

Hunting for Low Luminosity AGN Using Optical and X-ray Emission (SDSS & ROSAT All Sky Survey)

John Parejko¹

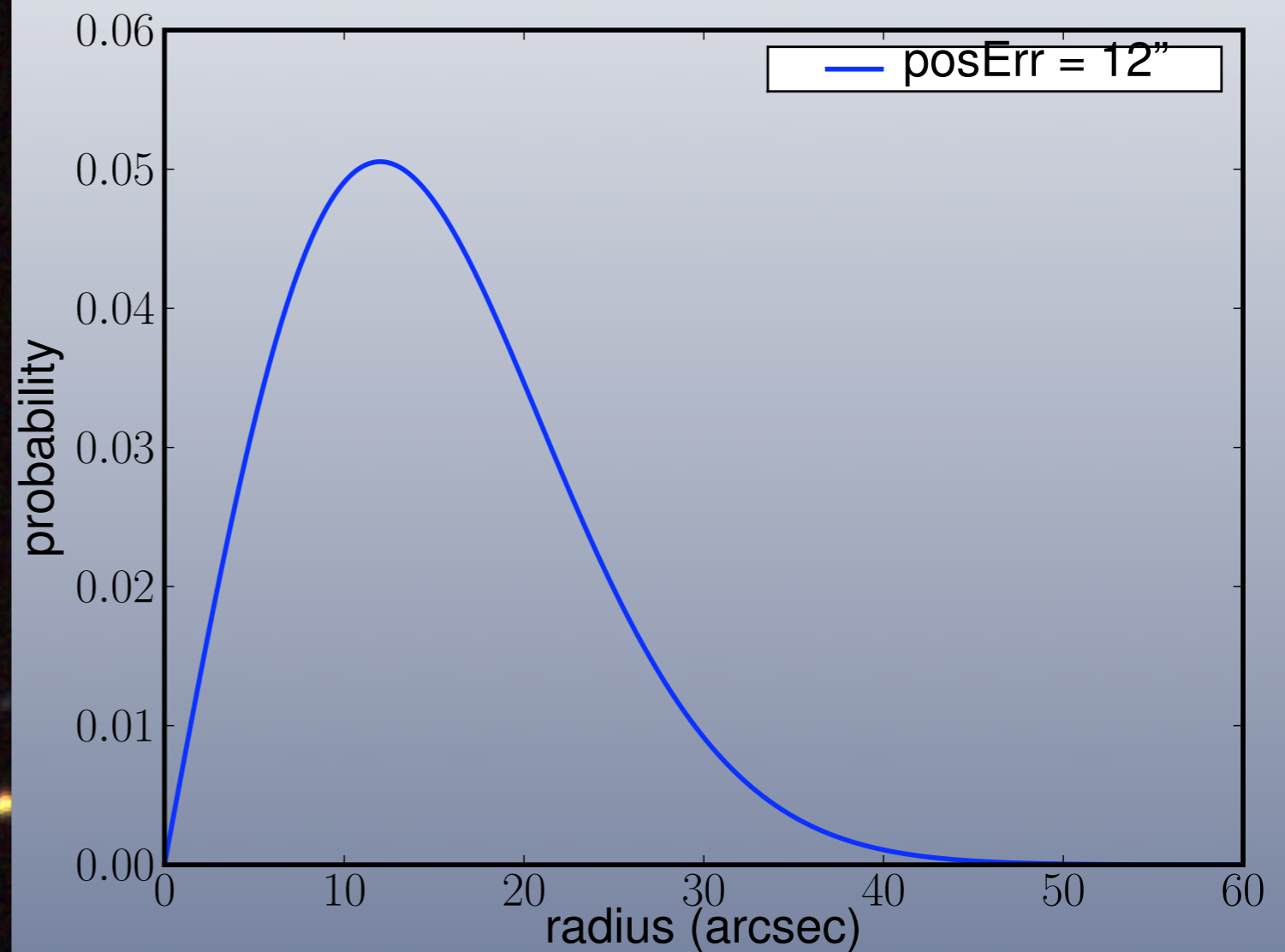
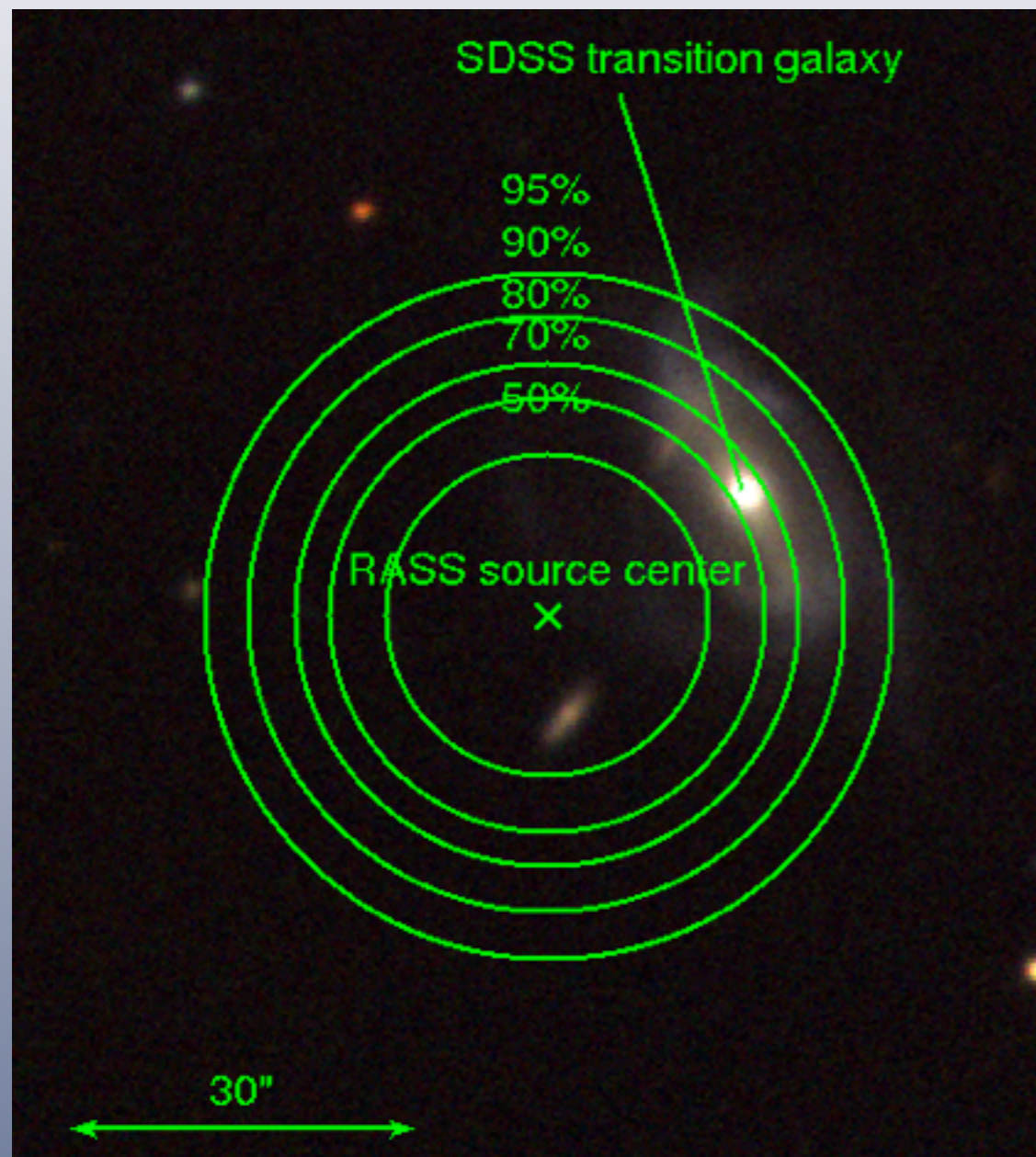
M. S. Vogeley¹, J. B. Hyde², A. Constantin³, R. J. Thornton⁴, F. Hoyle⁵



