AGN counts at 24 μm in the XMM/SWIRE/ELAIS-S1 field

Nicola Sacchi, Fabio La Franca

and

C. Feruglio, F. Fiore, C. Gruppioni, M. Polletta, F. Pozzi, S. Puccetti, S. Berta, M. Brusa, P. Ciliegi, A. Cimatti, A. Comastri, A. Franceschini, C. Lonsdale, R. Maiolino, M. Mignoli, S. Oliver, G.C. Perola, M. Rowan-Robinson, H.E. Smith, C. Vignali, G. Zamorani

Dipartimento di Fisica

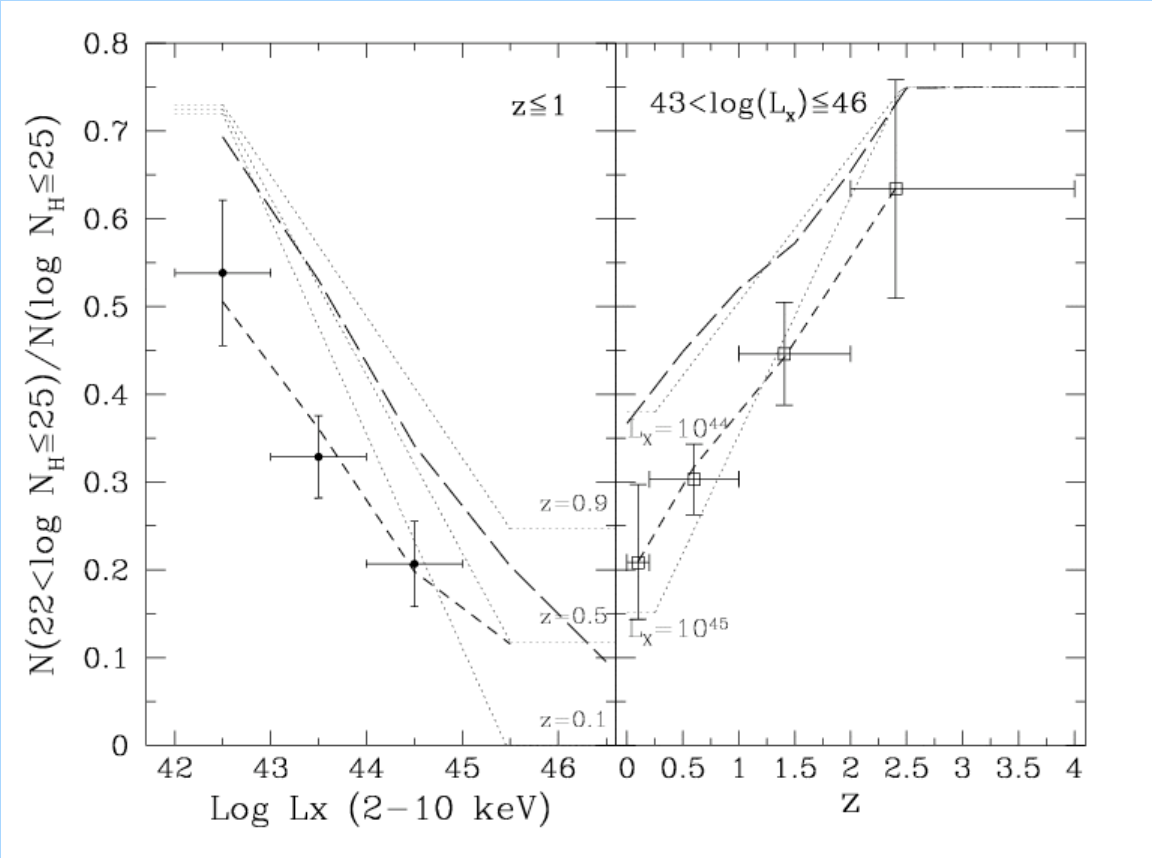
Universita` degli Studi ROMA TRE

MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Aims

- X-ray surveys and analysis of the local BH mass function suggest that a fraction (factor 2?) of (obscured) AGN has still to be identified

