

AGN Hosts and Neighbors in COSMOS

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Outline

- Introduction
- The COSMOS AGN sample
- Host Morphologies with 2D surface brightness fitting
- Probing interactions with environment and asymmetry measures
- Future Directions

Intro and Motivation

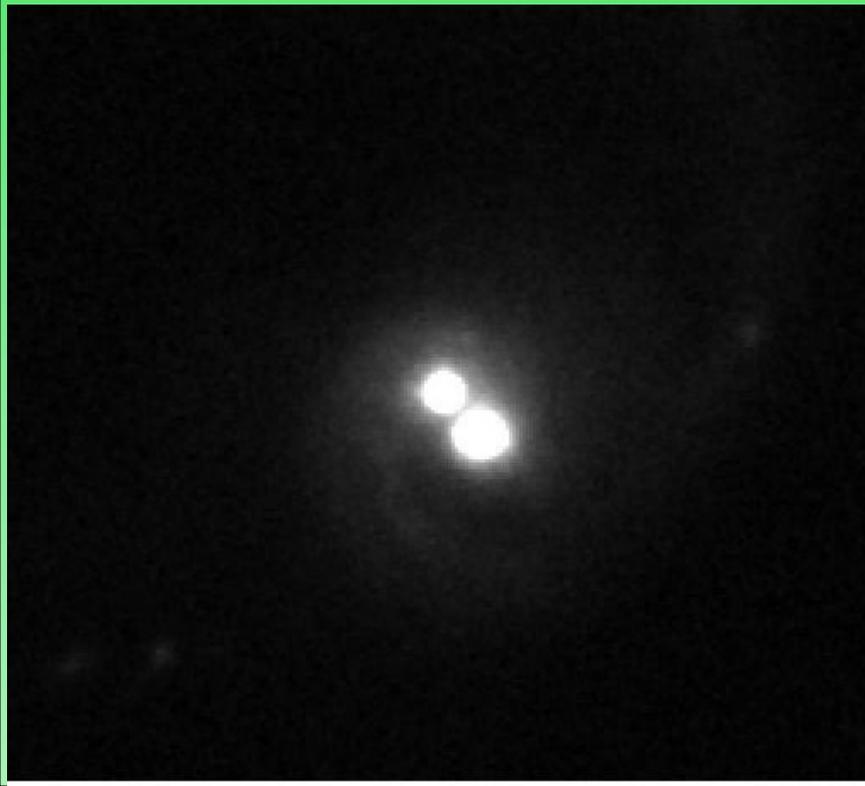
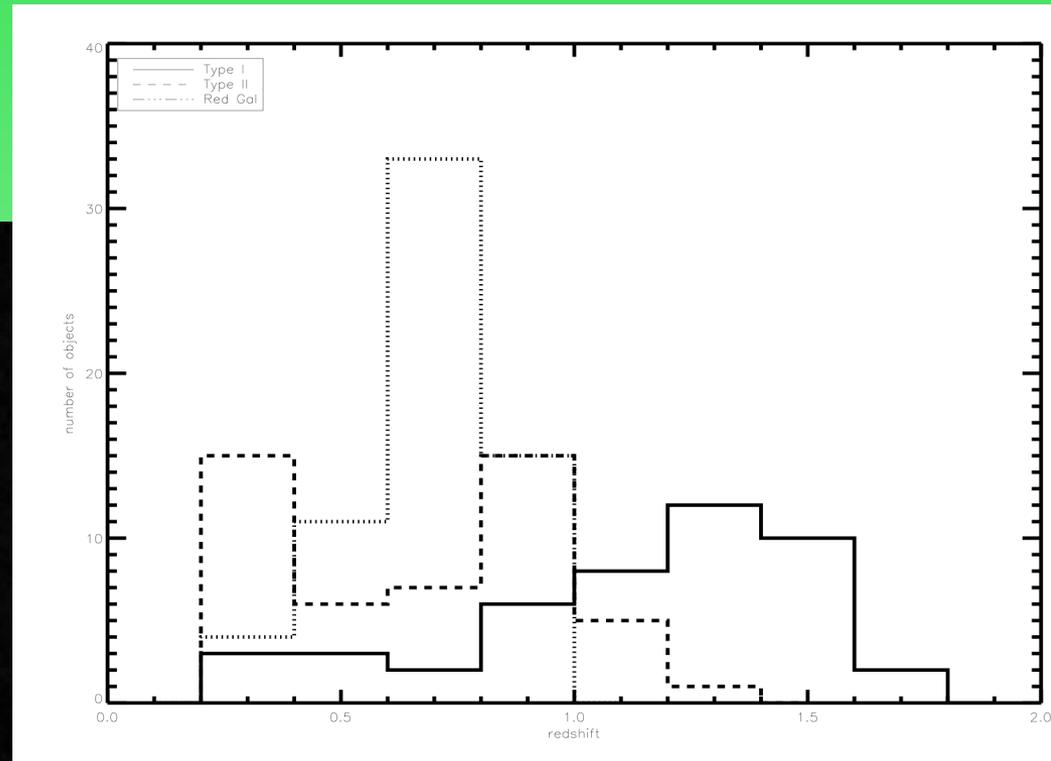
- Now clear that SMBHs and host galaxies impact each others' evolution
 - M - σ , M - L , etc.
 - Role of AGN feedback
- Merger connection to BH growth
- Suggestions of Type I, II differences (Kim et al. 2006, Hopkins et al. 2005)
- Luminosity dependent fueling mechanism?