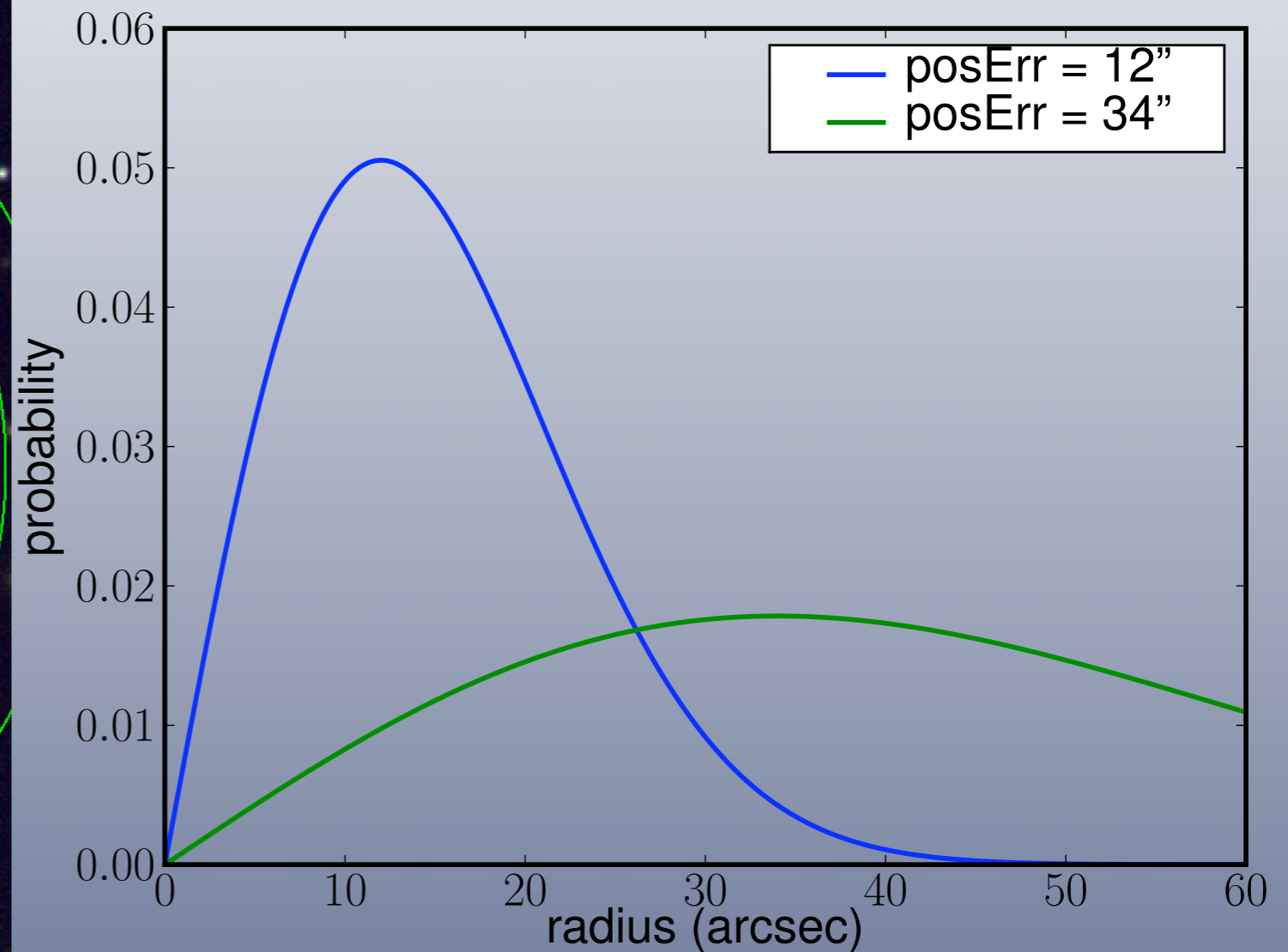
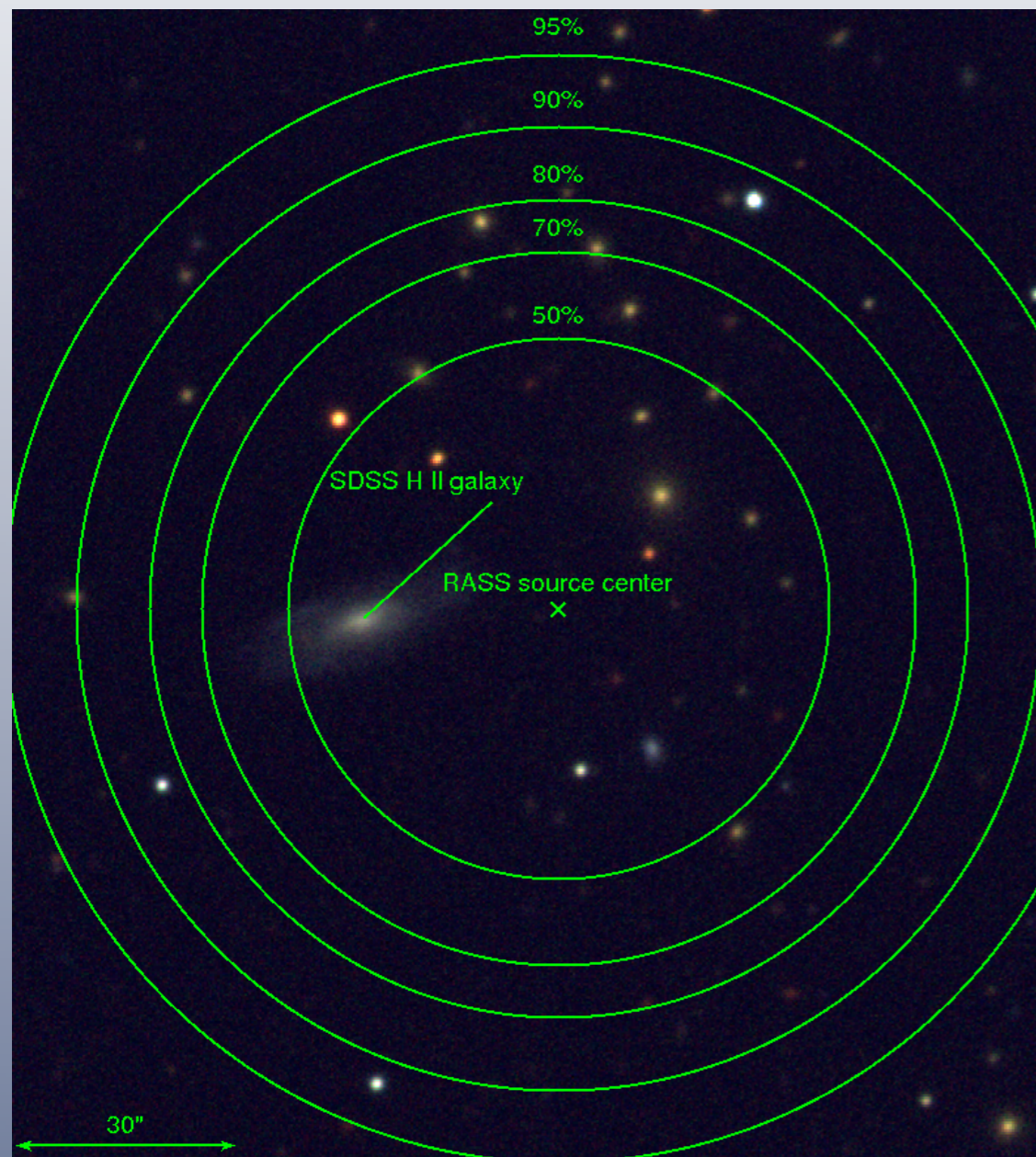
- 1: Drexel University
- 2: University of Pennsylvania
- 3: Harvard-Smithsonian Center for Astrophysics
- 4: West Chester University
- 5: Widener University



