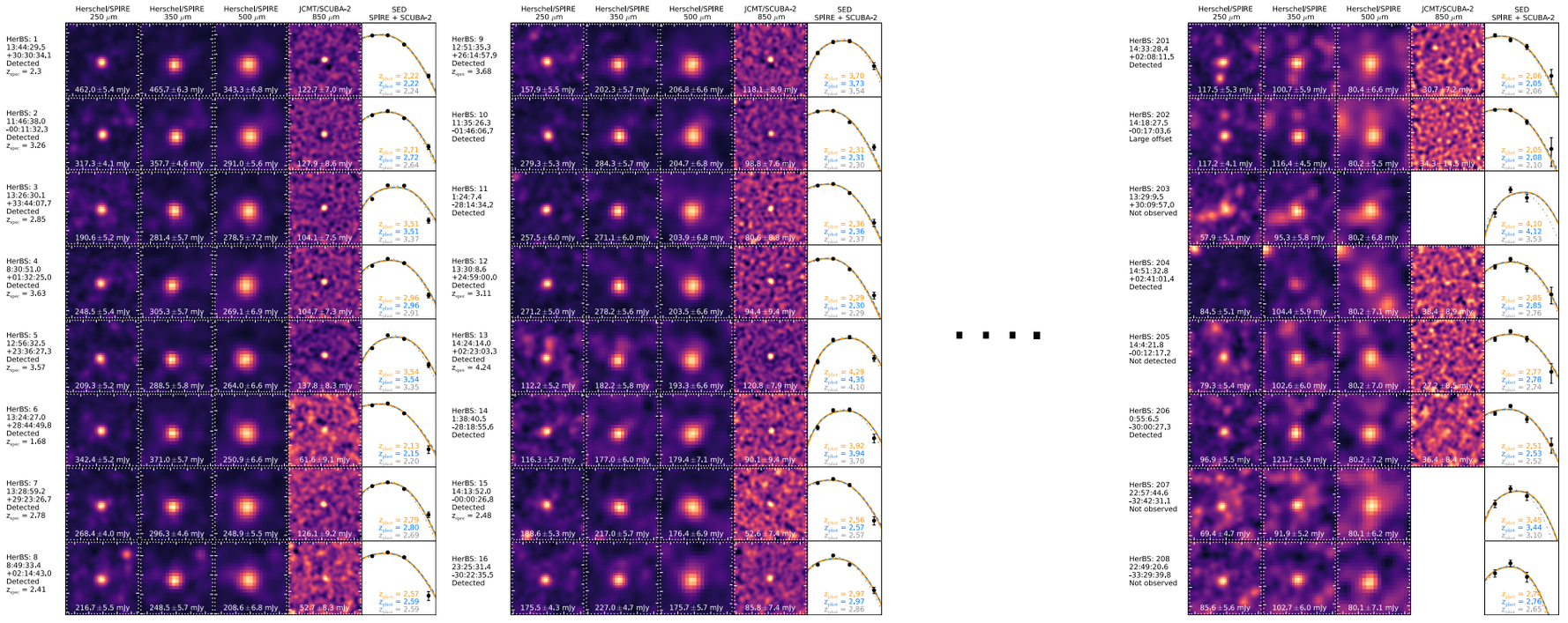
The HerBS sample

Using SCUBA-2 to remove blazars from a strongly lensed sample



Tom Bakx

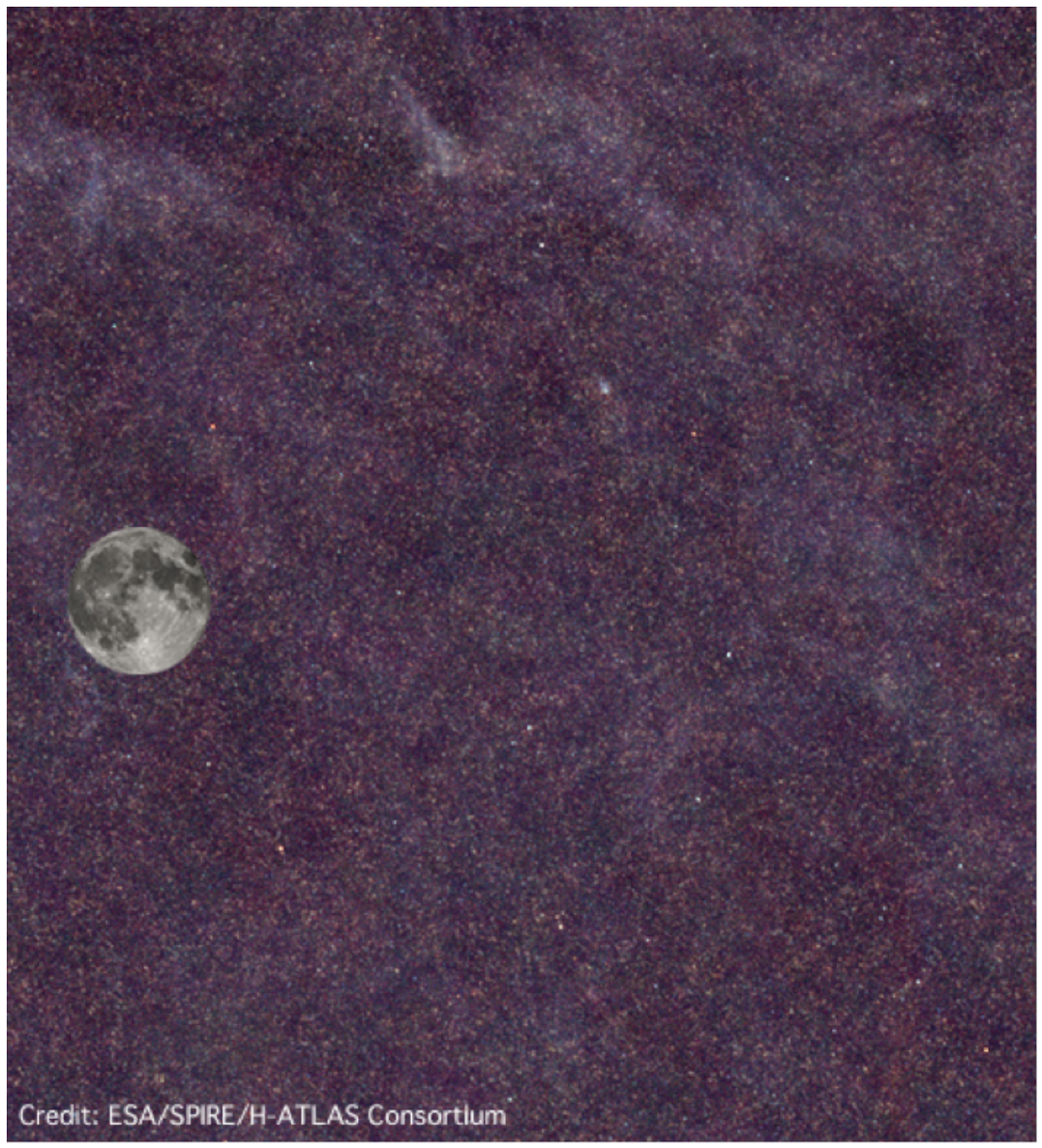
Cardiff University

We use the H-ATLAS survey to find lenses by selecting the brightest sources