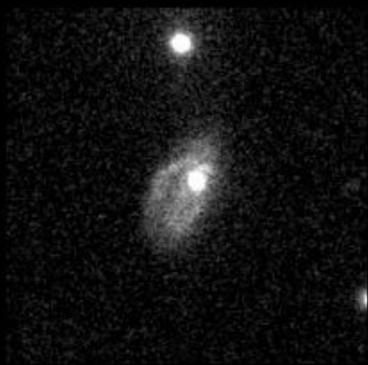
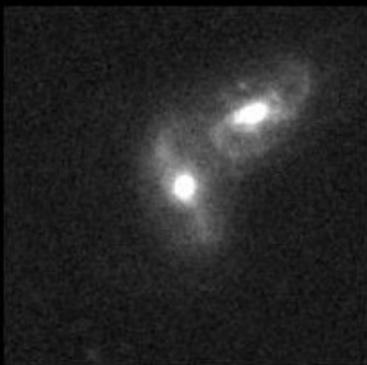
AGN Hosts with COSMOS

- COSMOS
 - 2 sq. degs. Hubble ACS I-band, extensive multiwavelength coverage
- Initial AGN selection via X-ray and Radio
- Follow-up optical spectroscopic redshifts (Trump et al. 2006)
 - Classification: Broad/narrow, other, ?
- Comparison to normal galaxies

AGN Hosts with COSMOS

- Type I, II + red galaxies
- Peculiar objects

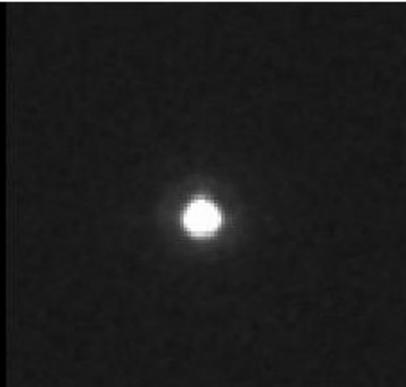
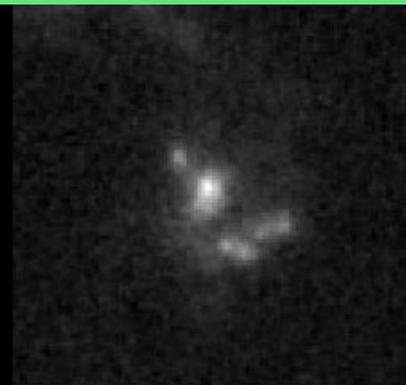




