

AGN in Early Phases of Galaxy Transitions



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AGN in Post-Starburst Galaxies



Credit: Hubble/Galaxy Zoo



Credit: APOD/ATLAS3D



Credit: Hubble/Galaxy Zoo

Actively Star-forming

Transition:

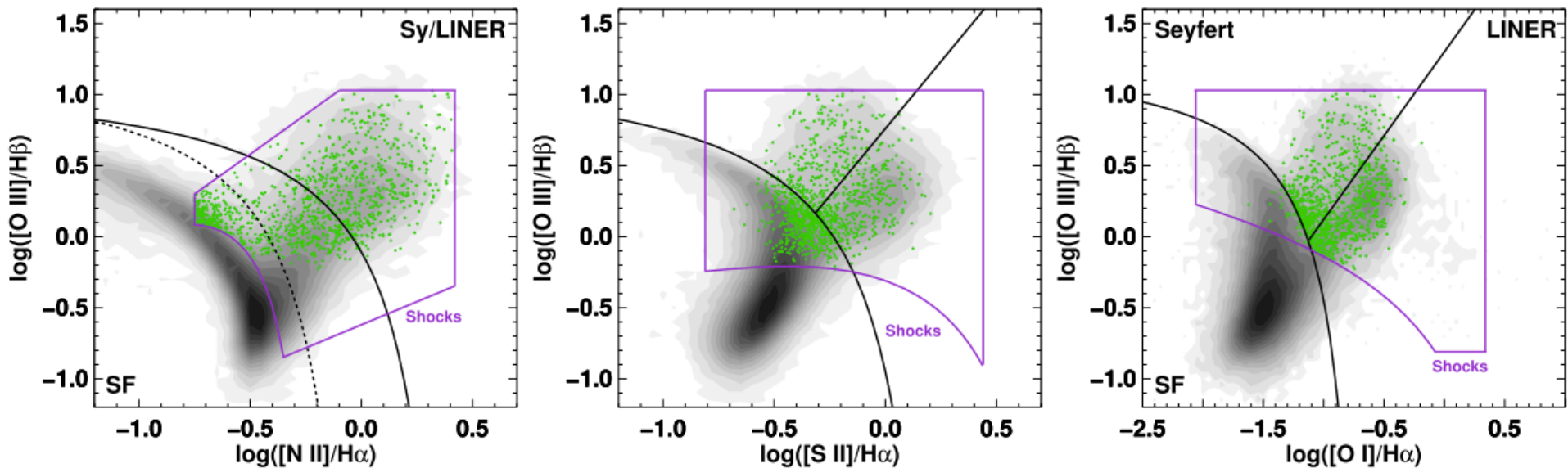
- Interactions/Merger
- Secular Evolution