H-ATLAS:

590 sqr. deg.
NGP, SGP & GAMA
Confusion limits

Data Release @ www.h-atlas.org



Eales et al. 2009, Valiante et al. 2016

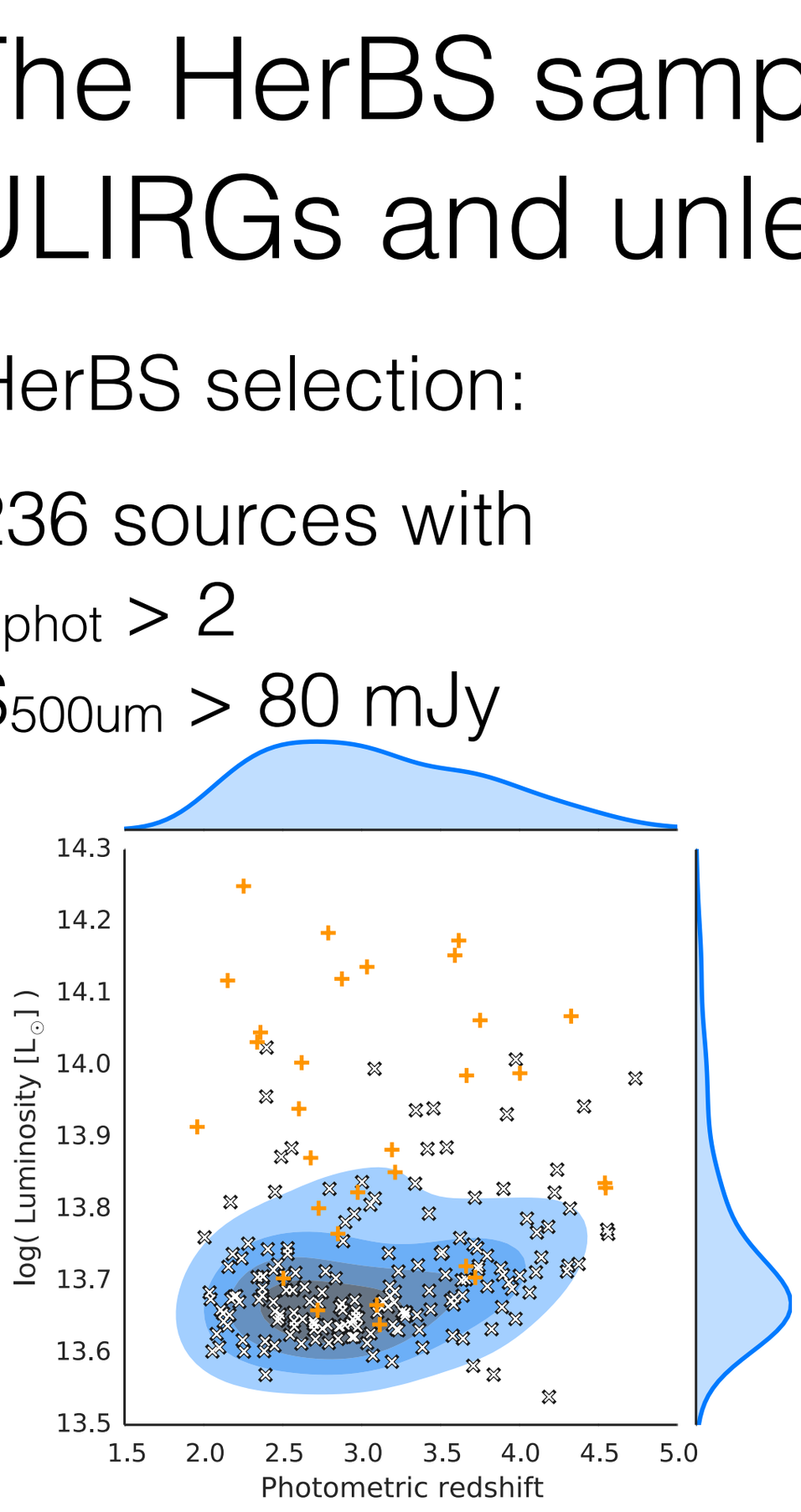
The HerBS sample contains lensed ULIRGs and unlensed HyLIRGs