$z = 0.5$



$z = 1.15$



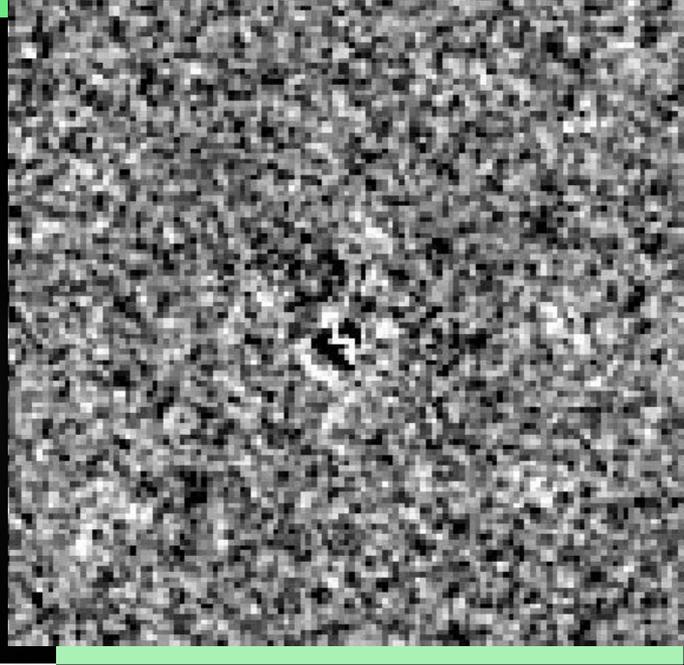
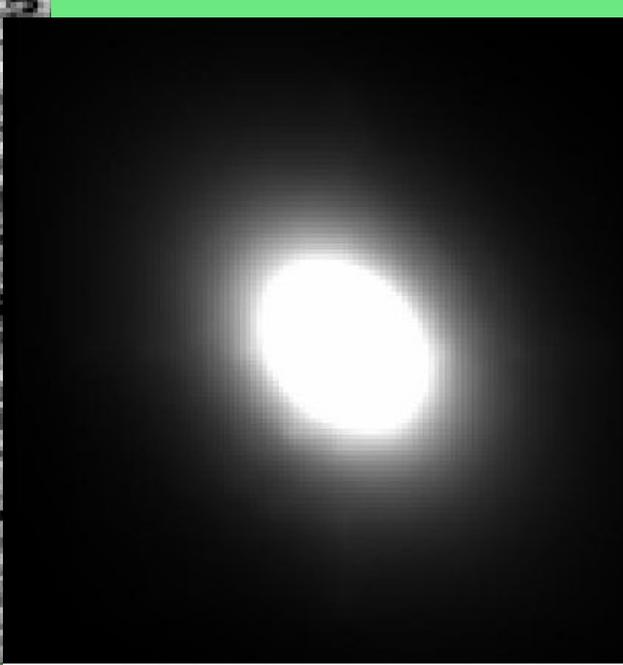
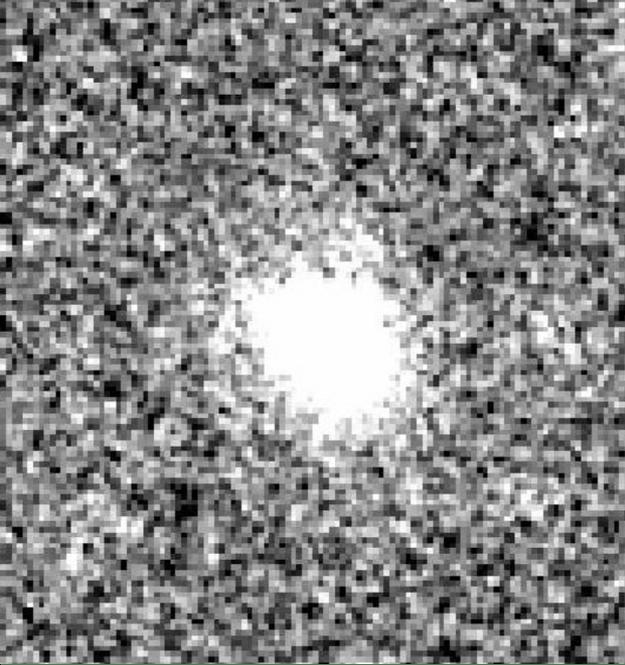
2D Fitting of AGN Hosts