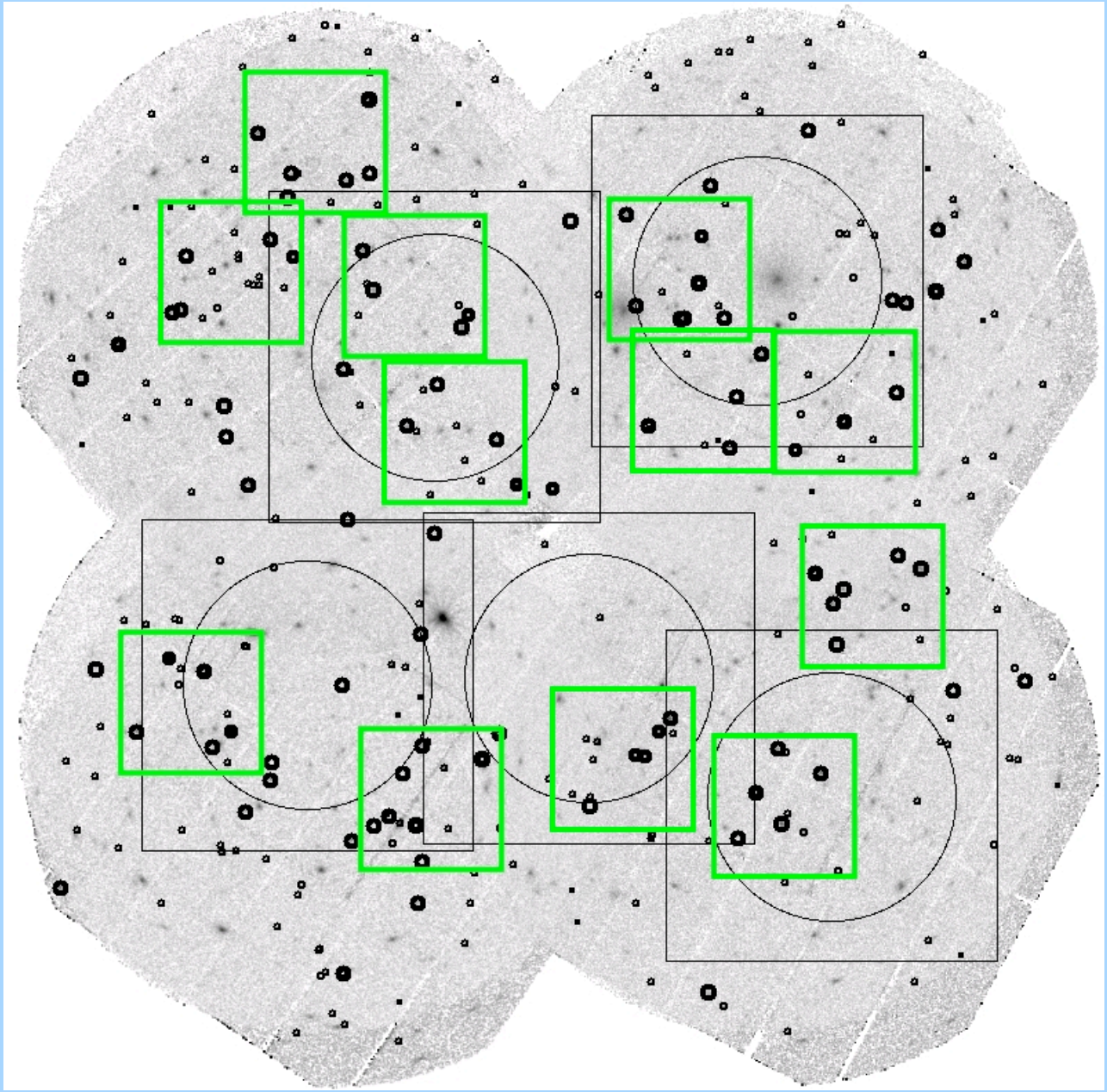
Fraction of obscured AGN as a function of L and z



La Franca et al. 2005

MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Method: data



AREA

0.6 deg^2

IMAGING

BVRI+K photometry
(Berta et al. 2006)

SWIRE
(3.6, 4.5, 5.8, 8.0 and 24 μm)

X-ray by
XMM and Chandra

SPECTROSCOPY

~100 hours with
VIMOS and FORS2
@VLT during
2004/2005/2006

~1400 Zs (R<24.5)

LF, Sacchi et al. (in prep)

MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Method: SED templates fitting
(see Polletta et al. 2007)