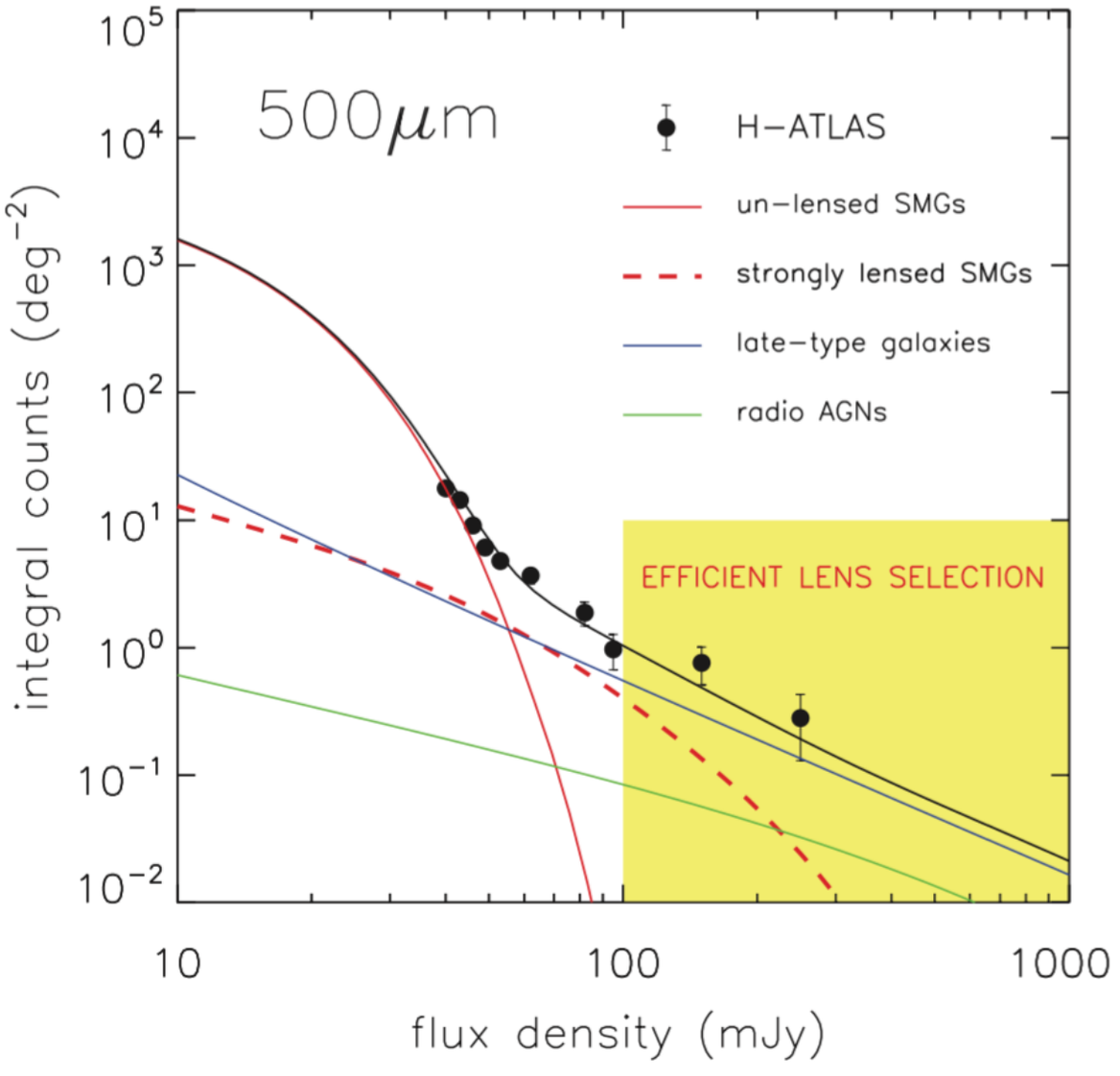
HerBS selection:

236 sources with

$z_{phot} > 2$

$S_{500um} > 80$ mJy

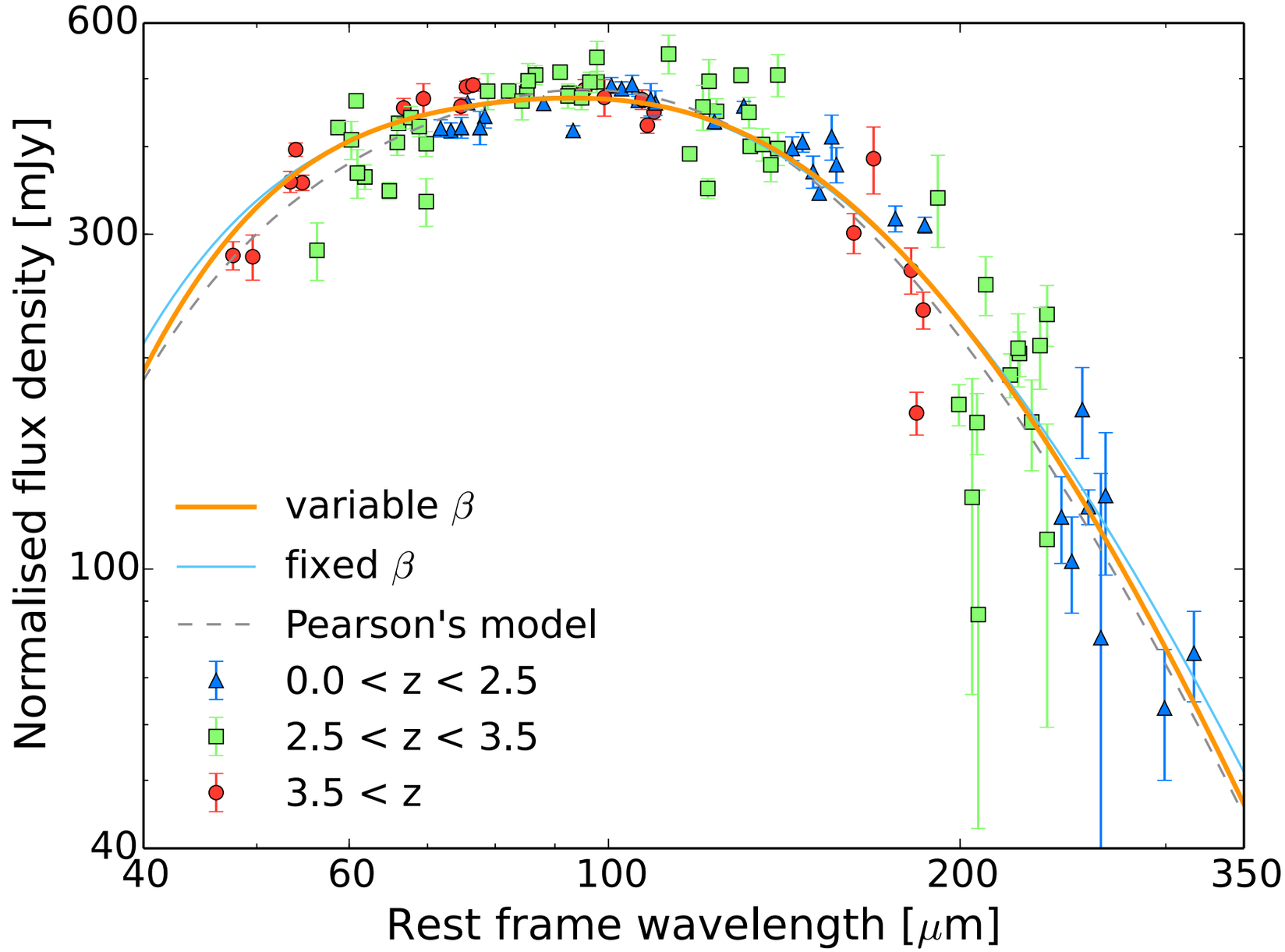




Negrello et al. 2009

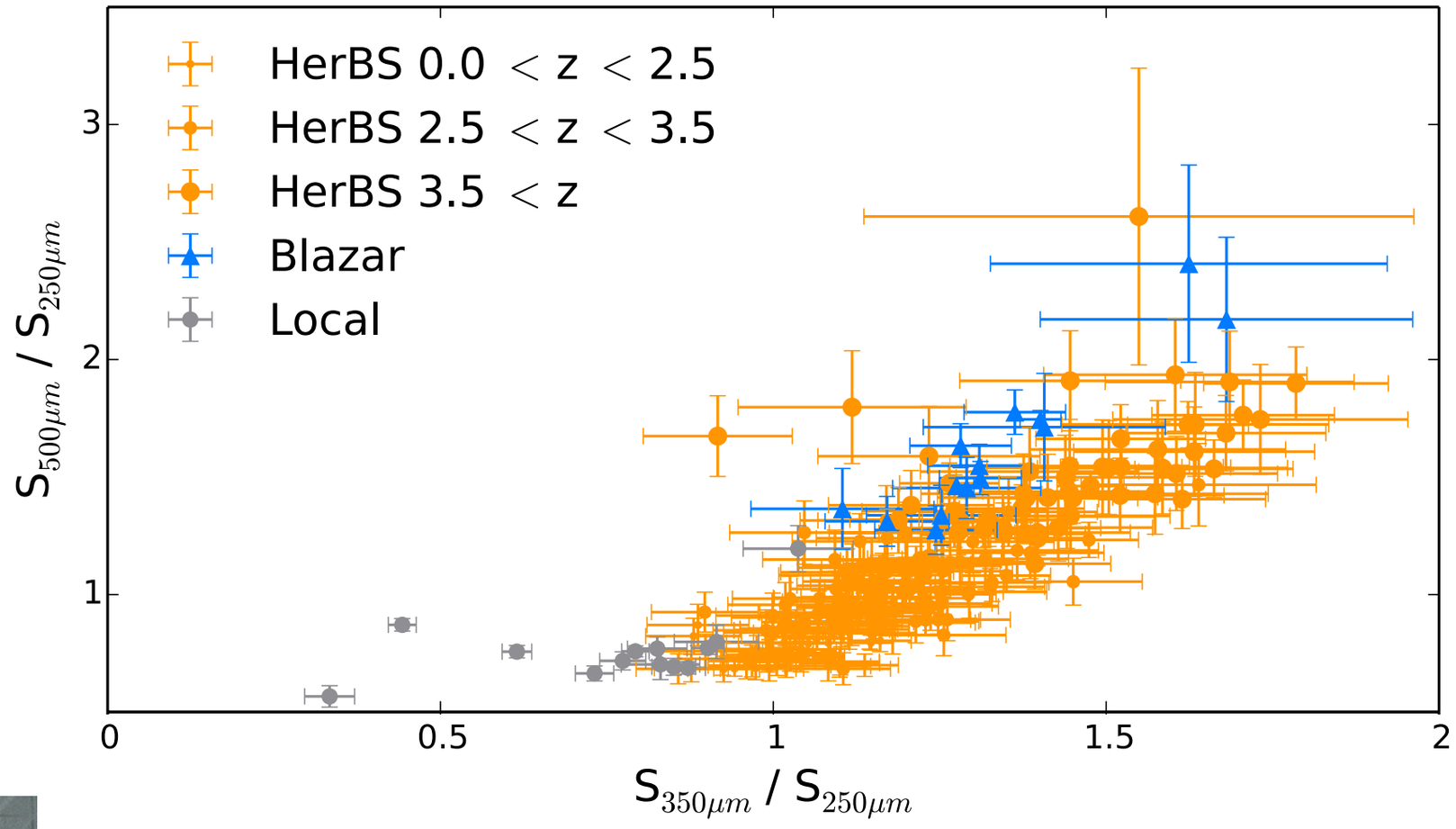