Quiescent

Quenching ... AGN

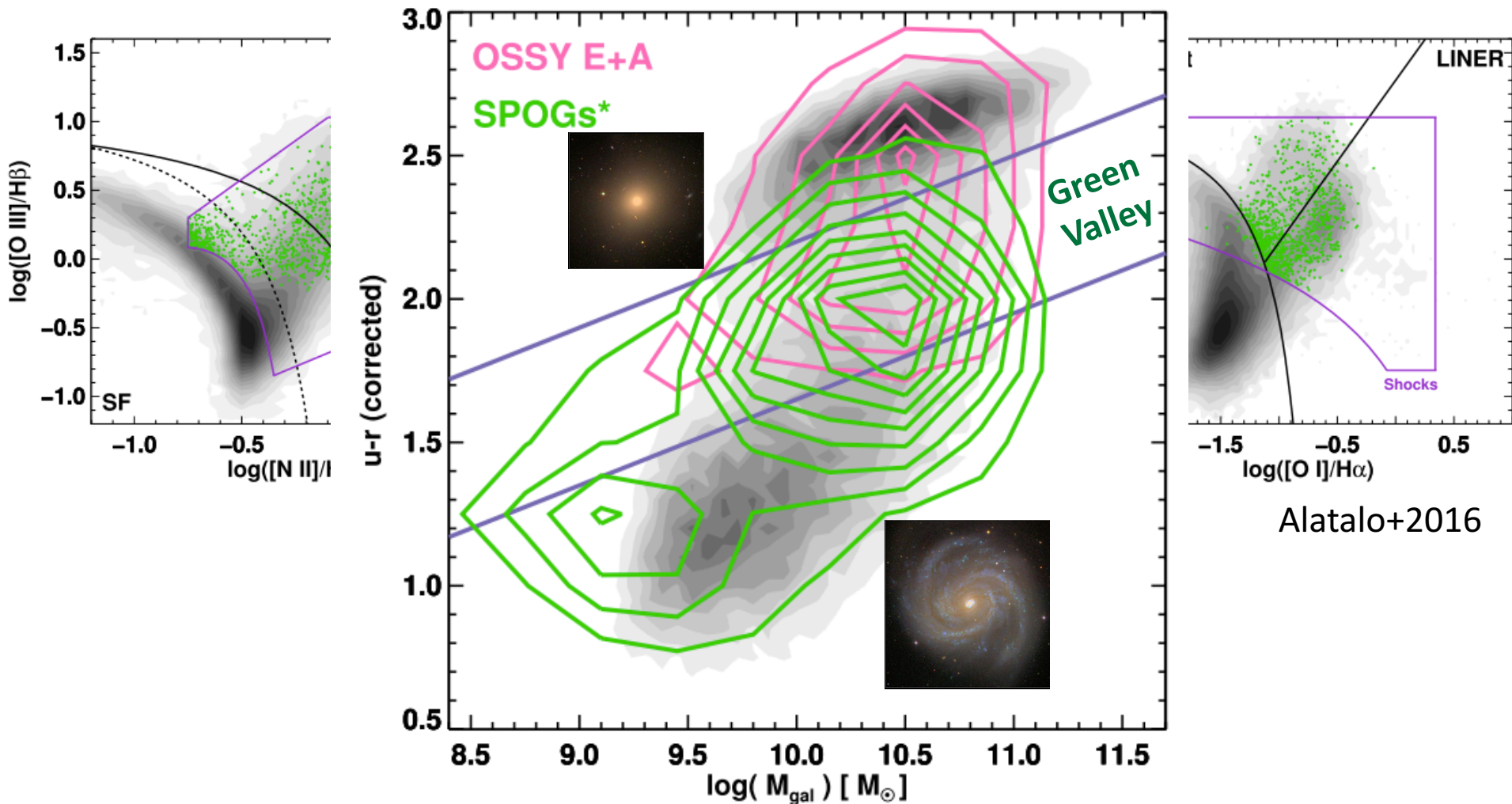
(e.g., Canalizo & Stockton 2001; Schawinski+2007; Kaviraj+2015; Bitsakis+2016)

Shocked Post-Starburst Galaxies (SPOGS)