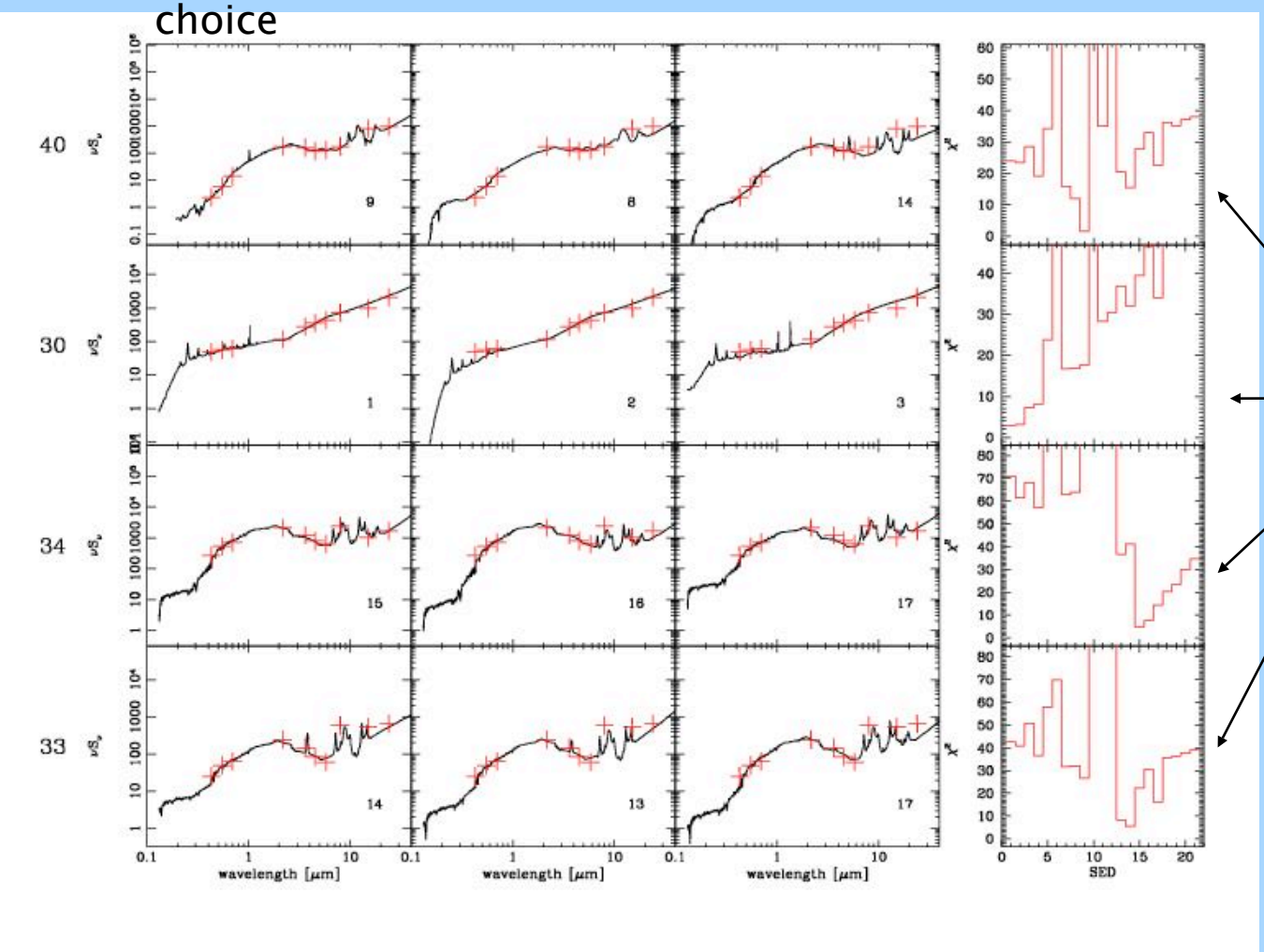
1st choice 2nd choice 3rd choice

AGN2

AGN1

STB

STB

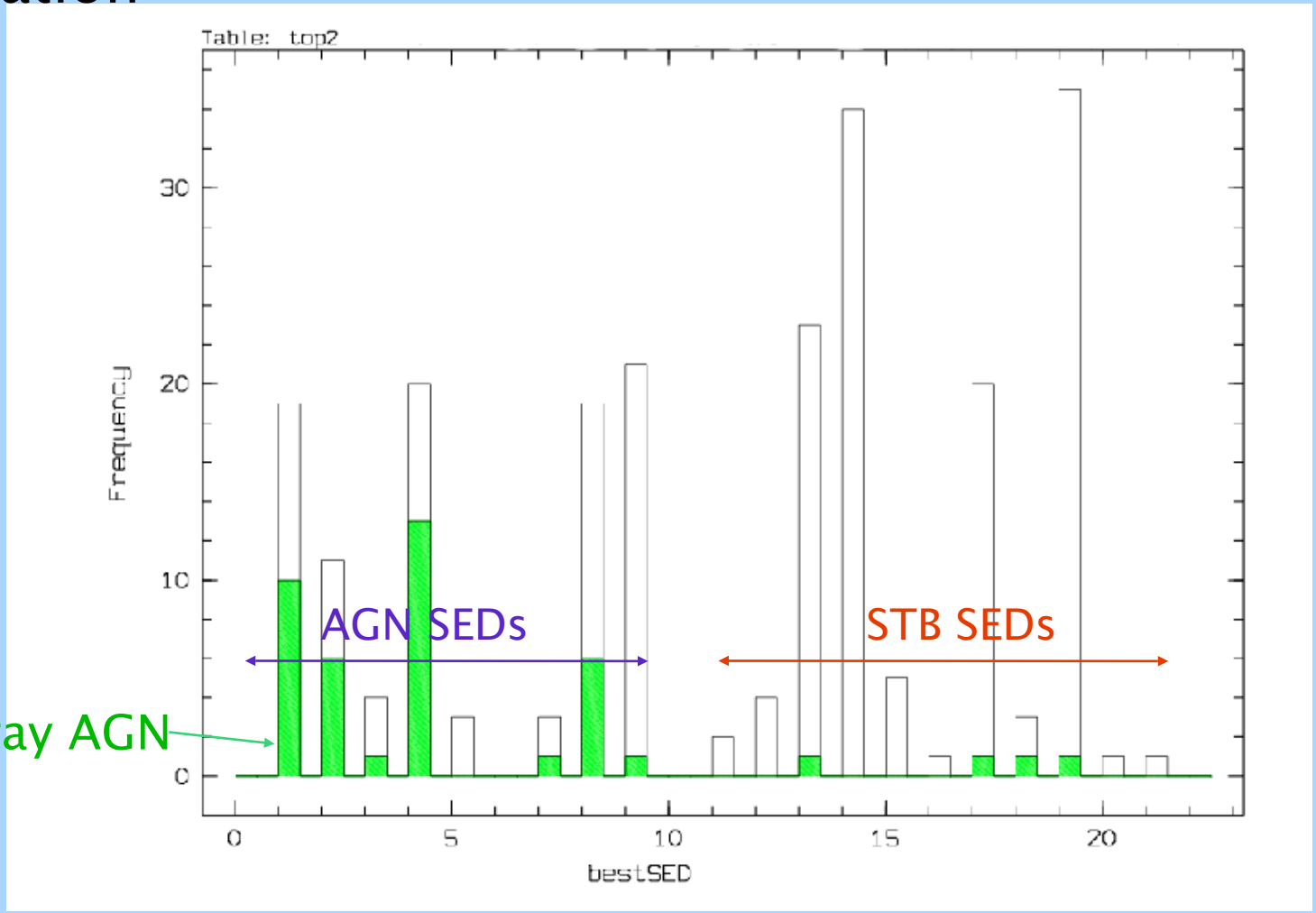


χ^2 best fit analysis

MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Method: SED templates fitting

