



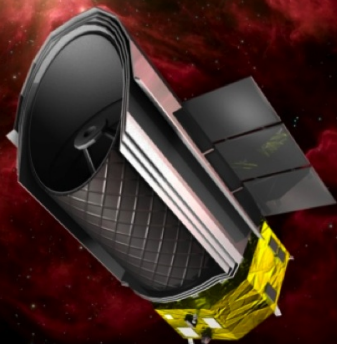
Obscured black hole Accretion History from IR bands

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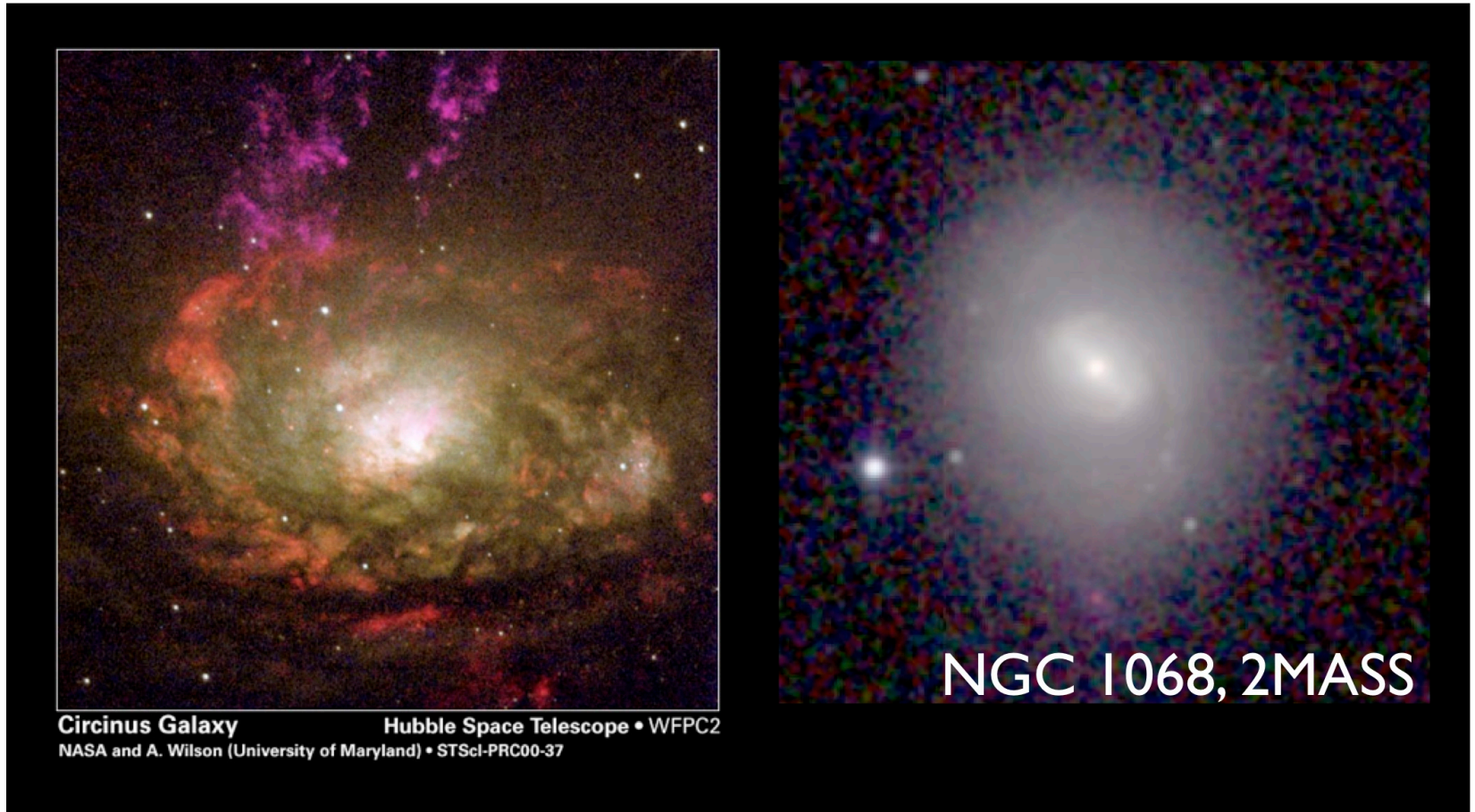


Outline

1. Evidence of obscured (elusive) AGN accretion
2. Work on Herschel-PEP data (DeVecchio's PHD thesis)
3. 'Killer' application for obscuring AGN accretion with SPICA