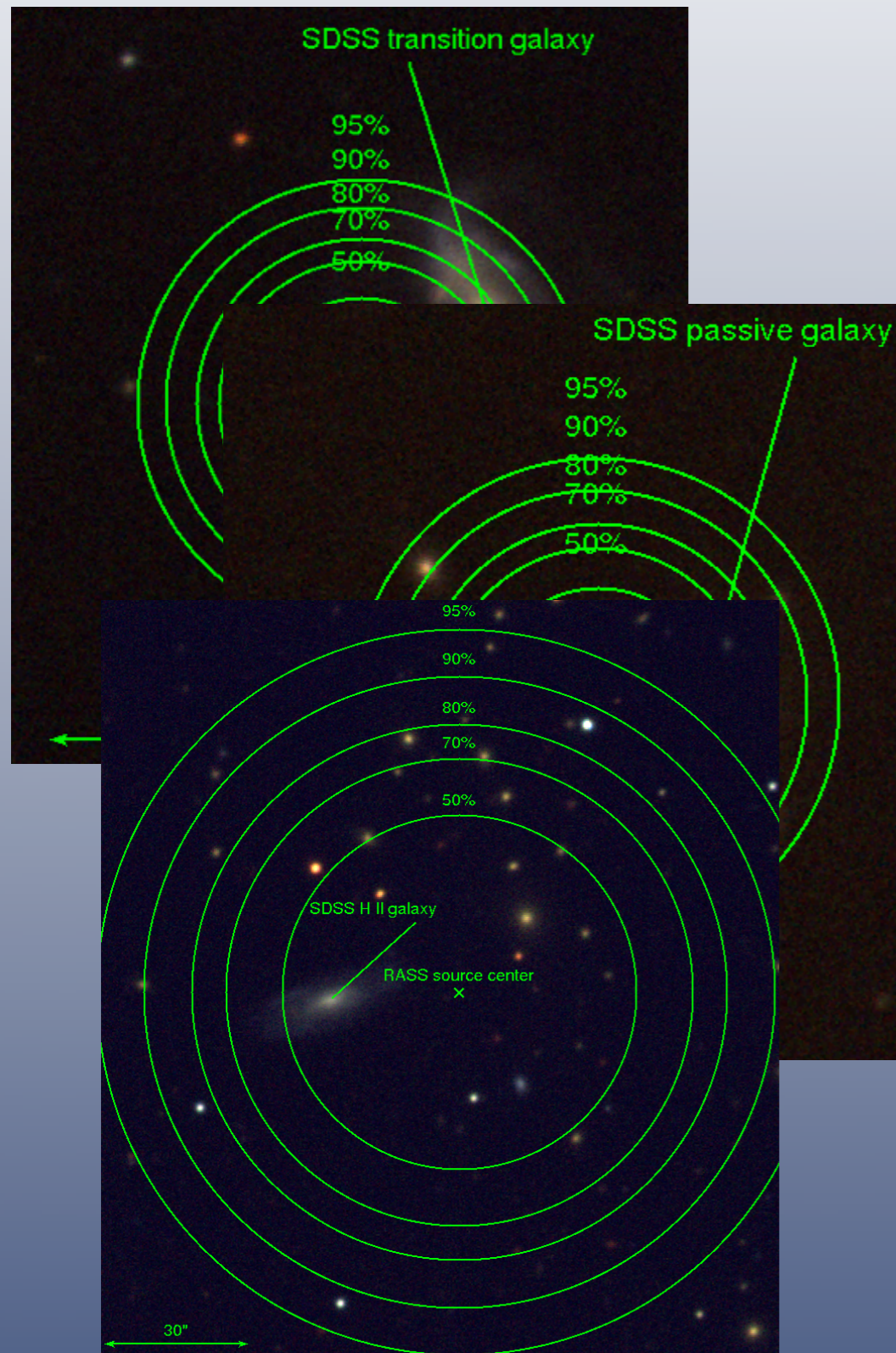
Identifying Positive Galaxy/X-ray Matches