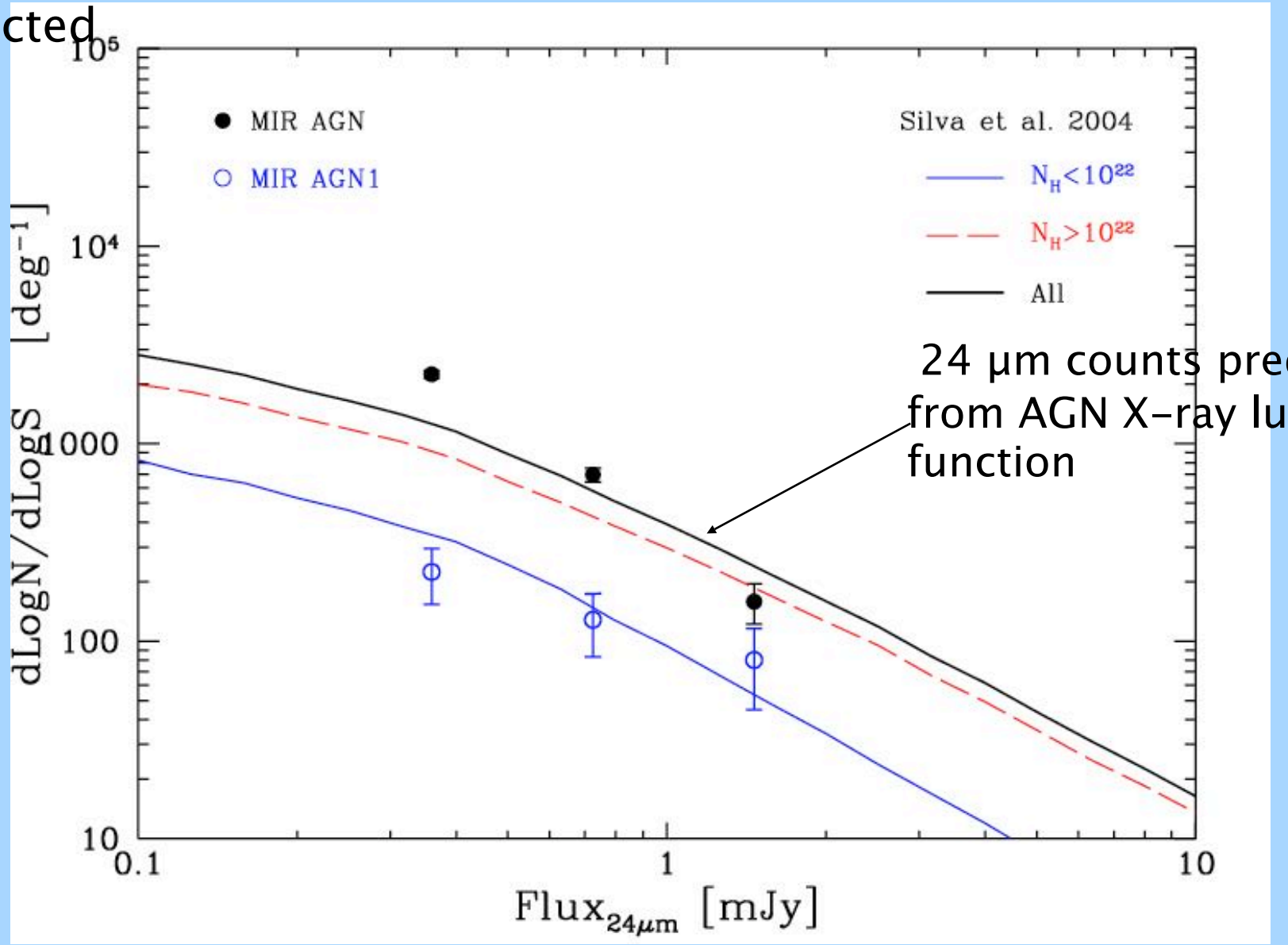
90% of the X-ray selected AGN have a MIR AGN SED classification



MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Results: counts

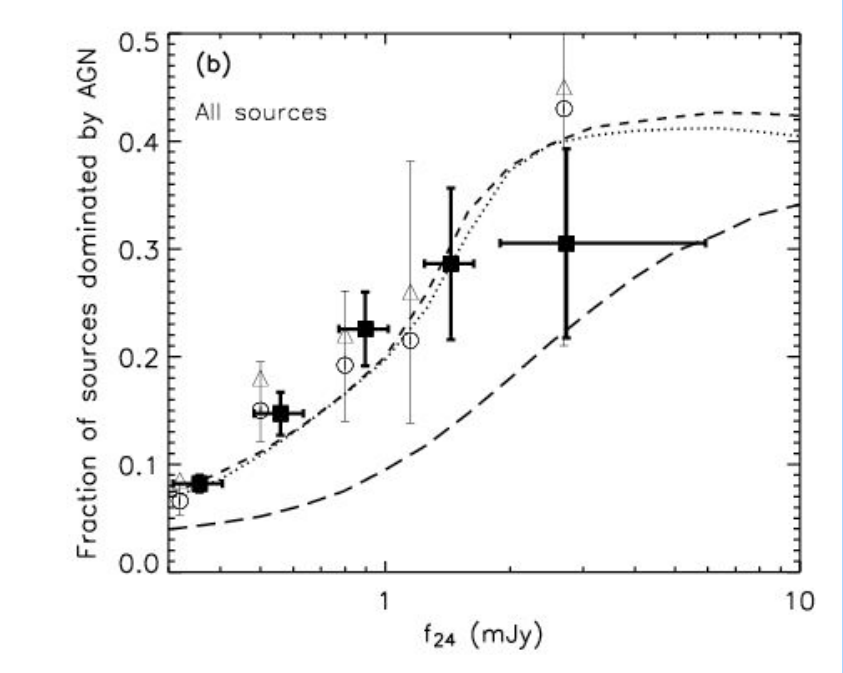
The density of MIR selected AGN is two times larger than expected