Pearson et al. 2013

Spectroscopic redshifts give us a typical SMG template



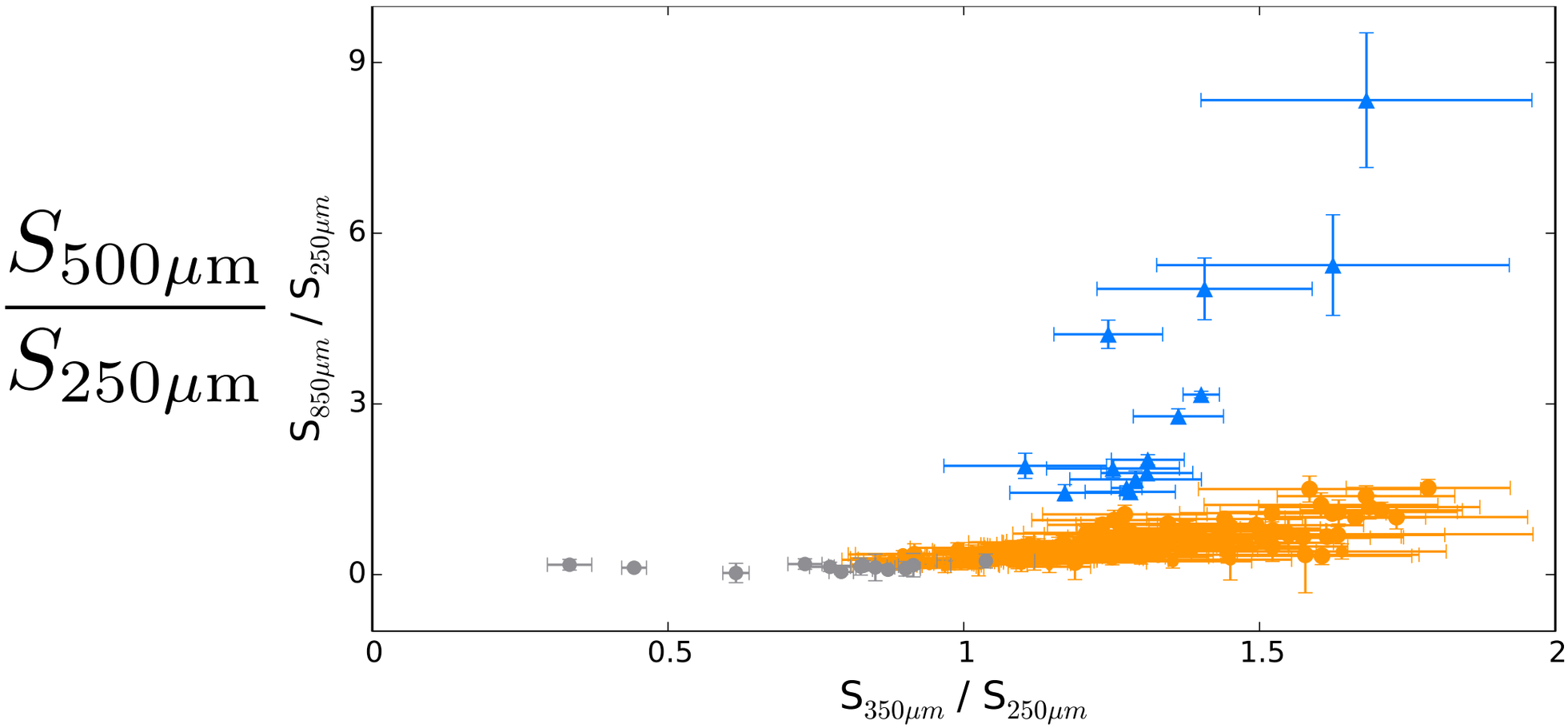
Herschel color-color diagrams can't distinguish blazars