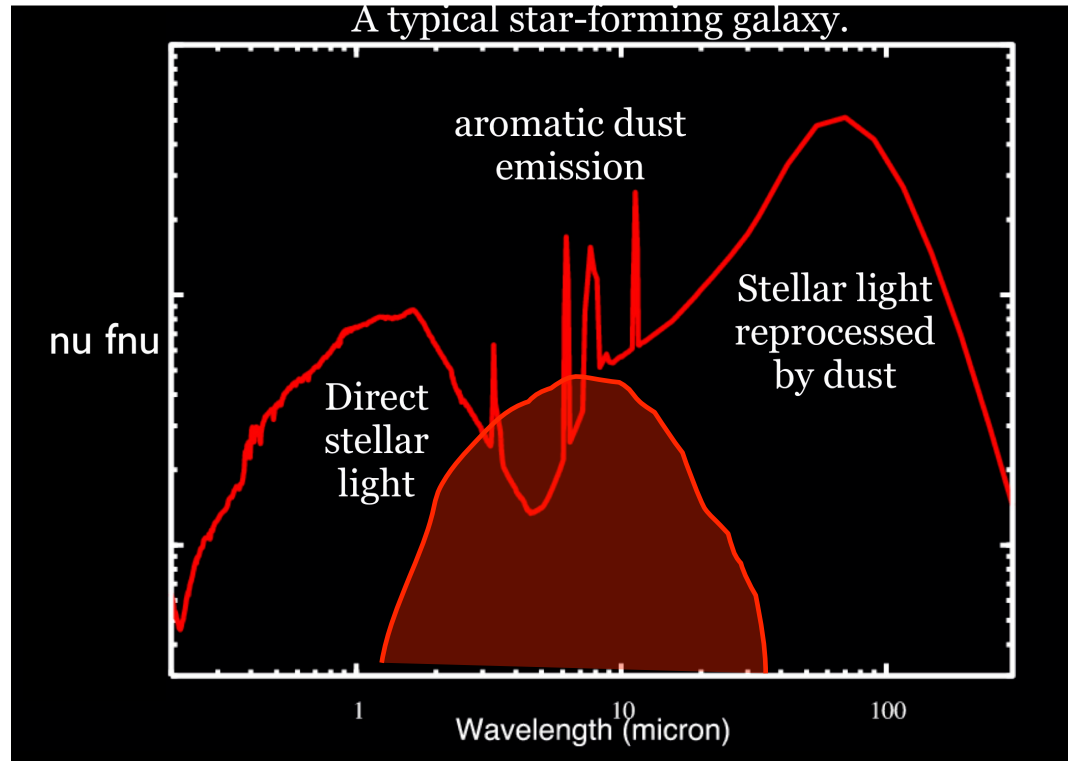
Big question:

How important is obscured/elusive accretion?



- ★ We think obscured growth is important for two reasons: XRB is harder than X-ray sources, local AGN are 40 % obscured in X-ray (i.e. Compton thick). We may be missing half of the accretion.

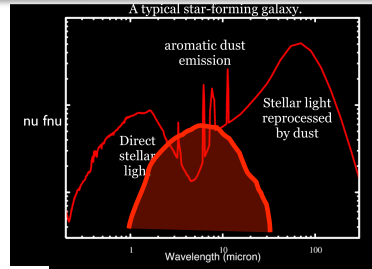
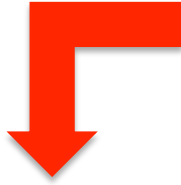
Evidence of obscured accretion



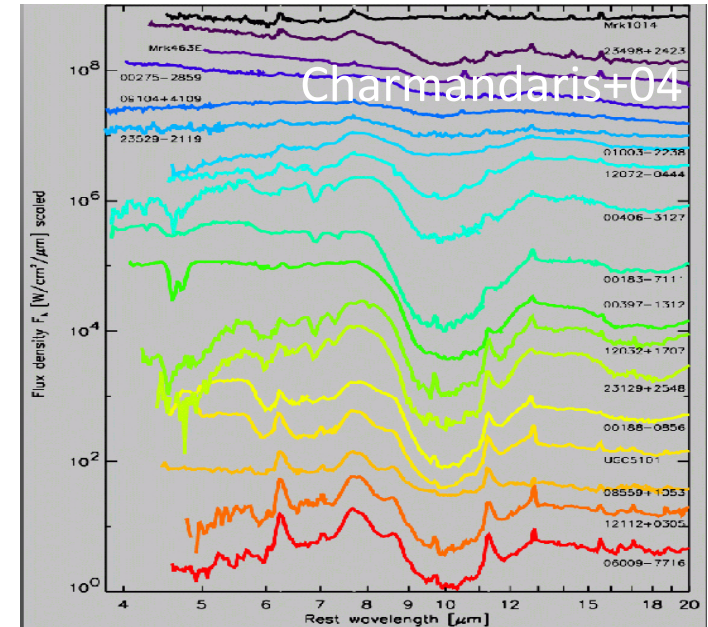
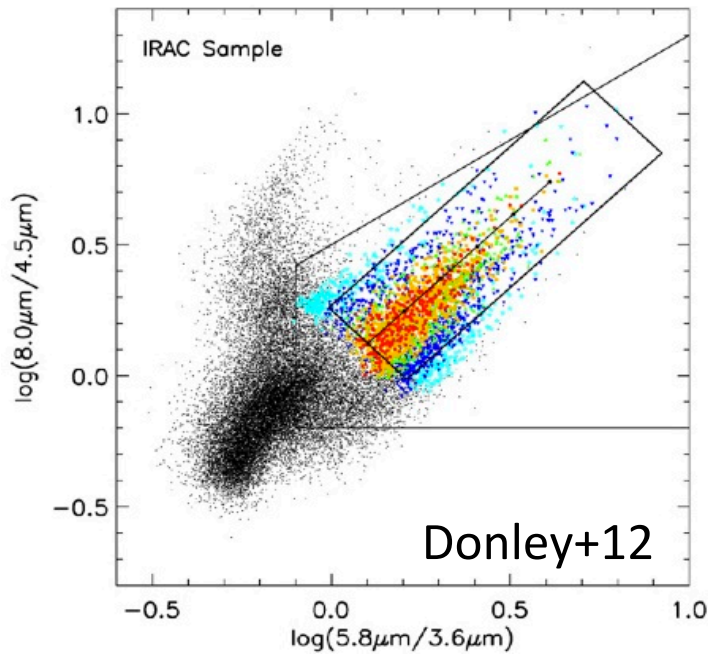
- ★ The primary radiation is reprocessed by surrounding dust near the sublimation radius ($T \sim 800\text{--}1000\text{ K}$) → mid-IR emission. Mid-IR emission fills in the valley between the two bumps of galaxies. The most efficient way of identifying elusive AGN is to search for relict signatures of the buried engine in the IR where the dust itself emits.