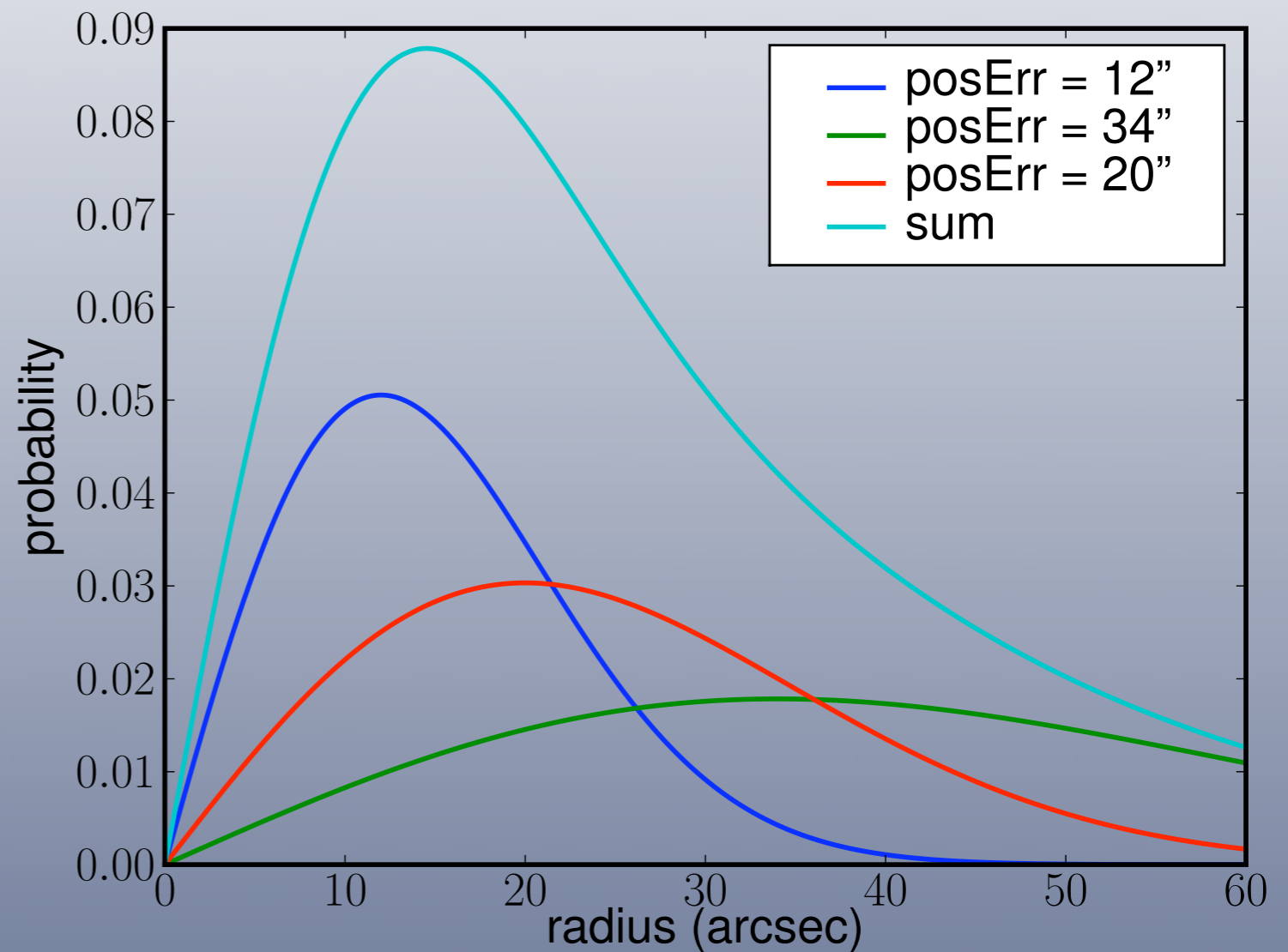
Identifying Positive Galaxy/X-ray Matches



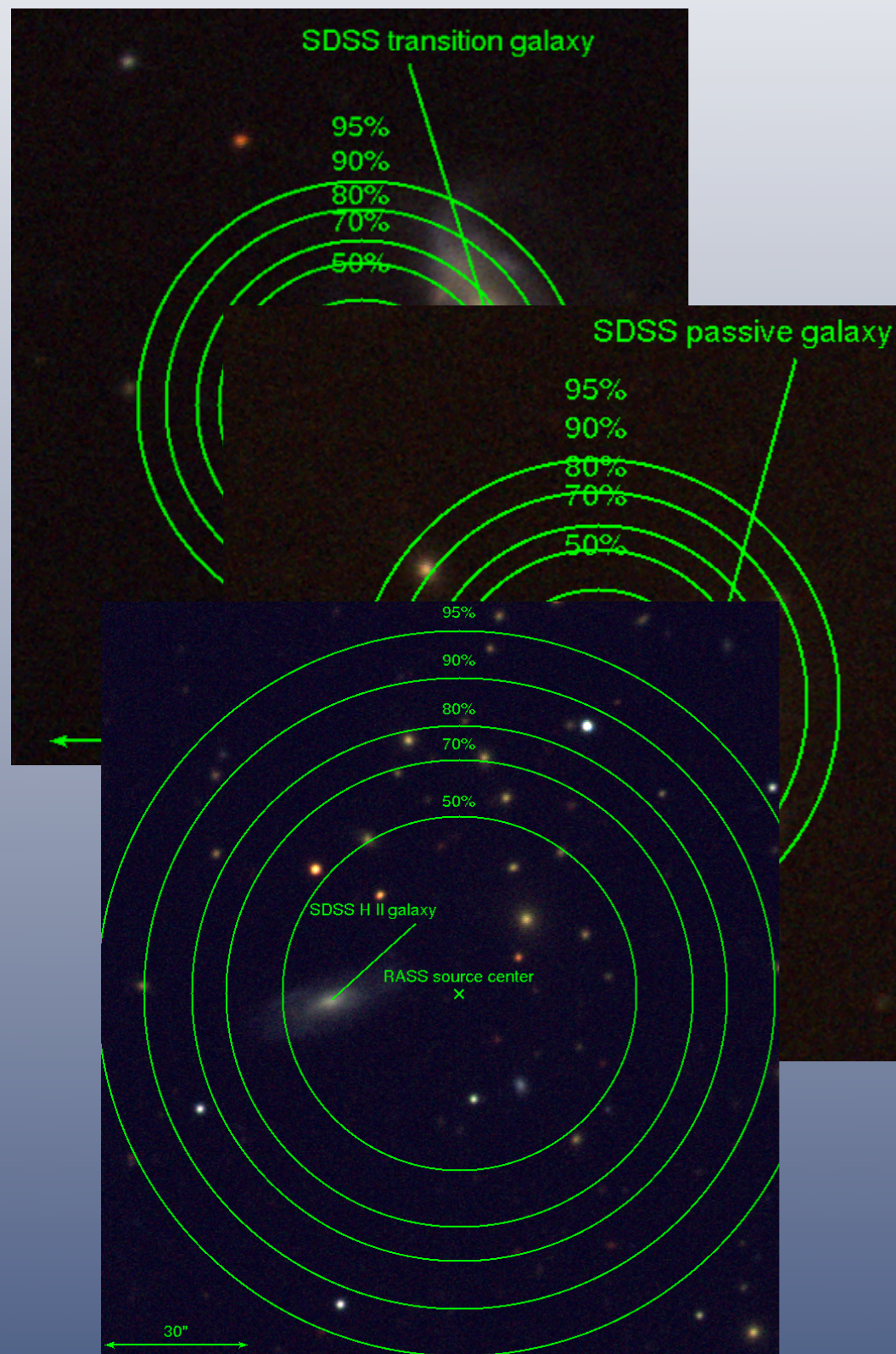
Identifying Positive Galaxy/X-ray Matches