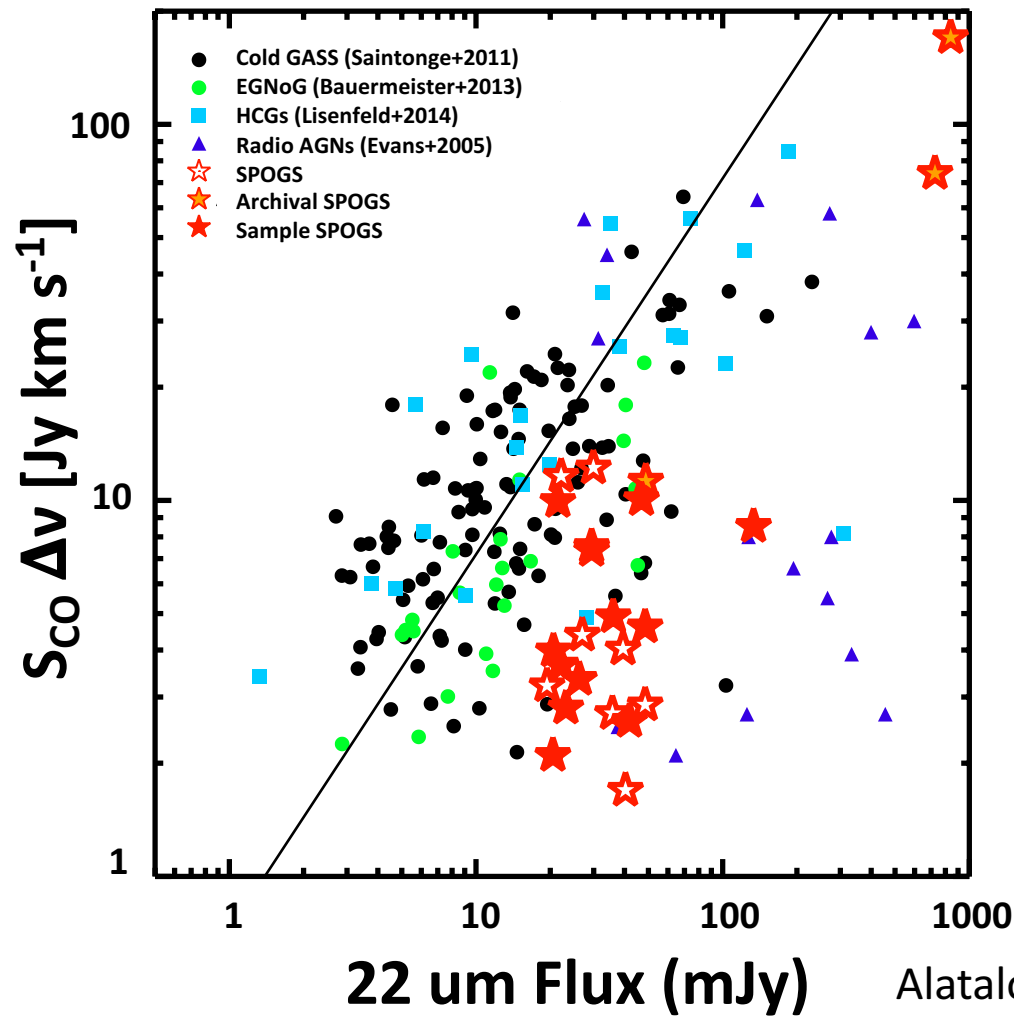


Alatalo+2016

Shocked Post-Starburst Galaxies (SPOGS)



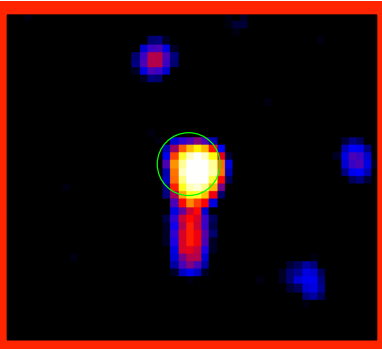
AGN in SPOGS



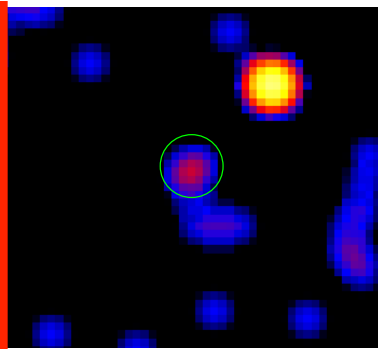
Alatalo+2016, Lanz+ in prep.

