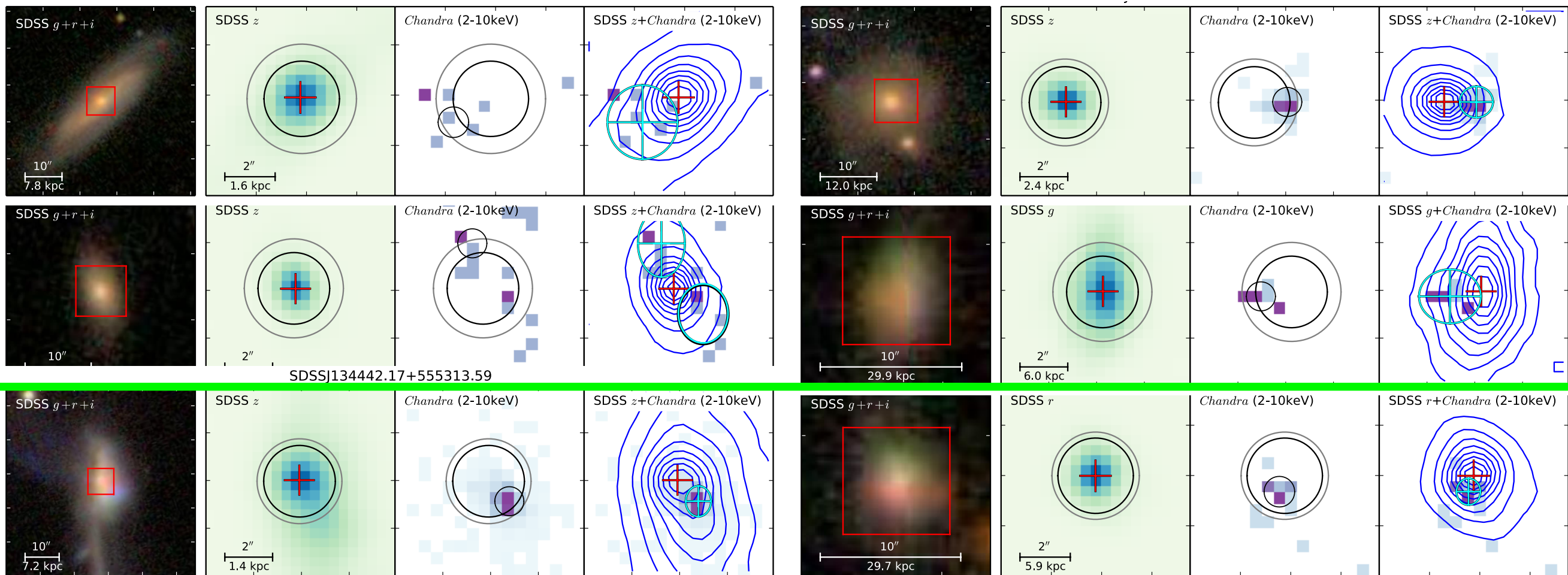
SDSS
+2-10 keV

SDSS g+r+i
composite

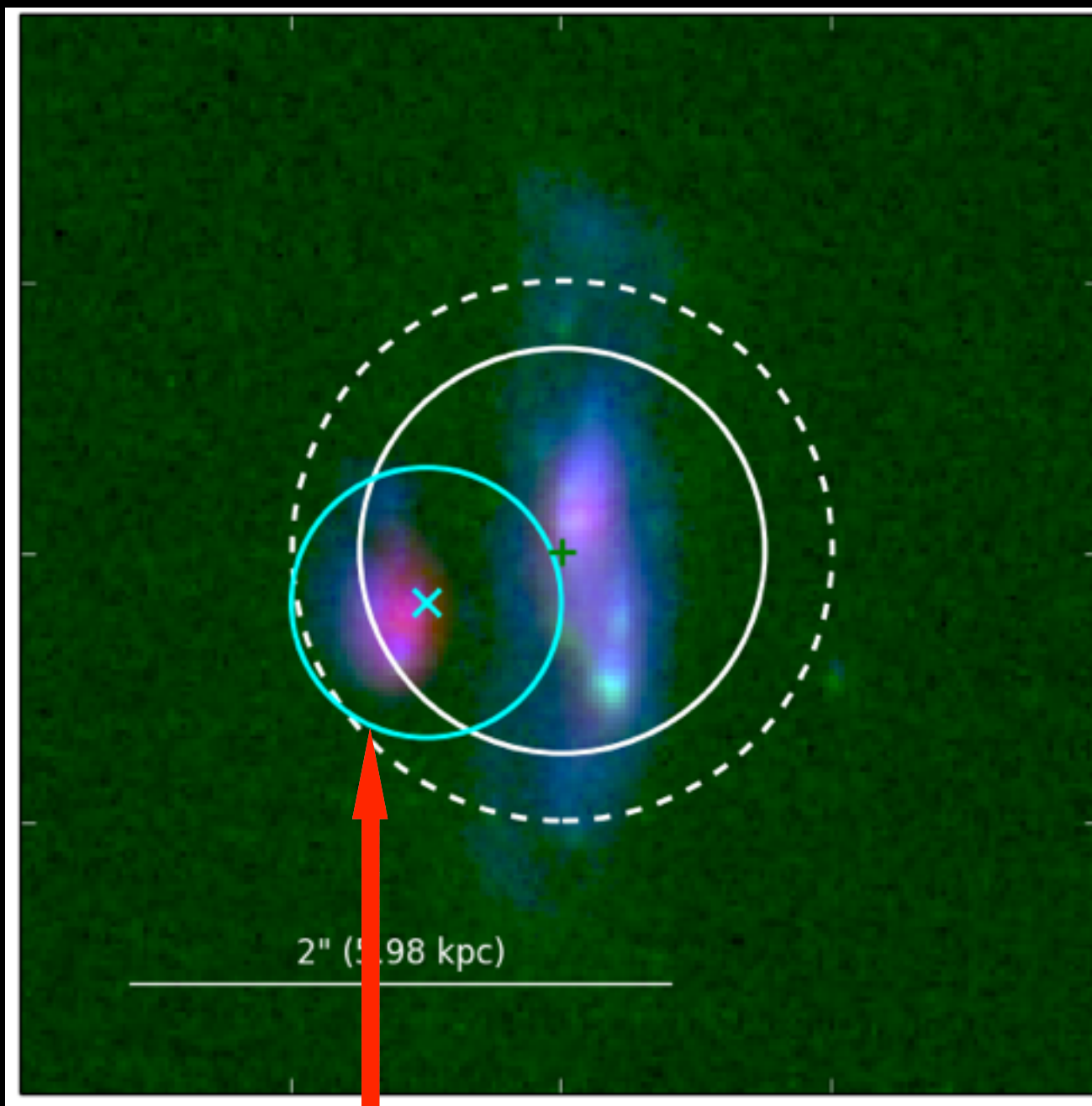
SDSS z

2-10 keV

SDSS
+2-10 keV