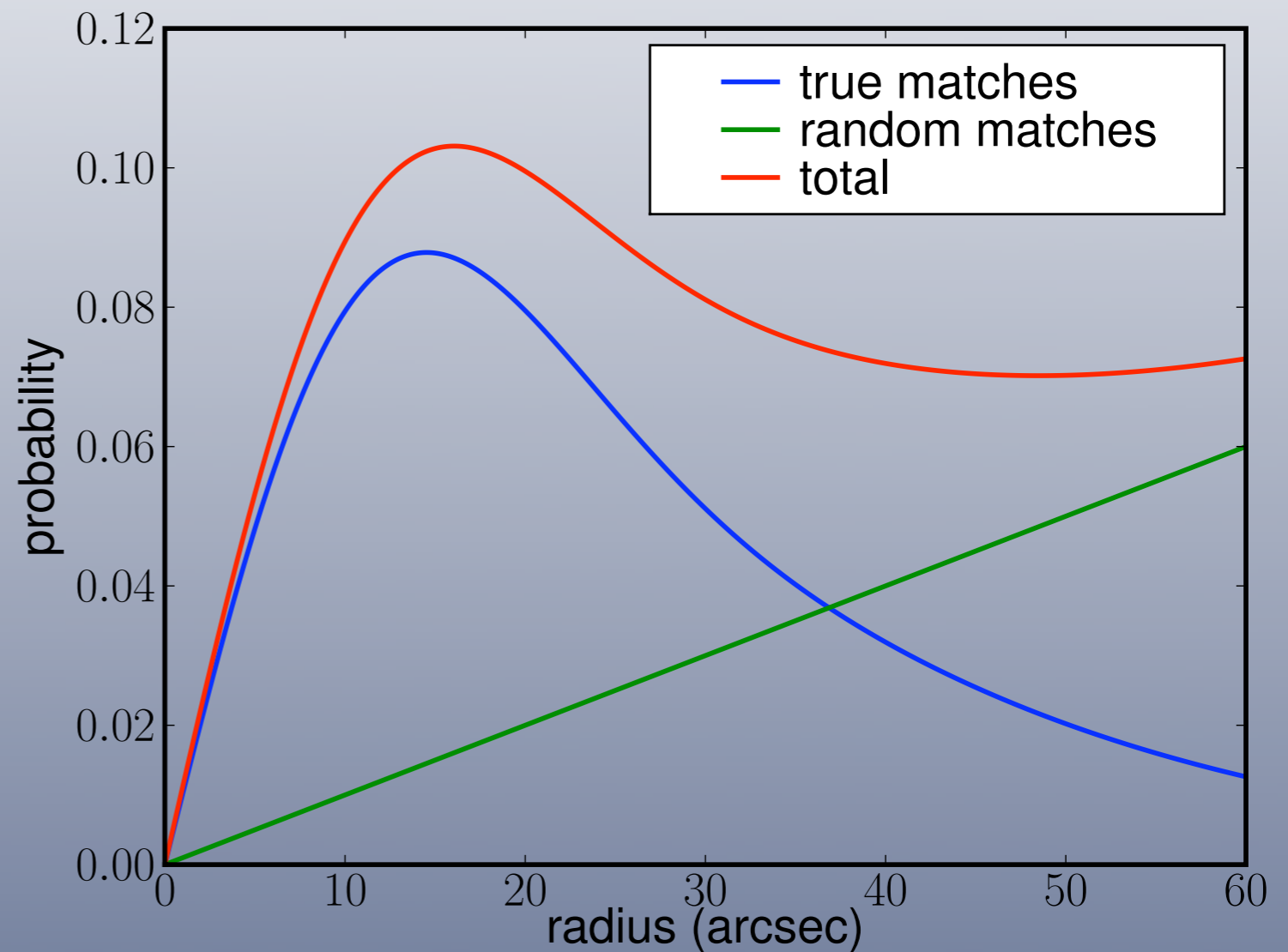
Combining multiple "matches"