$$\frac{S_{500\mu\mathrm{m}}}{S_{250\mu\mathrm{m}}}$$

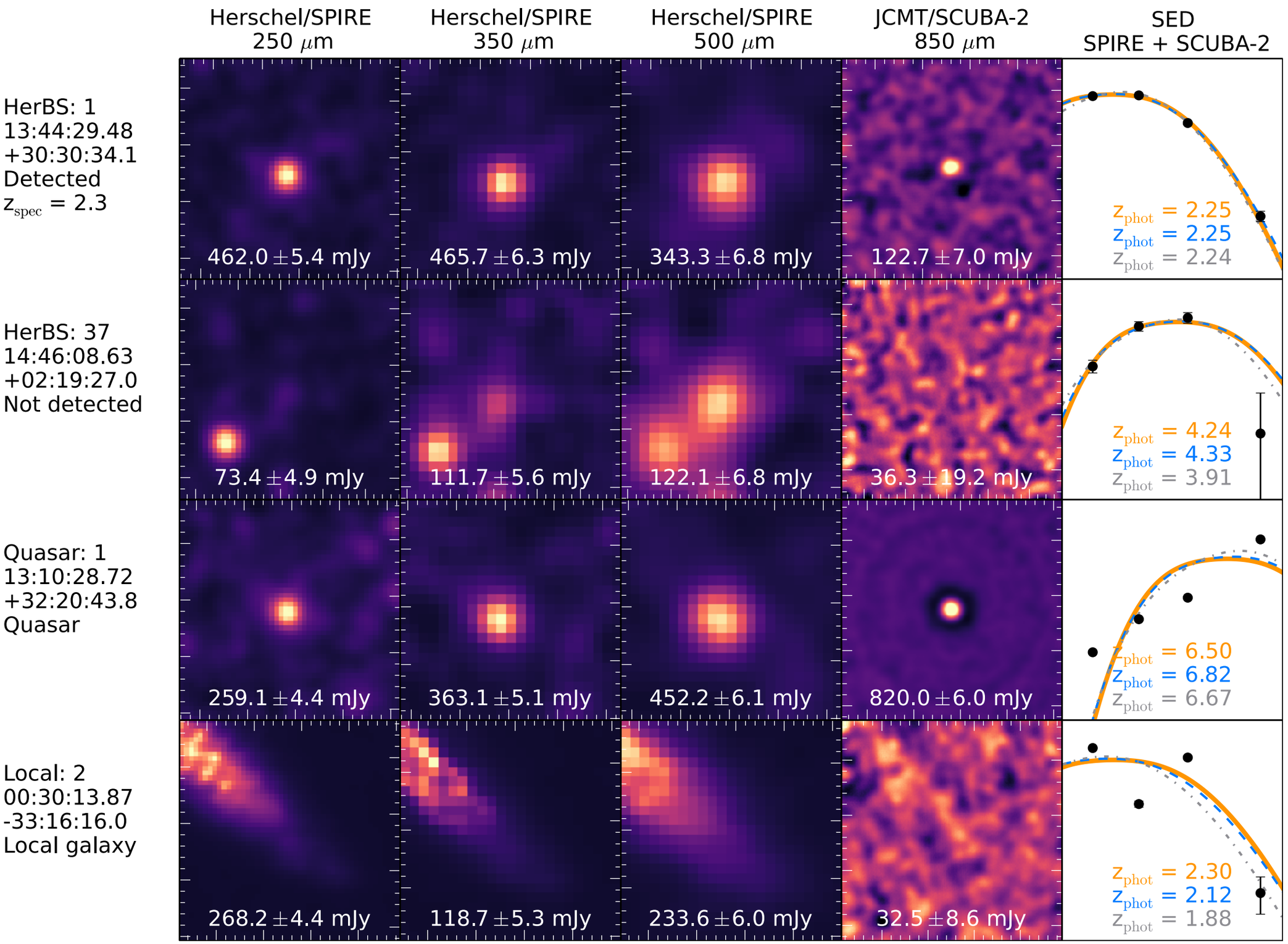


$$\frac{S_{350\mu\mathrm{m}}}{S_{250\mu\mathrm{m}}}$$

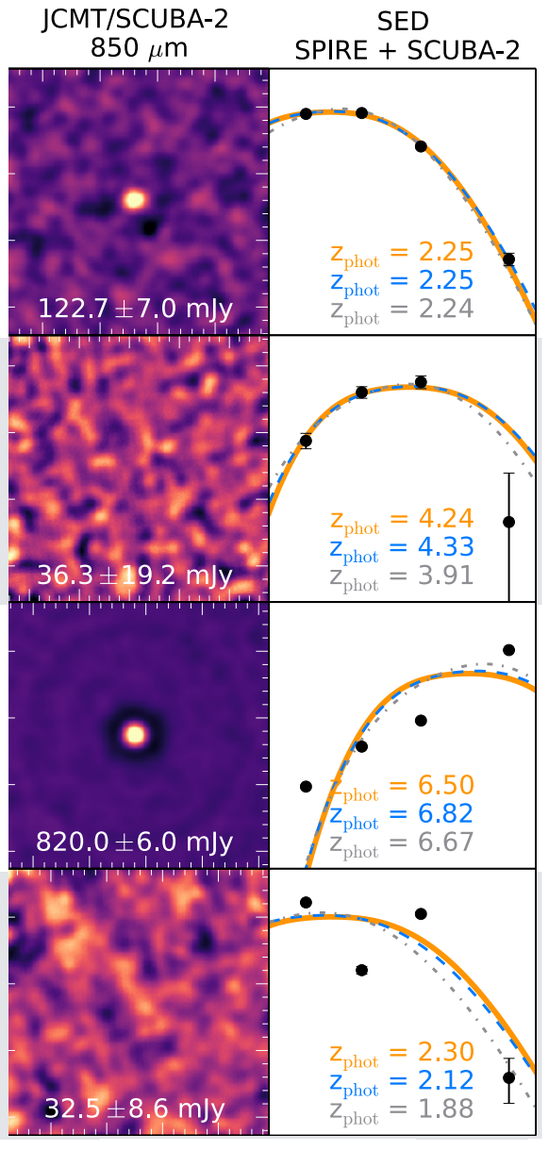
JCMT's color-color diagrams **can** distinguish blazars