AGN in SPOGS

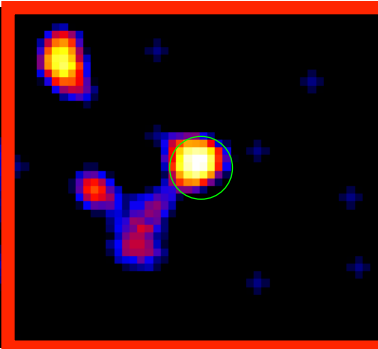
Cycle 18 Program; PI L. Lanz



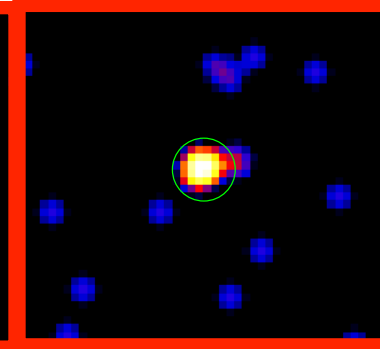
SPOG462:
5 cts



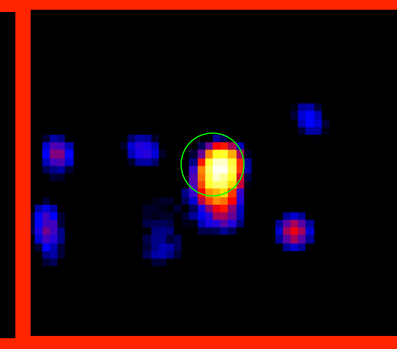
SPOG955:
2 cts



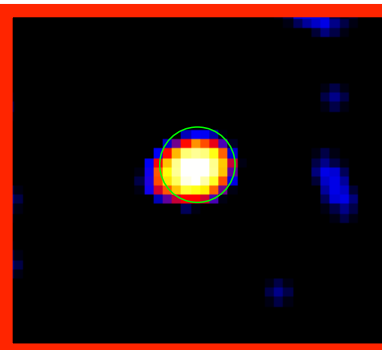
SPOG186:
3 cts



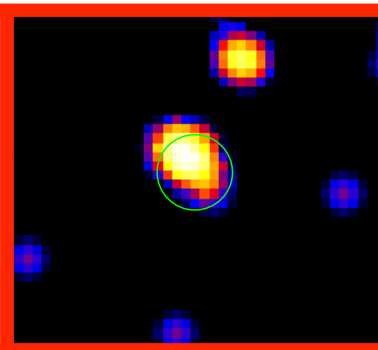
SPOG157:
10 cts



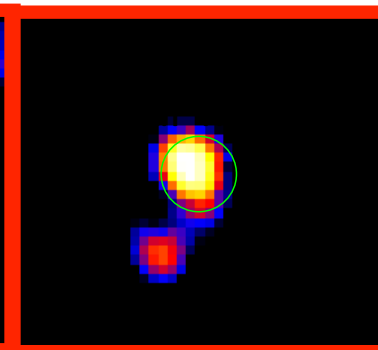
SPOG662:
4 cts