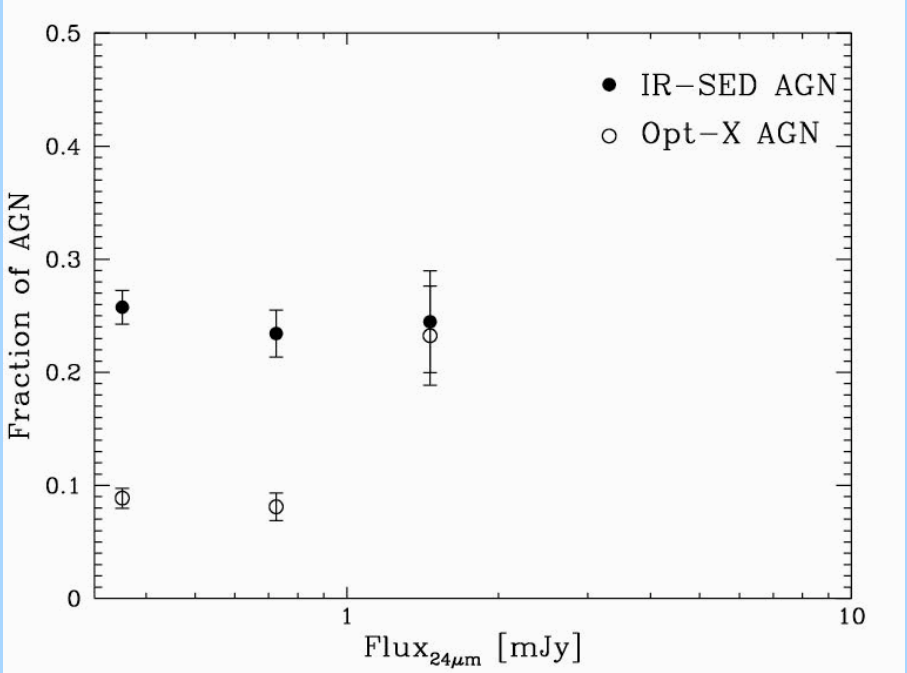
MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Results: fraction of AGN as a function of flux

The density of MIR selected AGN is two times larger than expected



Brand et al. 2006

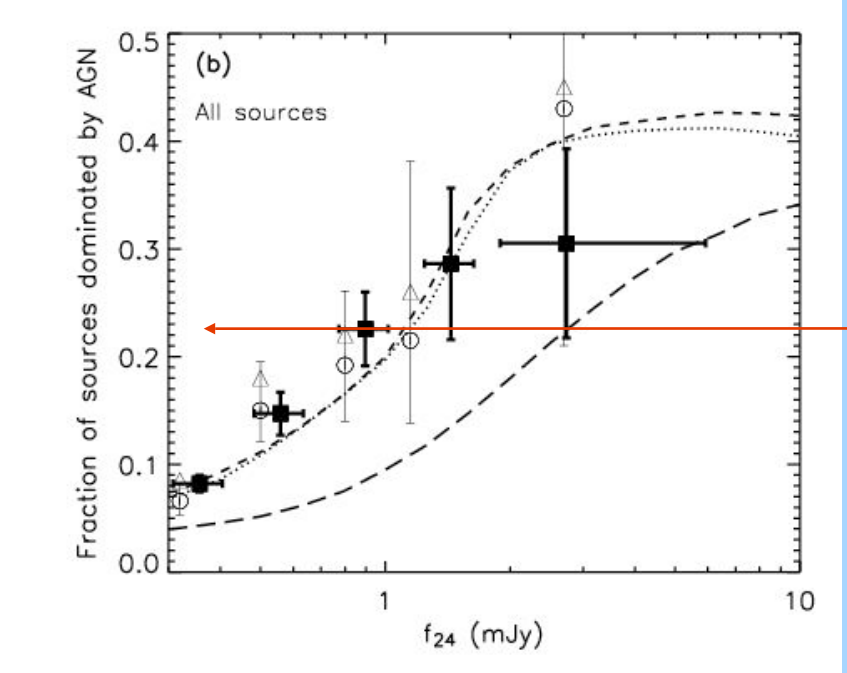


MIR-SED classified AGN
(this work)