$$\frac{S_{350\mu\mathrm{m}}}{S_{250\mu\mathrm{m}}}$$

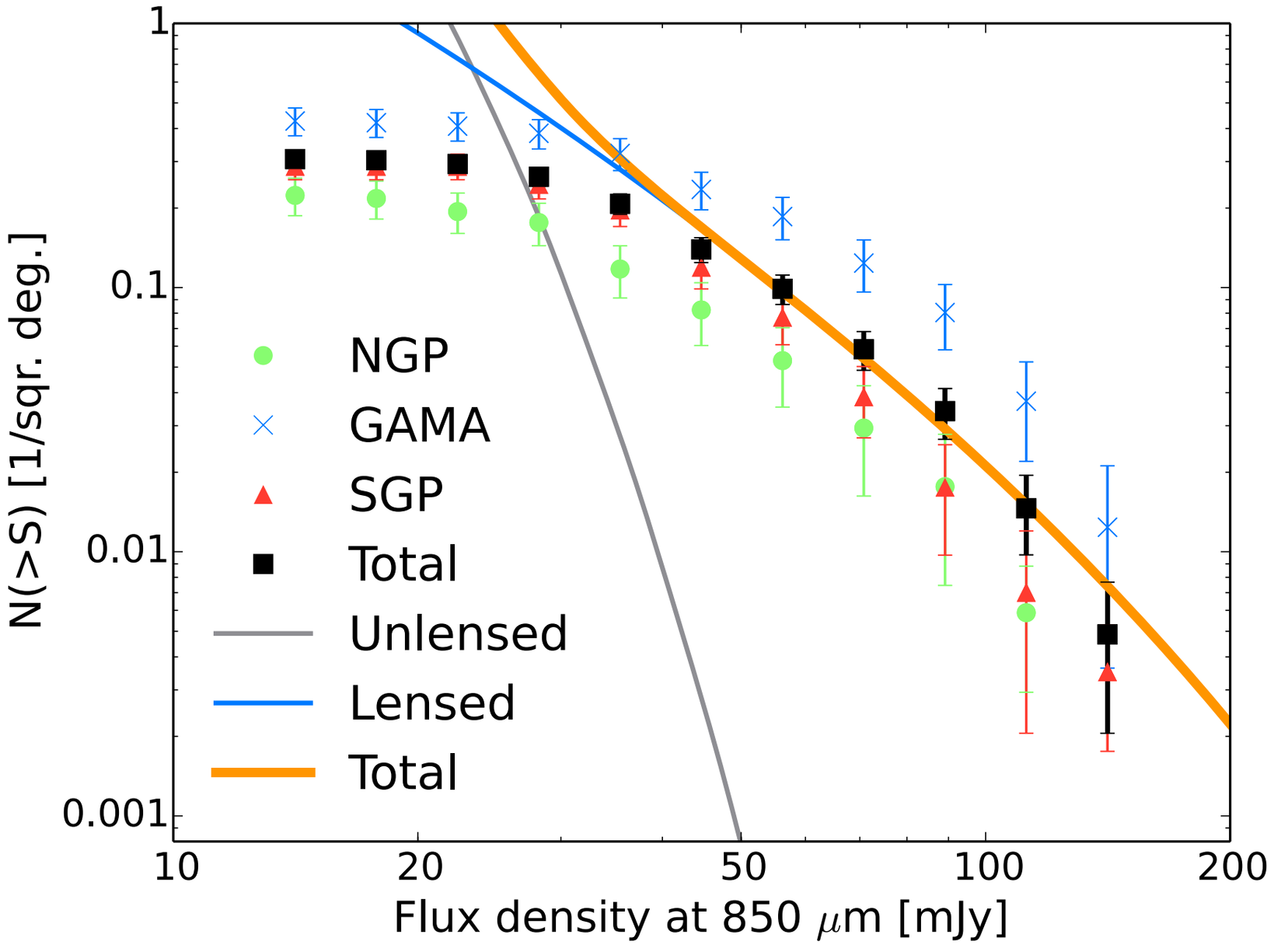

Herschel/SPIRE
250 μm
Herschel/SPIRE
350 μm
Herschel/SPIRE
500 μm
JCMT/SCUBA-2
850 μm
SED
SPIRE + SCUBA-2
HerBS: 1
13:44:29.48
+30:30:34.1
Detected
z_spec = 2.3
462.0 ±5.4 mJy
465.7 ±6.3 mJy
343.3 ±6.8 mJy
122.7 ±7.0 mJy
z_phot = 2.25
z_phot = 2.25
z_phot = 2.24
HerBS: 37
14:46:08.63
+02:19:27.0
Not detected
73.4 ±4.9 mJy
111.7 ±5.6 mJy
122.1 ±6.8 mJy
36.3 ±19.2 mJy
z_phot = 4.24
z_phot = 4.33
z_phot = 3.91
Quasar: 1
13:10:28.72
+32:20:43.8
Quasar
259.1 ±4.4 mJy