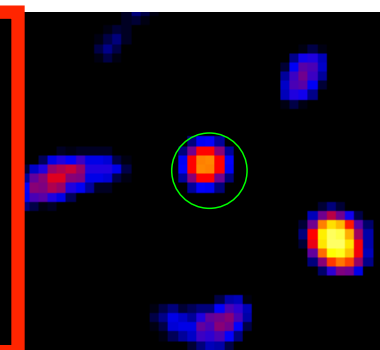
SPOG498:
4 cts



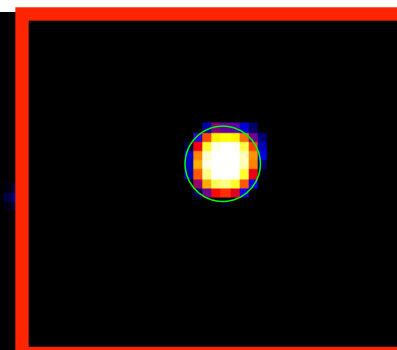
SPOG224:
3 cts



SPOG253:
6 cts

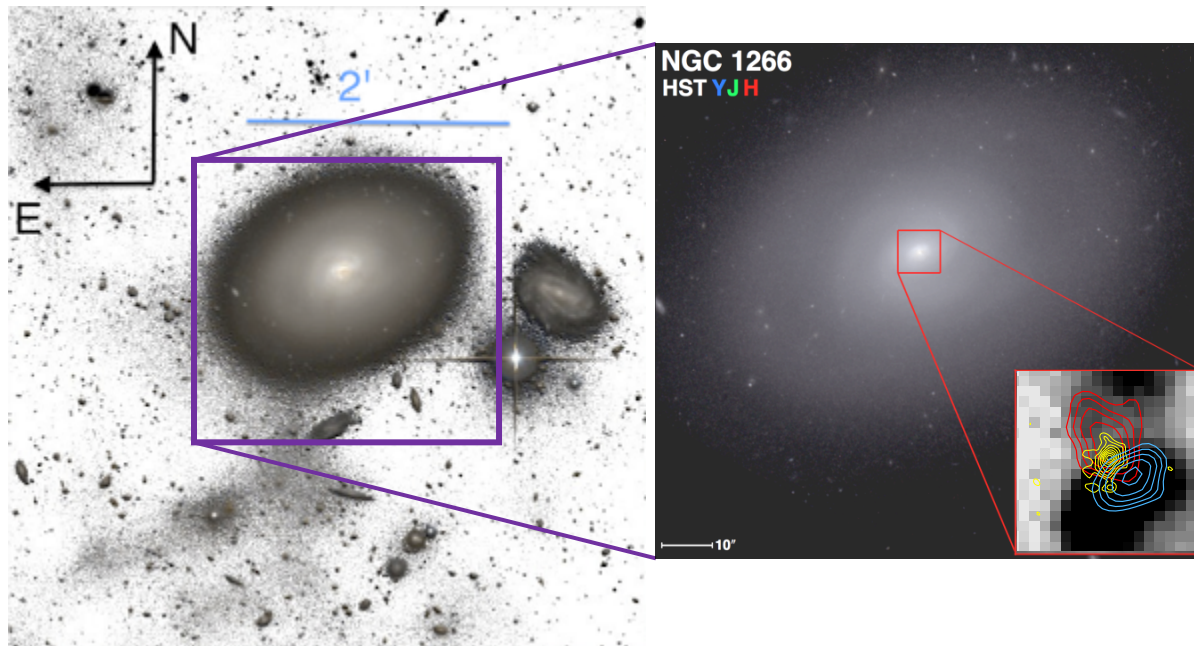


SPOG689:
2 cts



SPOG4:
8 cts

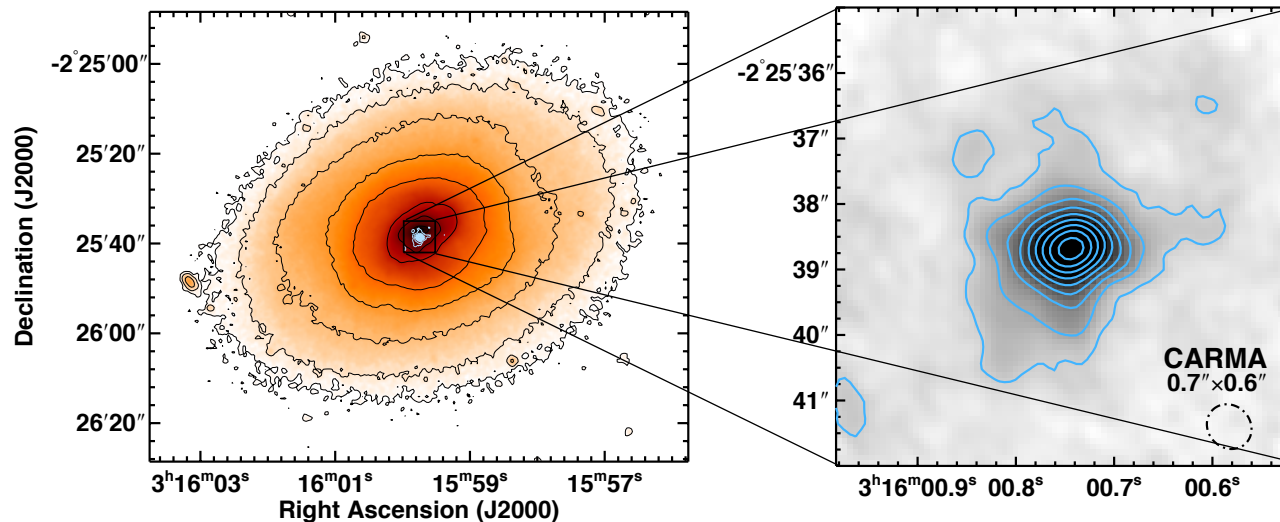
Proto-typical SPOG: NGC 1266



Outflow-driving
low-luminosity AGN
in
compact nuclear starburst
surrounded by
very infertile molecular disk