Evidence of obscured accretion

MIR-Photometry



MIR-spectroscopy

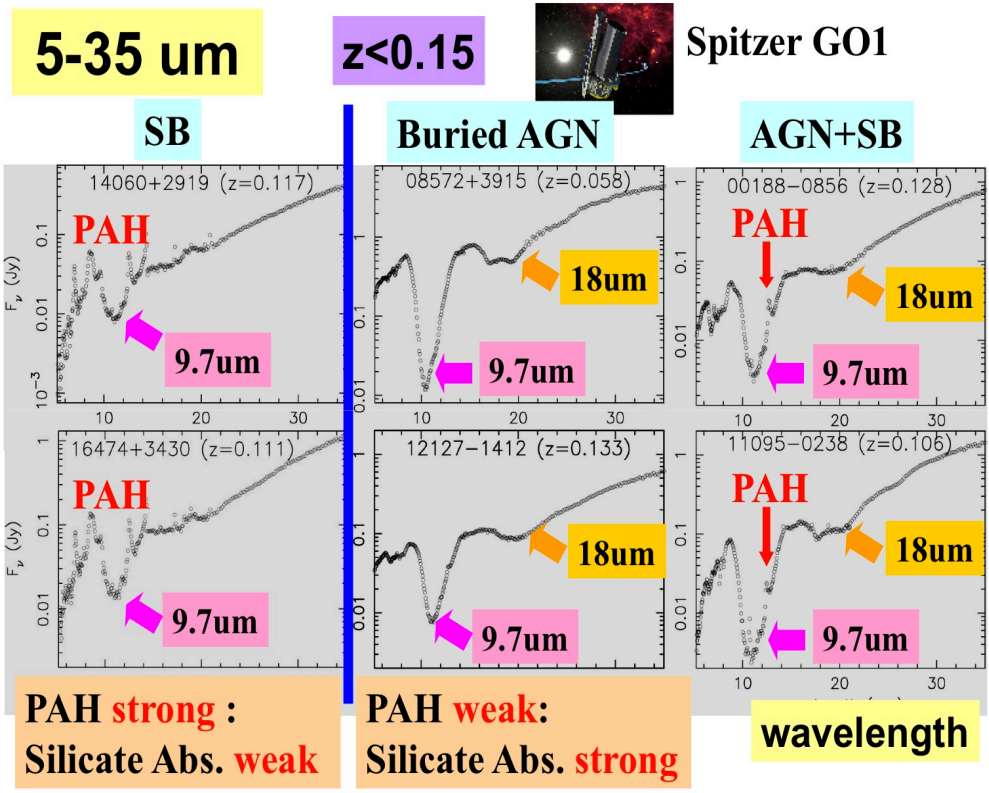


★ Look for SED that *are wrong to be galaxies*. Spitzer AGN color-selection methods exploit this (see Lacy+04; Stern+05). Identified candidate of highly-obscured AGN, but photo-z, no L

- ★ AGN/Starburst Diagnostic features:
- ◆ [Ne V] $\lambda 14.32 \mu\text{m}$
 - ◆ $9.7 \mu\text{m}$ silicate absorption line
 - ◆ PAH features

Redshift determination

Evidence of obscured accretion: *Local Universe*



Imanishi+10

★ 20 ULIGs with no AGN in the optical spectra (neither BLRs nor NLRs lines).

50 % host AGN, completely buried in a dusty environment (see also Nardini+10, Risaliti+)