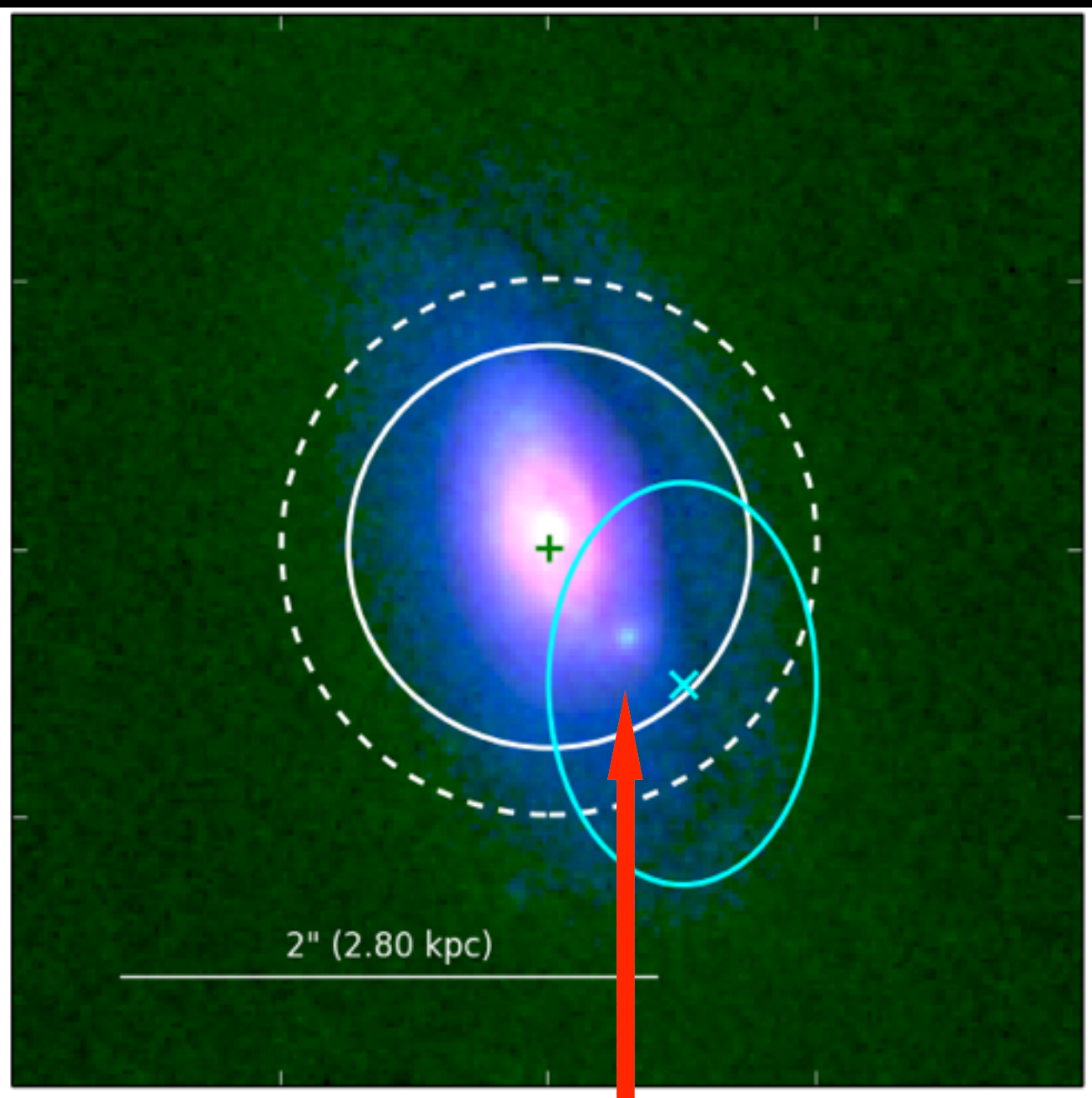


Archival *HST* Imaging



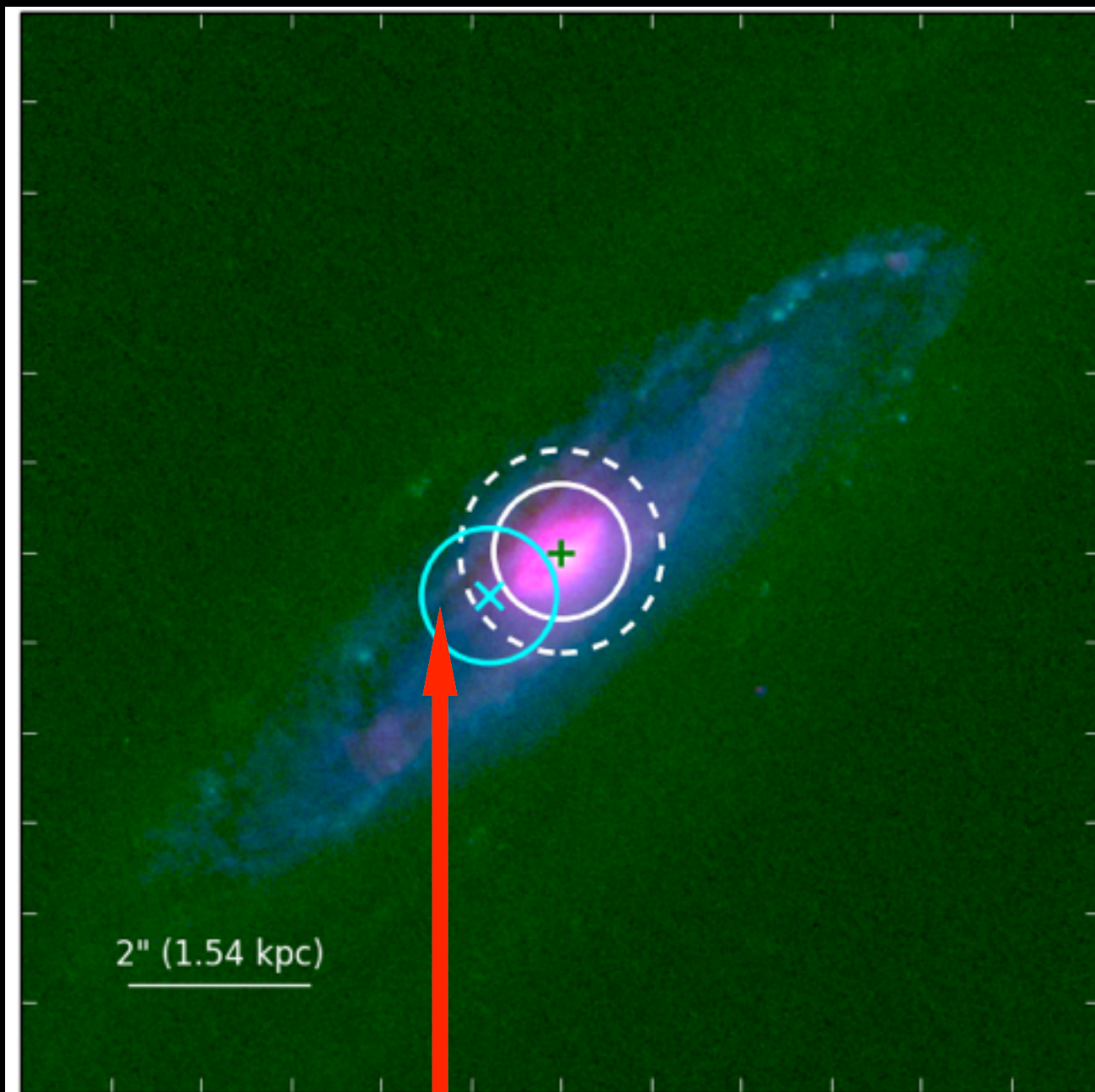
Merger Mass Ratio: 3.1

Interpretation: Dual AGN
with triggered star-