Alatalo+11; Nyland+13; Duc+15

Proto-typical SPOG: NGC 1266



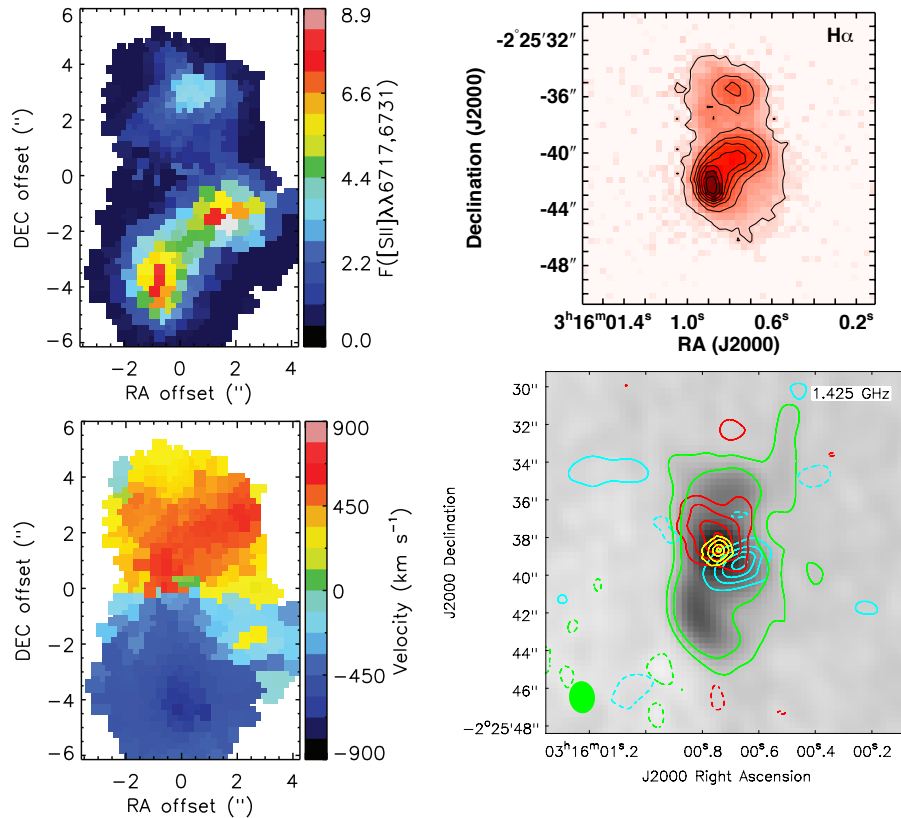
$1 \times 10^9 M_{\odot}$
molecular gas

Avg. N_{H_2} :
 $3 \times 10^{24} \text{ cm}^{-2}$



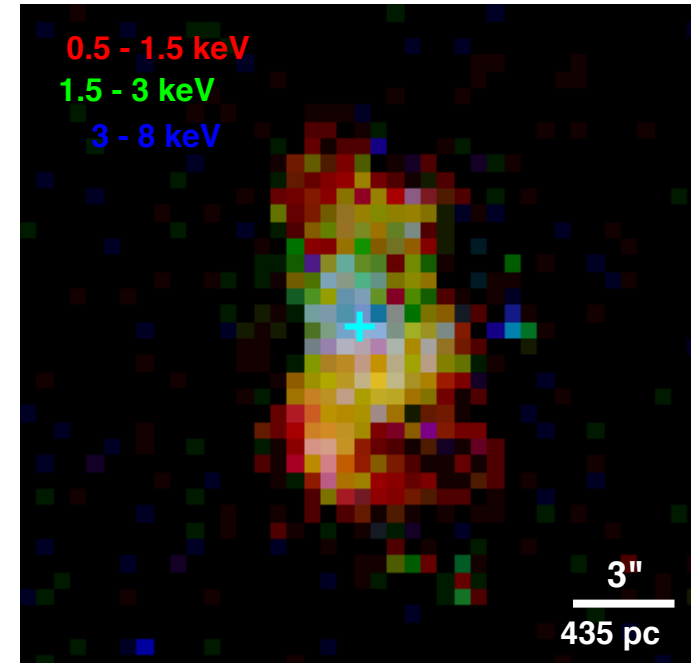
Alatalo+11, Alatalo+15

Proto-typical SPOG: NGC 1266



Davis+12; Alatalo+11; Nyland+13

Lanz+ in prep.; Nyland+ in prep.



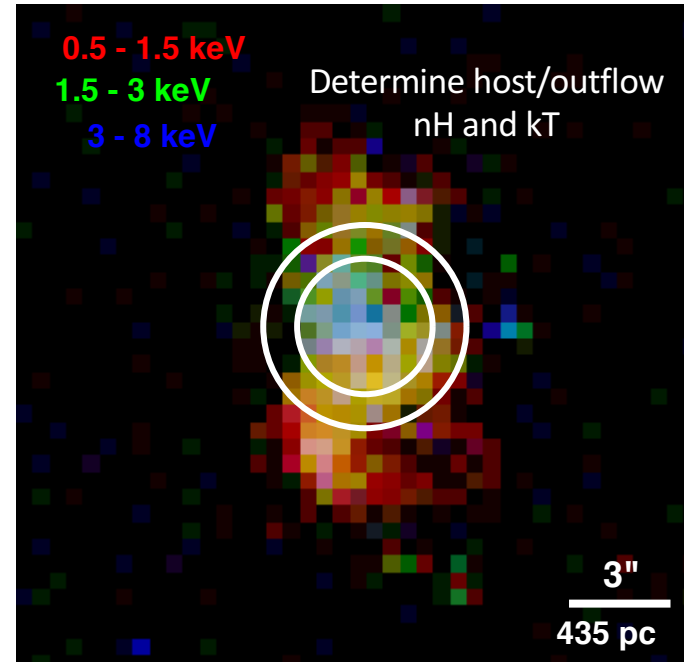
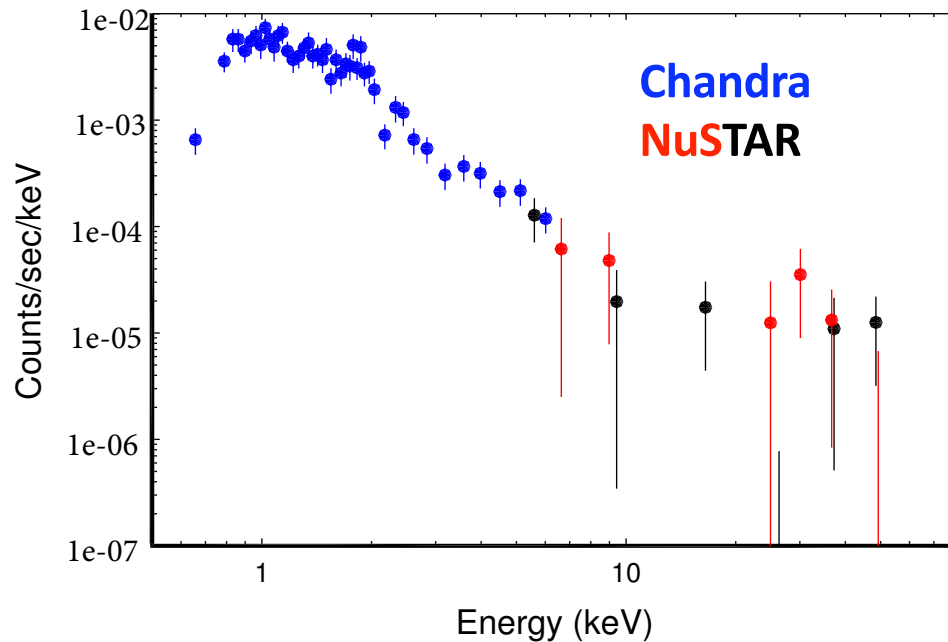
Cycle 18 Program; PI K. Alatalo