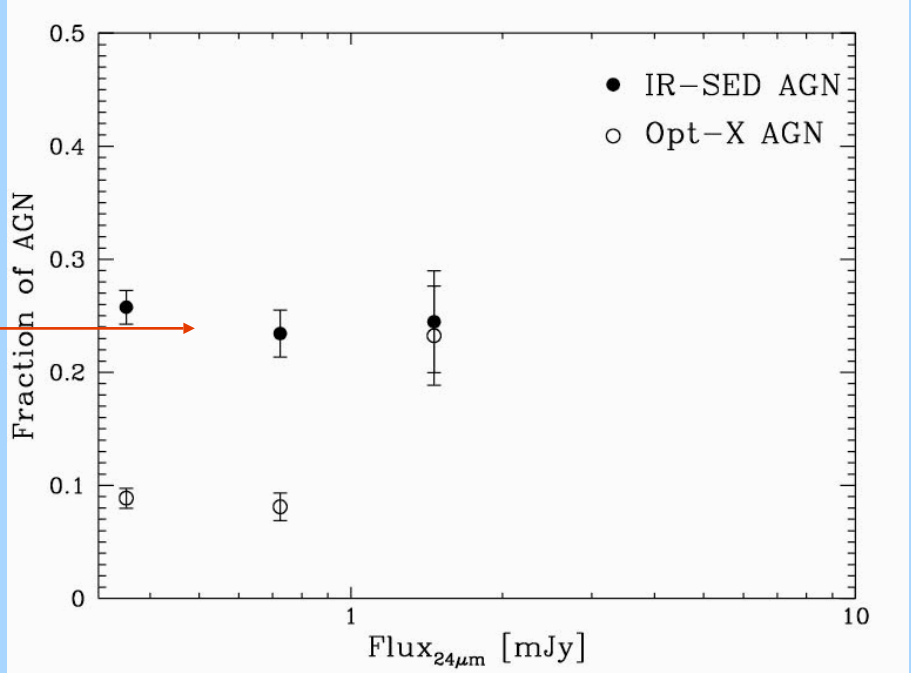
MIR AGN in the XMM/SWIRE/ELAIS-S1 field

Results: fraction of AGN as a function of flux

The density of MIR selected AGN is two times larger than expected



Brand et al. 2006



MIR-SED classified AGN
(this work)

MIR AGN in the XMM/SWIRE/ELAIS-S1 field

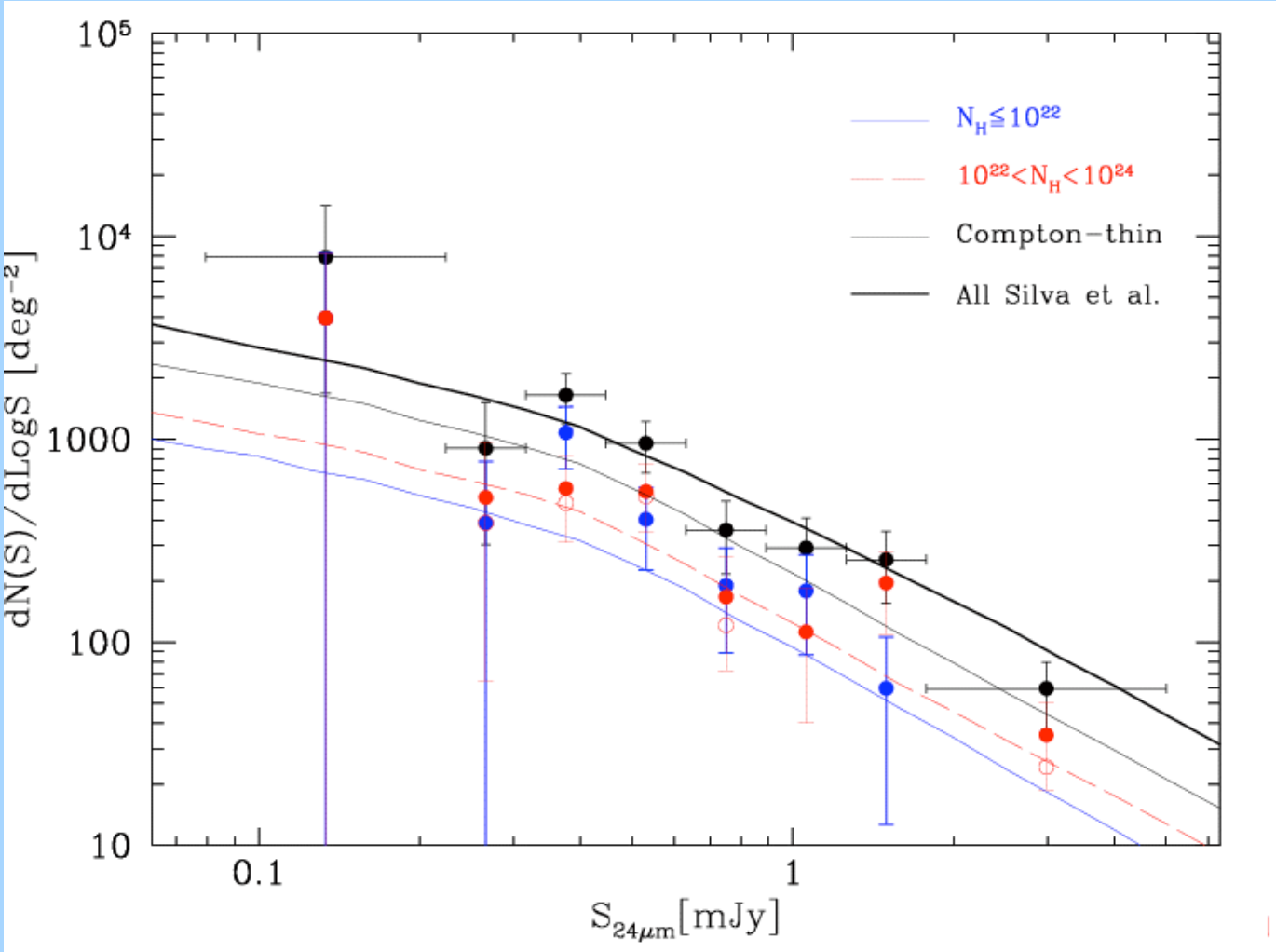
Conclusions

-The optical spectroscopic classification is not able to identify all the AGN2 population