Identifying Positive Galaxy/X-ray Matches

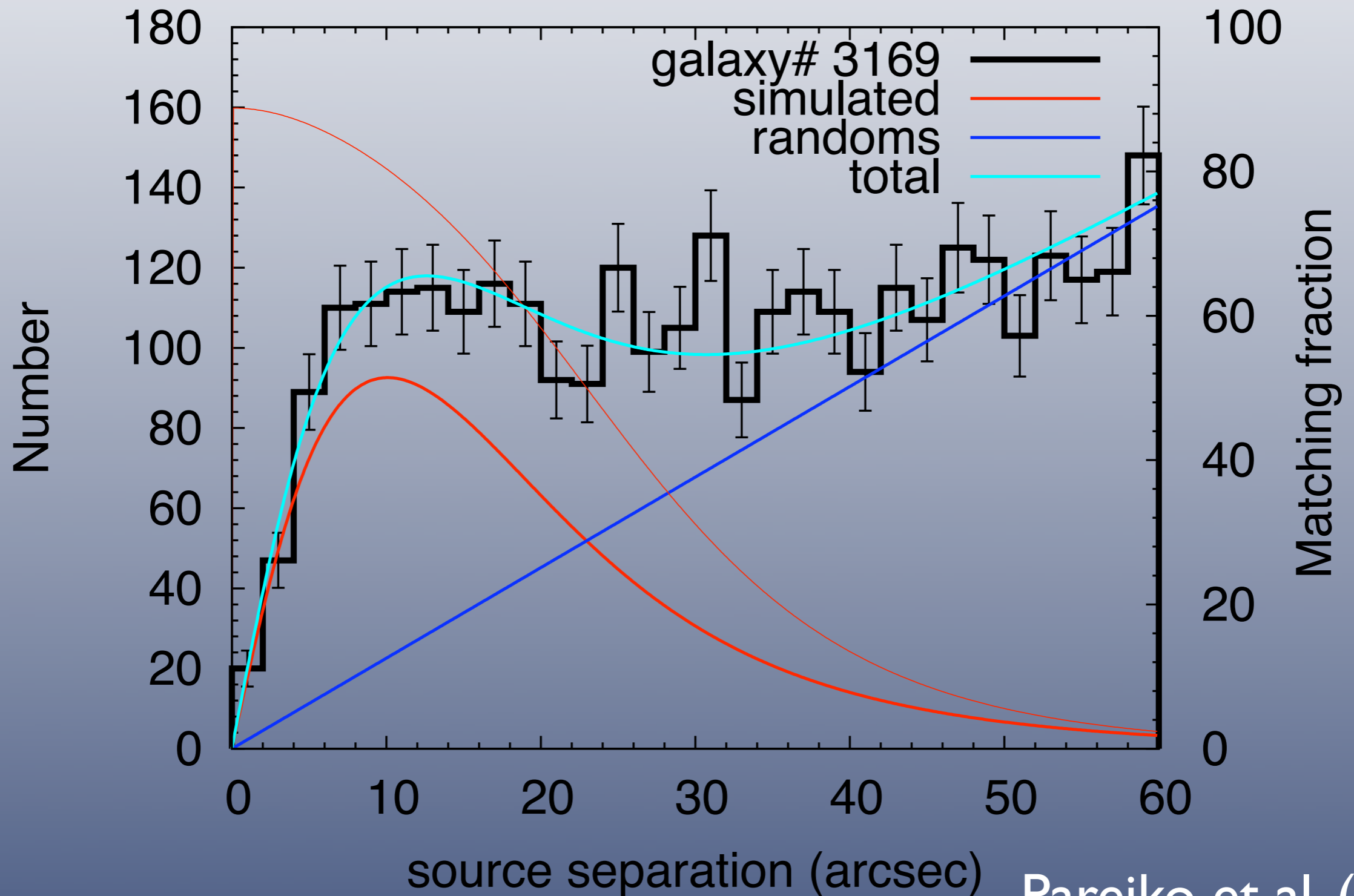


Adding in the random associations

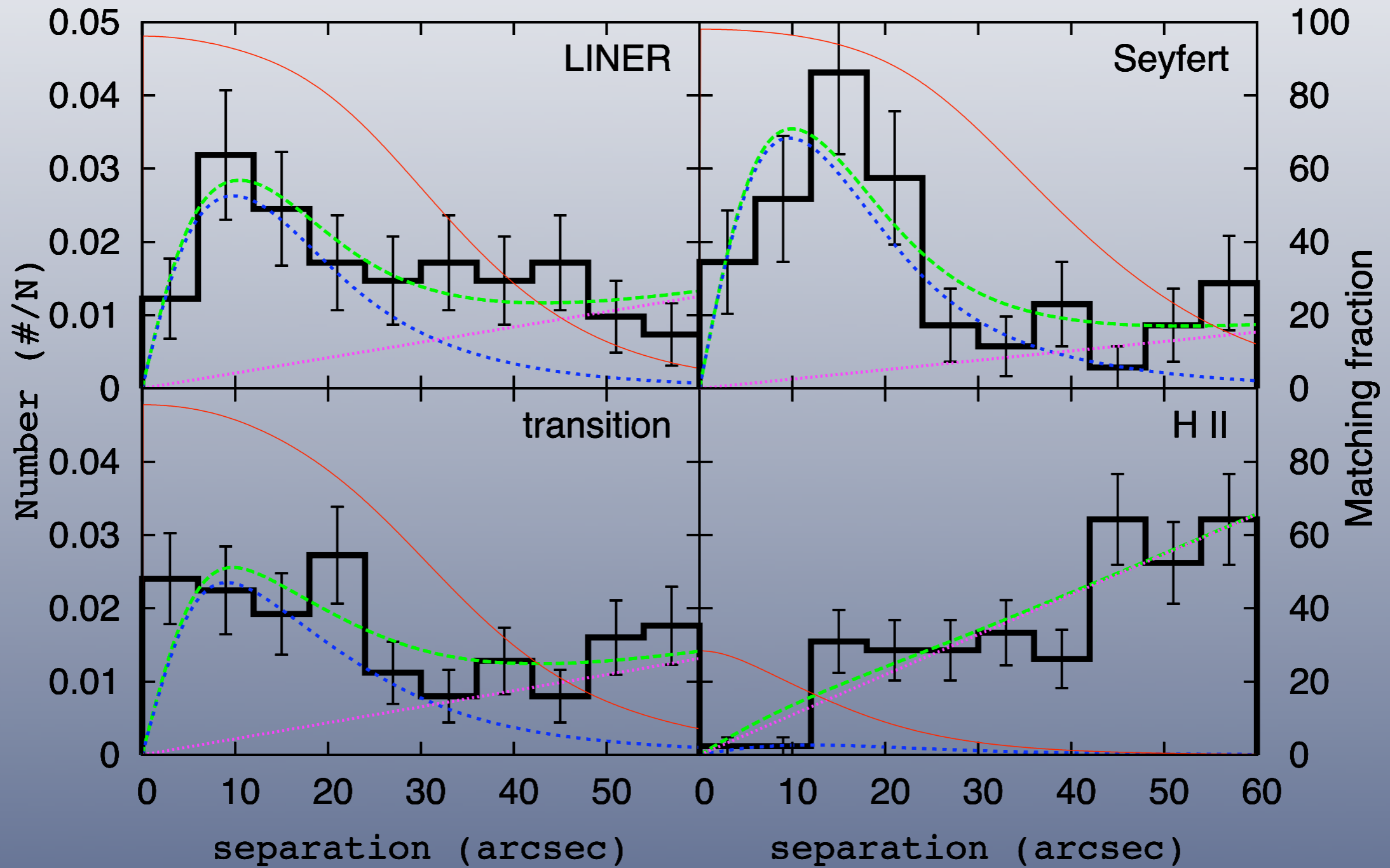


Identifying Real Galaxy/X-ray Matches (DR4)