Credit:
NASA/CXC/NGST

Proto-typical SPOG: NGC 1266

Lanz+ in prep.

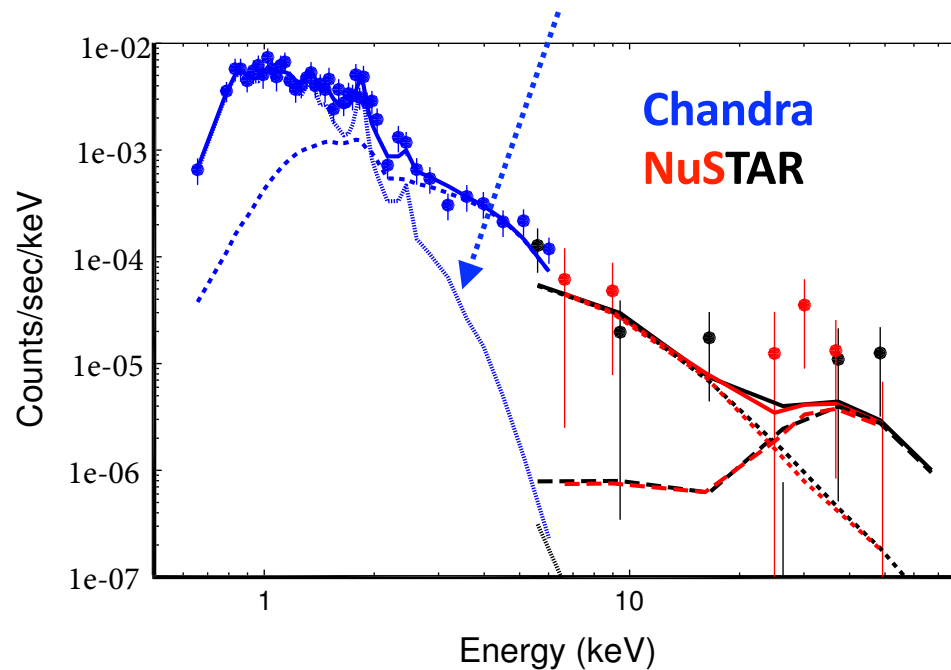


Credit:
NASA/CXC/NGST

Proto-typical SPOG: NGC 1266

Lanz+ in prep.