-The MIR-SED fitting technique selects 90% of the X-ray selected AGN

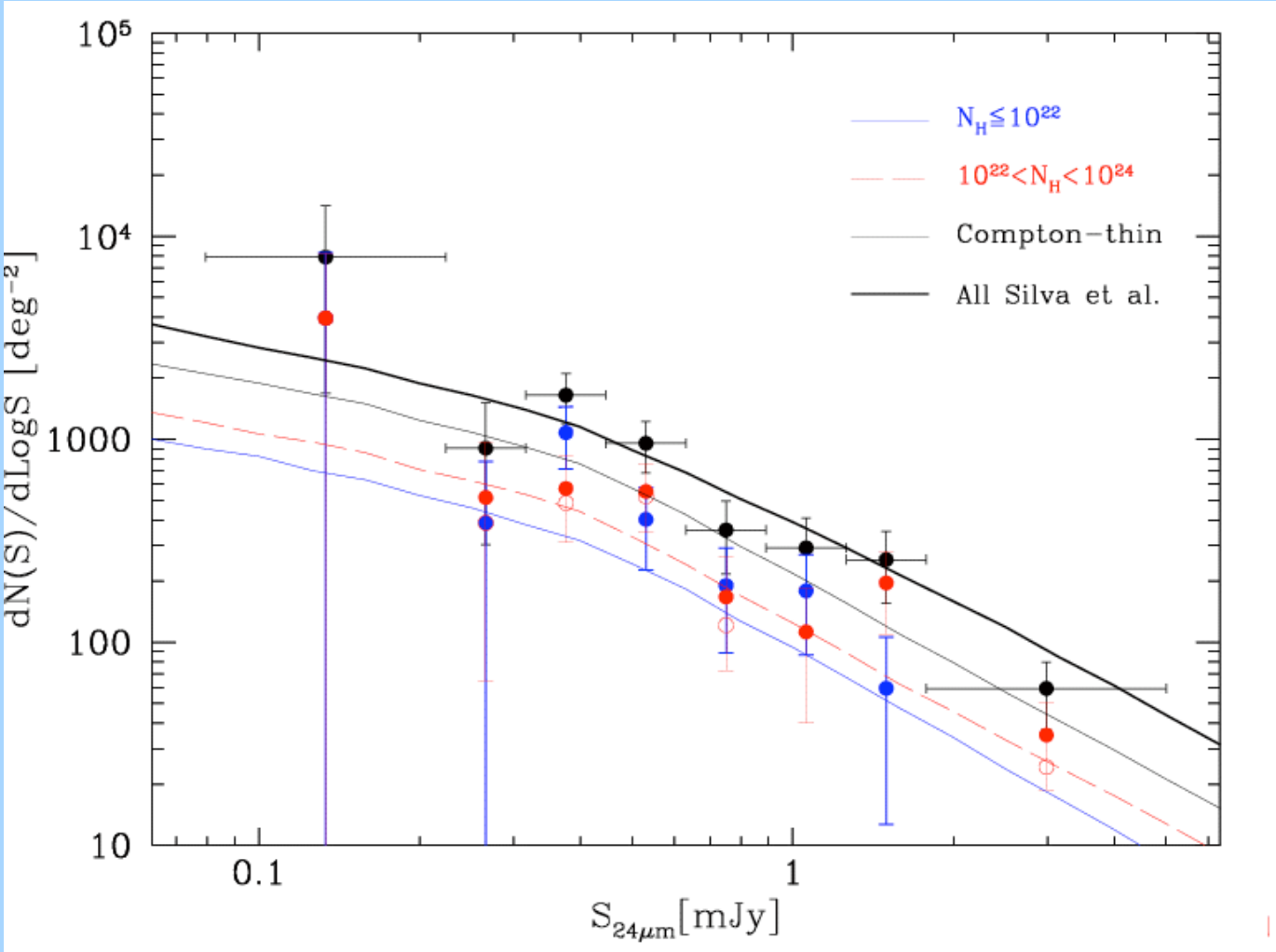
-The densities of MIR-selected AGN at F_{24}~0.5 mJy is a about a factor of two larger than expected from X-ray luminosity functions.