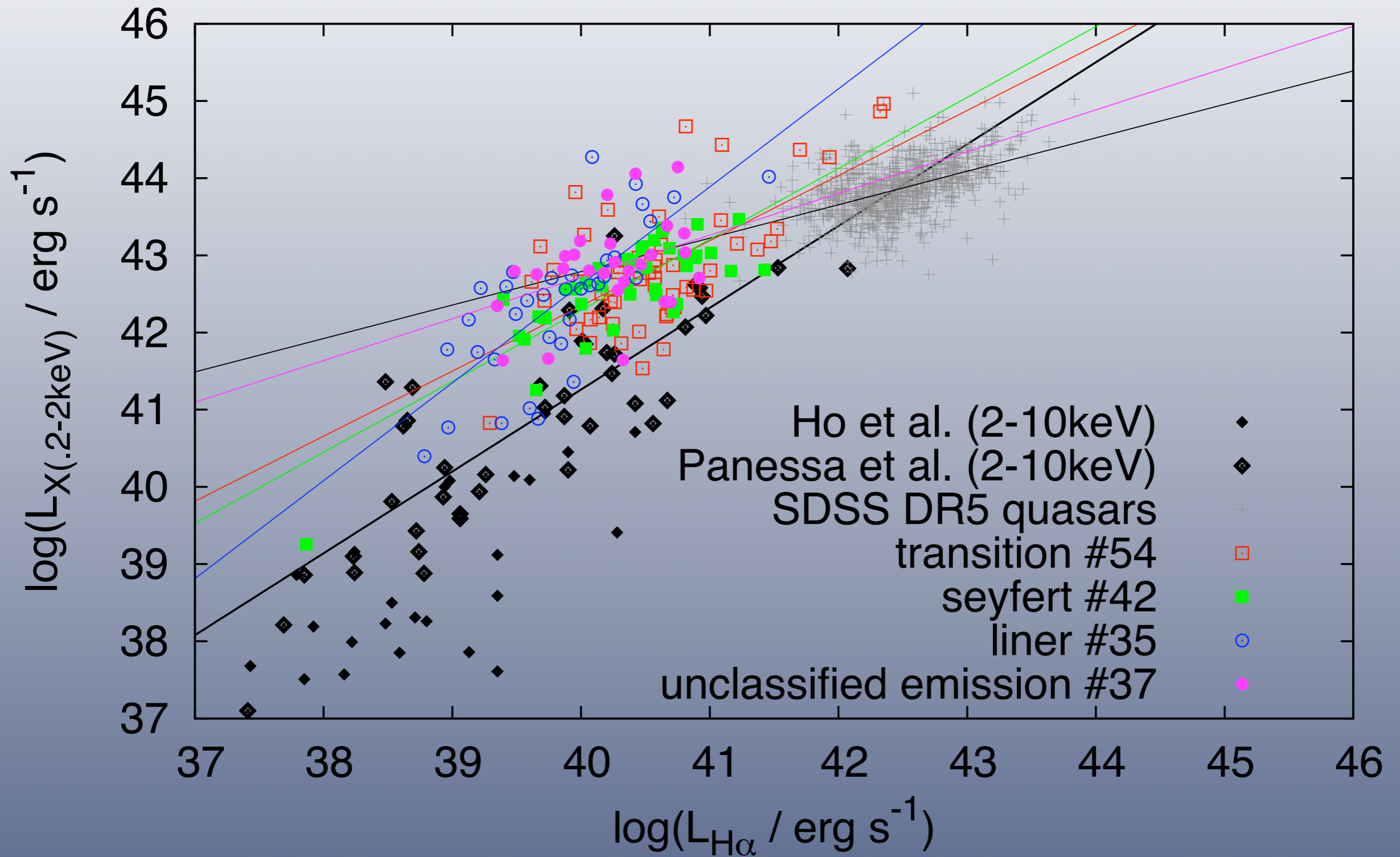
RASS-SDSS galaxy matches: simulated vs. real



Emission-line galaxies, by spectral class (DR4)