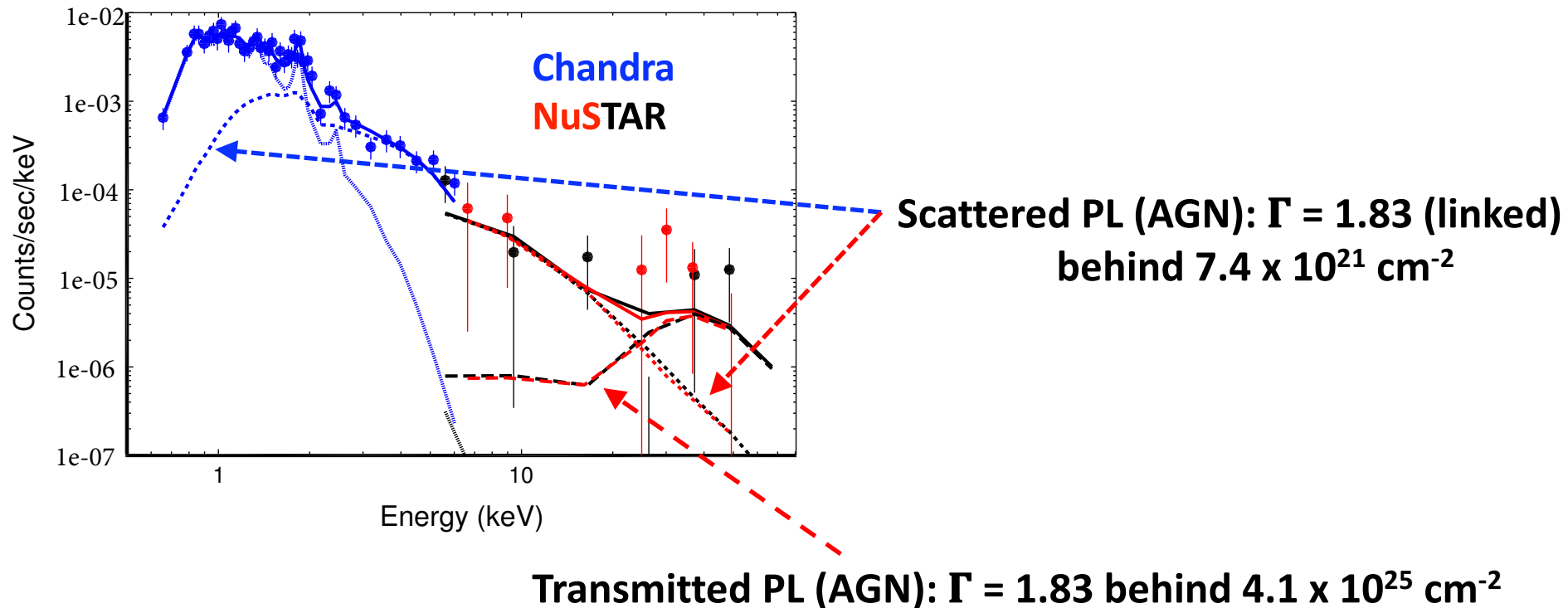
Thermal (Outflow): 0.62 keV behind $7.4 \times 10^{21} \text{ cm}^{-2}$



Proto-typical SPOG: NGC 1266

Lanz+ in prep.

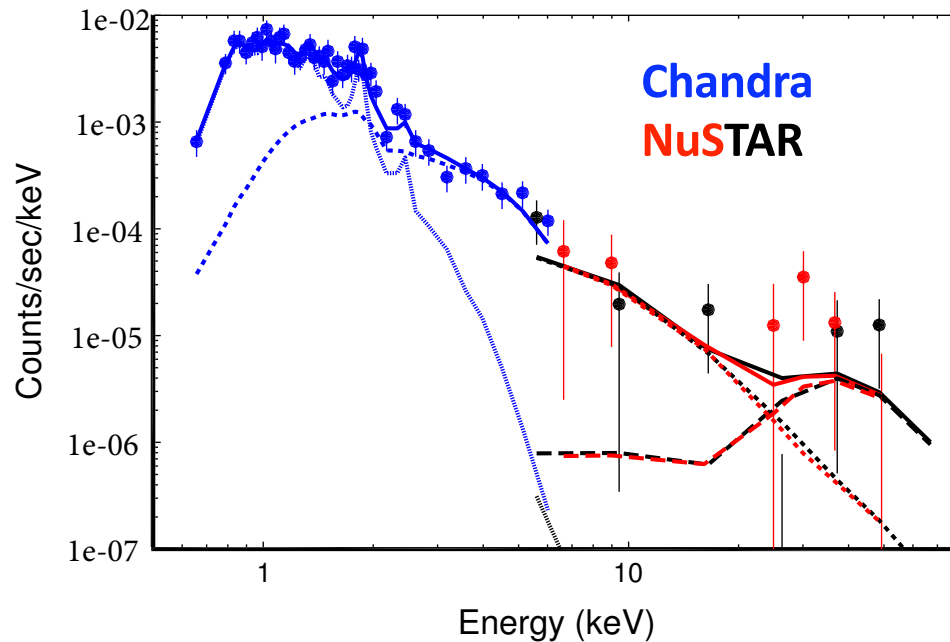
Thermal (Outflow): 0.62 keV behind $7.4 \times 10^{21} \text{ cm}^{-2}$



Proto-typical SPOG: NGC 1266

Lanz+ in prep.

Thermal (Outflow): 0.62 keV behind $7.4 \times 10^{21} \text{ cm}^{-2}$



2-10 keV Intrinsic Luminosity:
 $7.7 \times 10^{40} \text{ erg s}^{-1}$

Scattered PL (AGN): $\Gamma = 1.83$ (linked)
 behind $7.4 \times 10^{21} \text{ cm}^{-2}$

Transmitted PL (AGN): $\Gamma = 1.83$ behind $4.1 \times 10^{25} \text{ cm}^{-2}$

Summary

AGN are present in
early transitioning galaxies
but ...

Likely to be faint
and/or
heavily obscured