- Using Galfit (Peng et al. 2002)
- Sersic function light profile, with point source super-imposed
- What does this get you?
 - Magnitudes of host and point source
 - Effective radius of host galaxy
 - Sersic index n
 - $n=1$ exponential disk
 - $n=4$ deVaucouleurs (galactic bulge)

Challenges of 2D fits

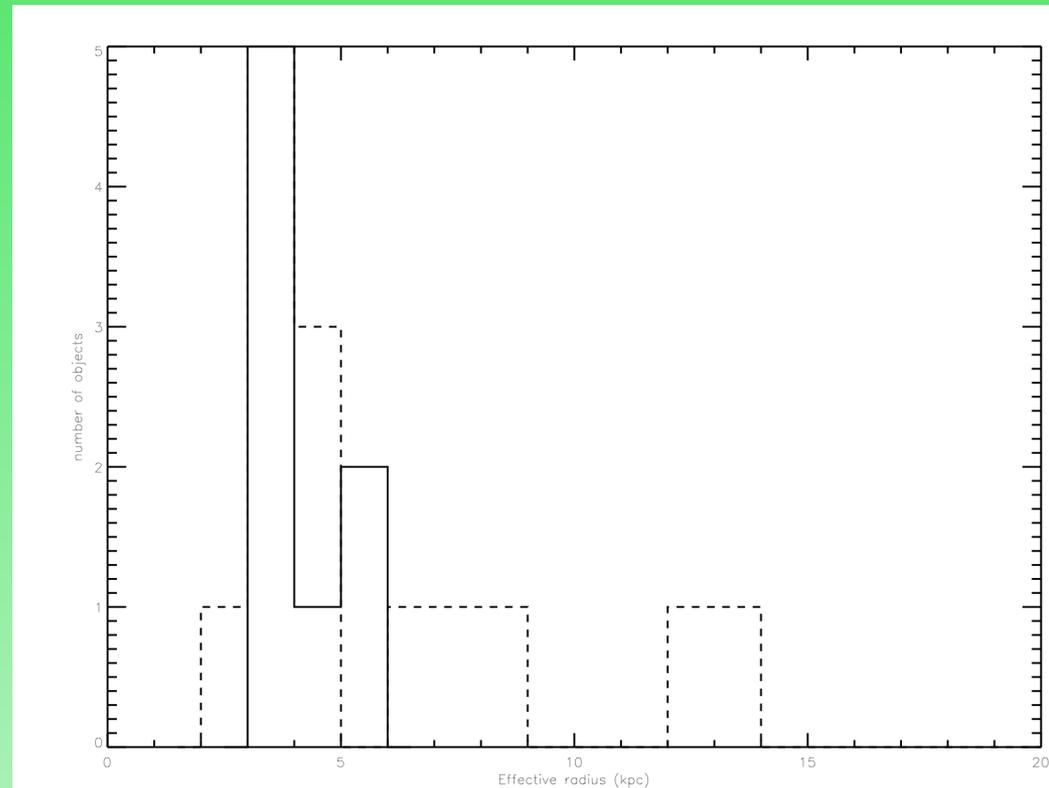
- Galaxies are complicated!
- Surface brightness dimming w/ z
- Central point source washes out host flux
- PSF calibration (Rhodes et al. 2006)
- Extensive simulations





Preliminary Results

- Distribution of Sersic index similar for AGN and control sample for most of range
 - Maybe effects at high- z , but systematics a problem
- Possible radius effect



Other Approaches

- Asymmetry parameter – probe distortion, interactions
- Environments – host galaxy pairing with neighboring galaxies
 - Use redshift slices and photo- z
 - Count # of neighbors within projected radius in a certain magnitude range
 - So far, consistent with control galaxies
 - Small # statistics

Future Directions

- Extend analysis to larger sample
- Disentangling host- light contribution to faint- end LF
- Evolution of BH mass – bulge luminosity
- Constraining host galaxy colors (w/ Knud Jahnke)
- Properties of neighboring galaxies