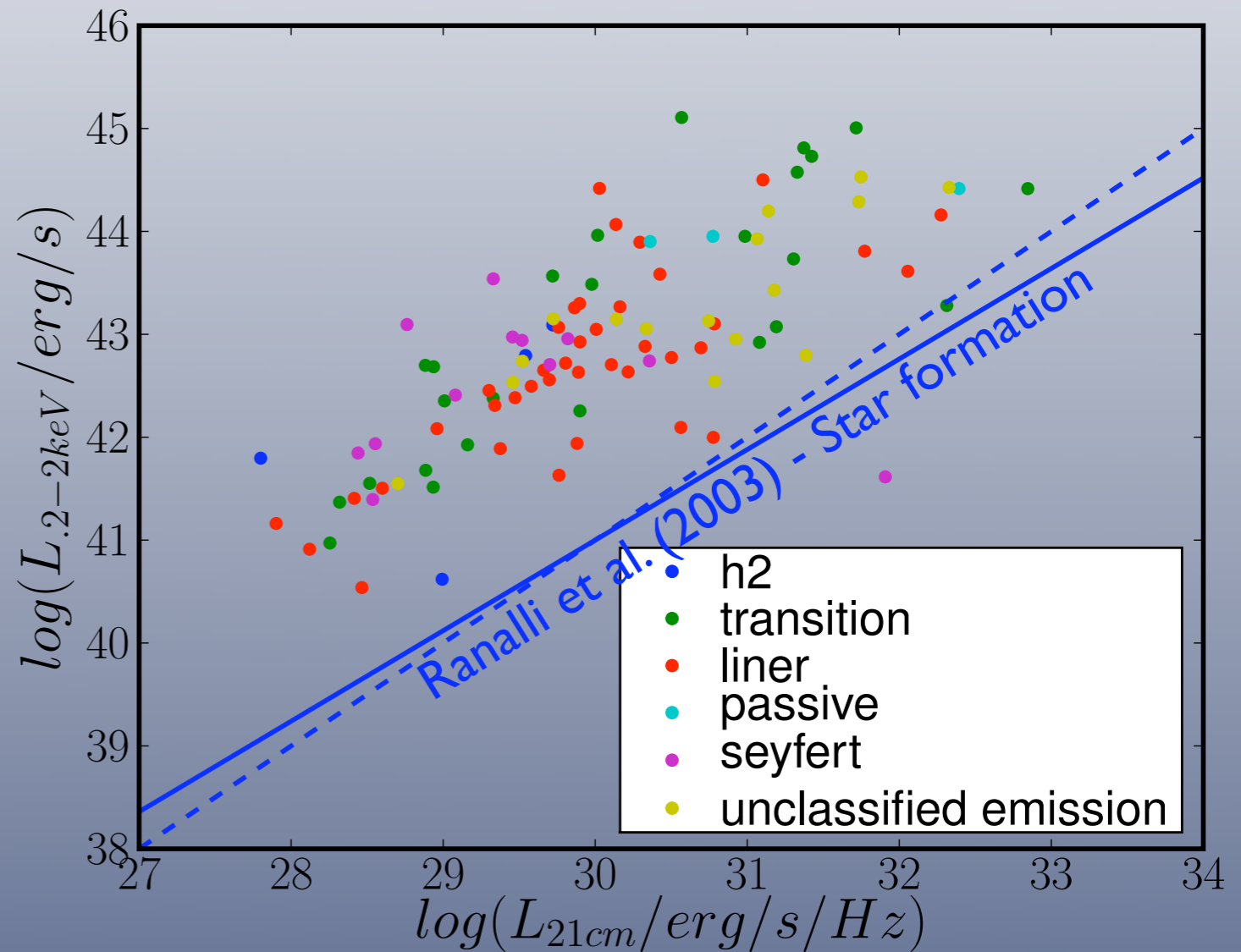


$L_{X(.2-2\text{keV})}$ vs. $L_{H\alpha}$ at %75.0 good matches



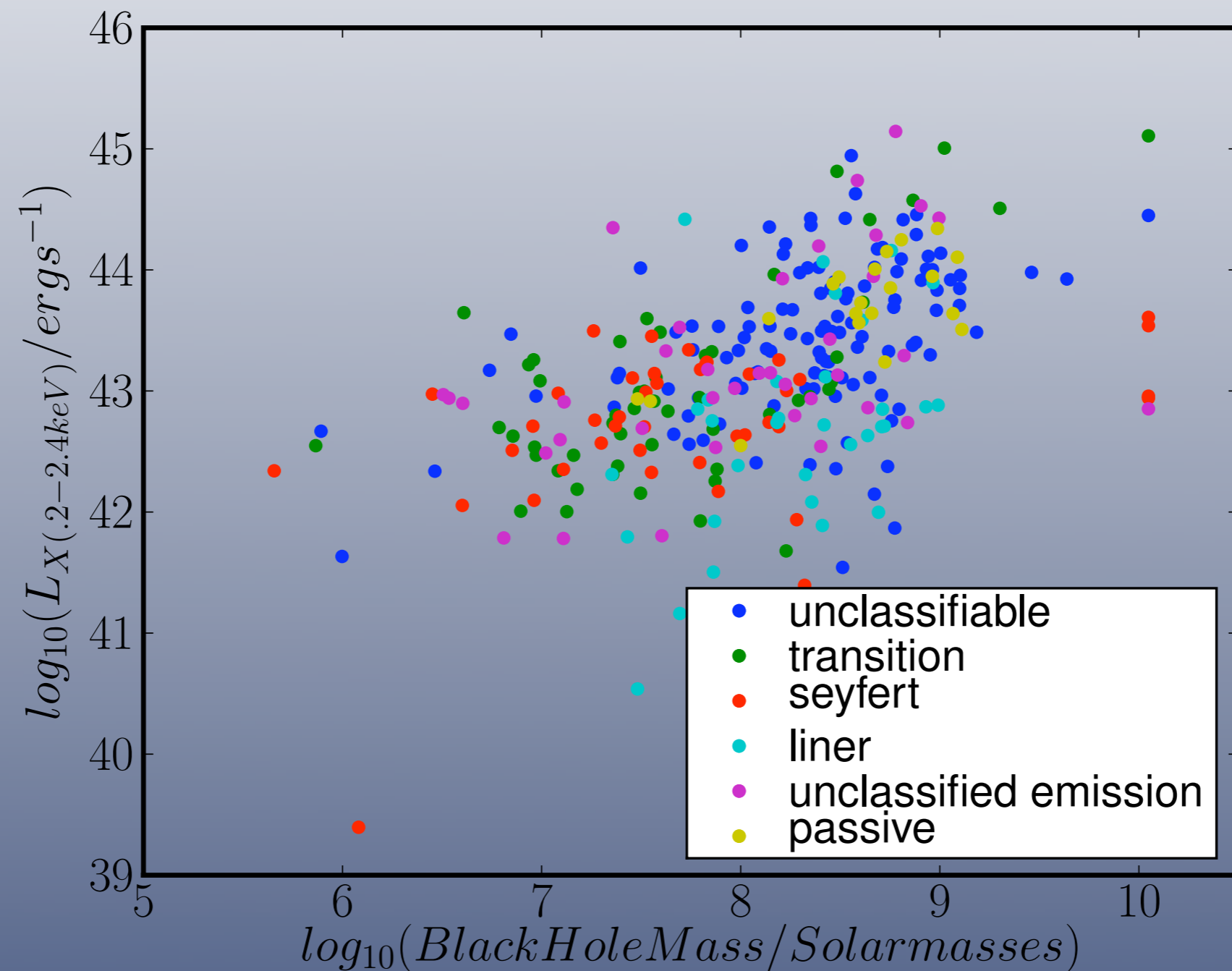
Non (or weak) correlations

- Star formation
- X-ray vs. 21 cm radio correlations seen previously in high SFR galaxies
- Correlation from Ranalli, Comastri & Setti (2003)



Non (or weak) correlations

L_X vs. Black Hole Mass (from σ_*)



Conclusions

- A very uniform dataset, including all different classes of LLAGN.
- Transition galaxies can host powerful AGN.
- HII galaxies are undetected in soft X-rays
- Soft X-ray to H α emission consistent with 2-10keV studies.
- No clear signs of Soft X-ray to radio correlation.
- No clear signs of Soft X-ray to black hole mass correlation.

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- Mis-classified (spectroscopically) Sy1.8/1.9 show up in this sample.

BPT classification from DR4