Optically and X-ray classified AGN



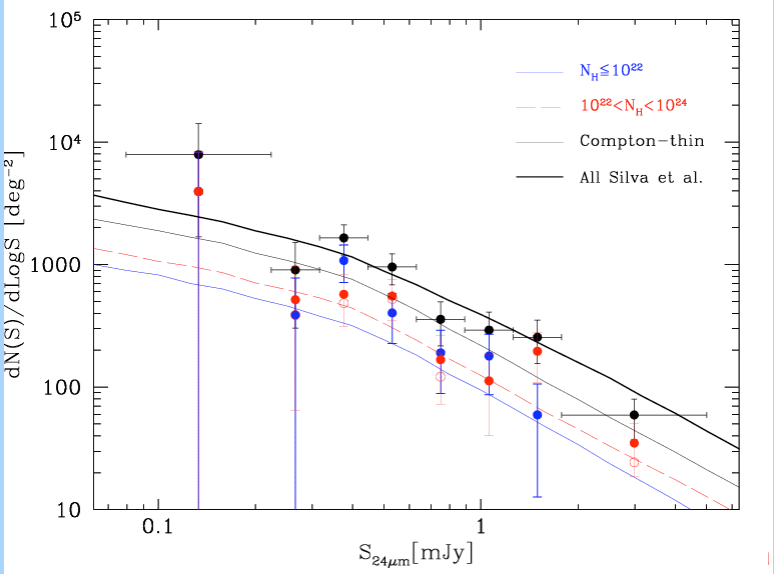
Counts and Fraction of AGN as a function of 24um flux

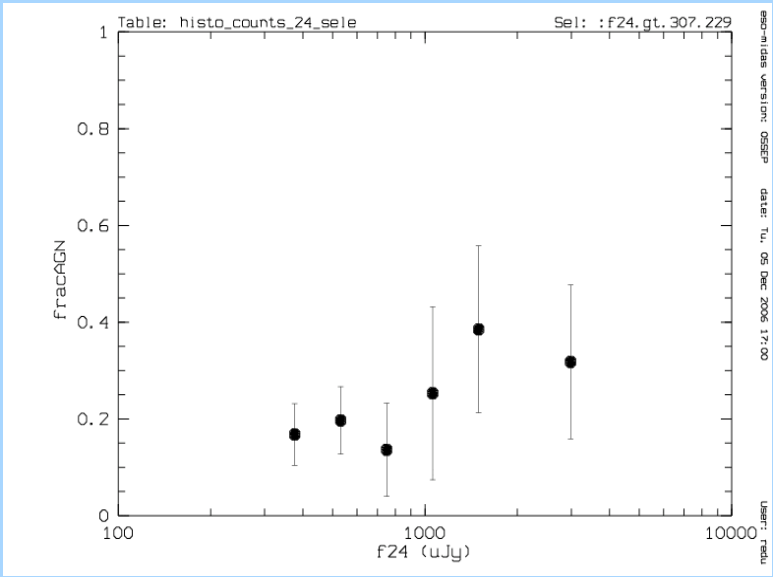
Optically and X-ray classified AGN



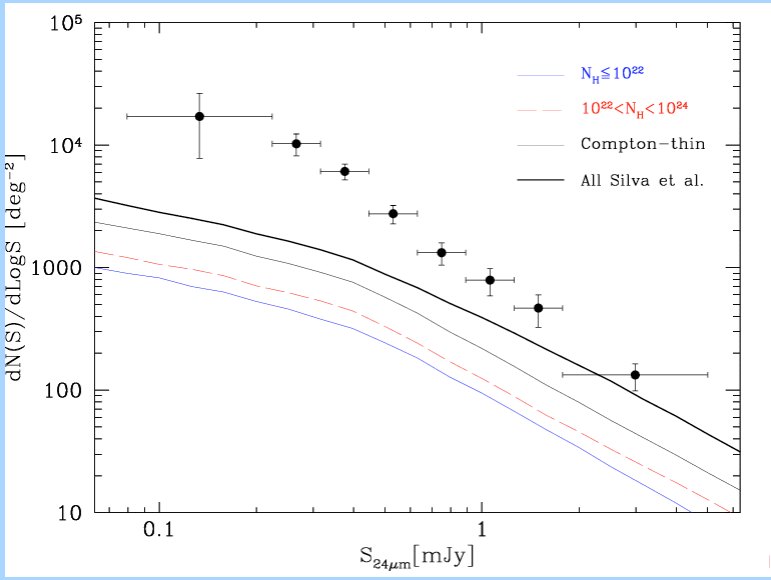
Counts and Fraction of AGN as a function of 24um flux

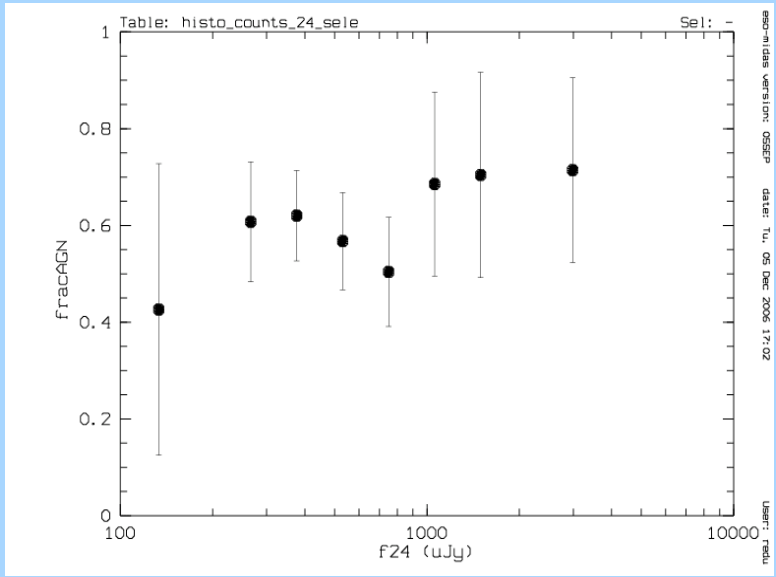
Optically and X-ray class. AGN





MIR-SED classified AGN





All X-ray detected sources have an AGN MIR SED