formation to the South



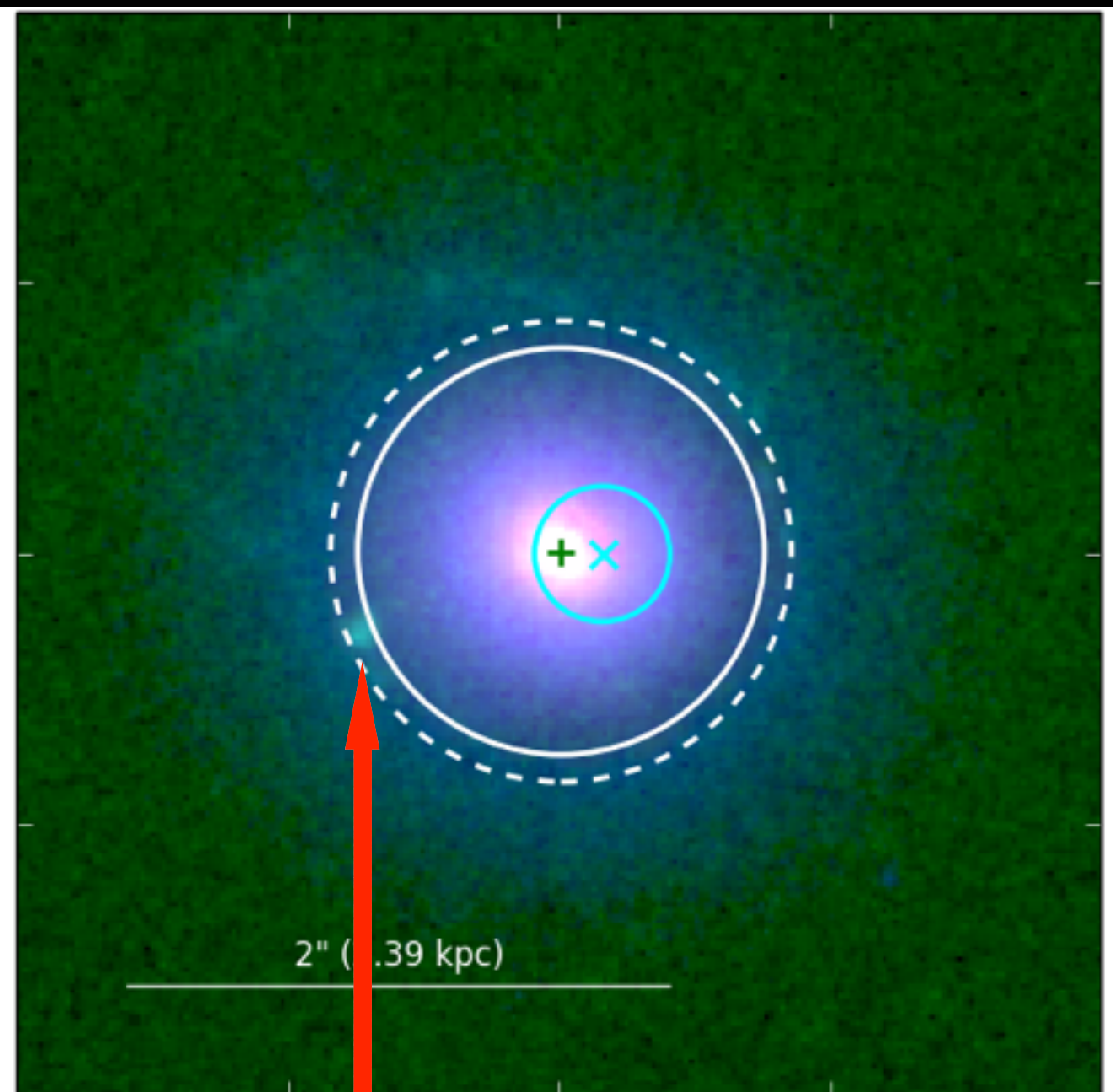
Merger Mass Ratio: <123.8

Interpretation: In-falling
satellite galaxy with AGN



Merger Mass Ratio: 500

Interpretation: Candidate
IMBH?



Merger Mass Ratio: <48

Interpretation: Tidally
shredded in-falling galaxy
and extended X-ray emission

Conclusions:

Diverse zoo of galaxy morphologies

Potential preference for minor mergers

X-ray AGN resides in secondary galaxy

Evidence for recent bursts of star-formation