363.1 ±5.1 mJy
452.2 ±6.1 mJy
820.0 ±6.0 mJy
z_phot = 6.50
z_phot = 6.82
z_phot = 6.67
Local: 2
00:30:13.87
-33:16:16.0
Local galaxy
268.2 ±4.4 mJy
118.7 ±5.3 mJy
233.6 ±6.0 mJy
32.5 ±8.6 mJy
z_phot = 2.30
z_phot = 2.12
z_phot = 1.88

JCMT helped us ID 14 quasars in our sample



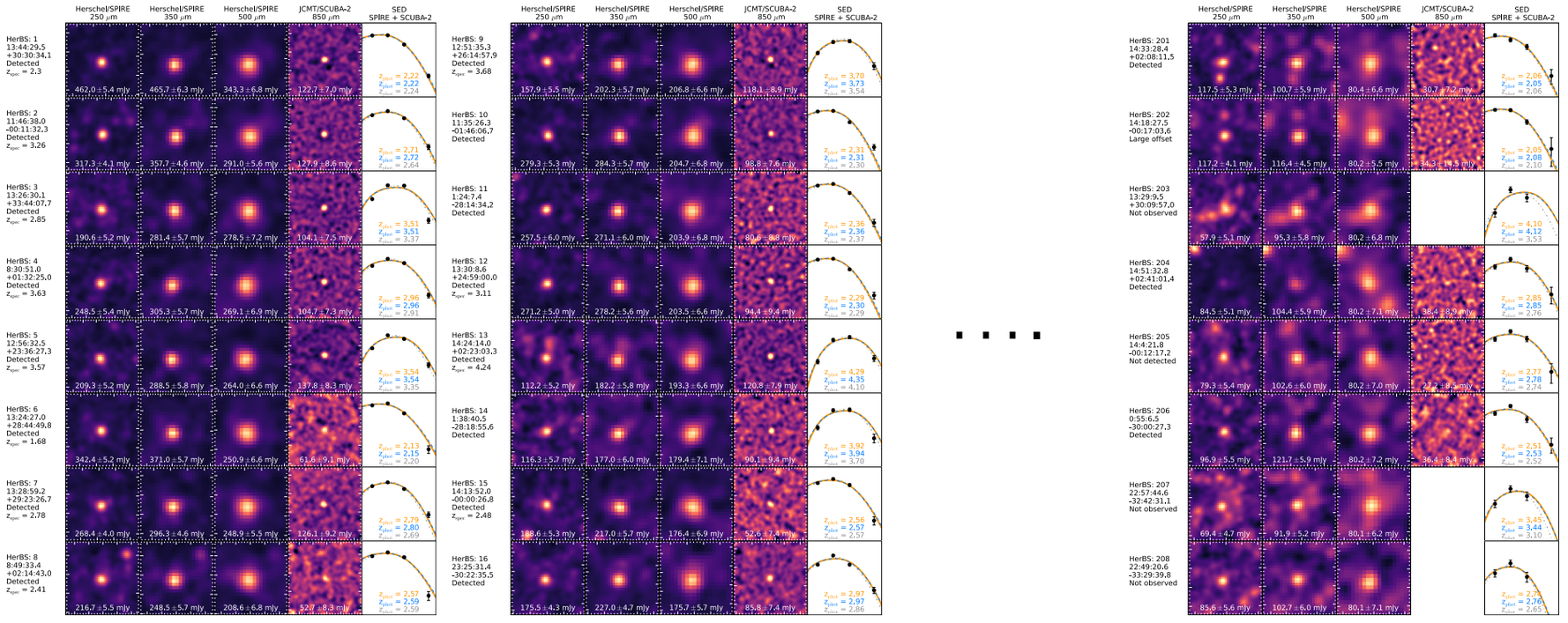
850 detected	149
850 undetected	40
Blazars	14
Local galaxies	13
850 unobserved	19

Our sample has a global lensing fraction of 78%



The HerBS sample

Using SCUBA-2 to remove blazars from a strongly lensed sample



Tom Bakx

Cardiff University