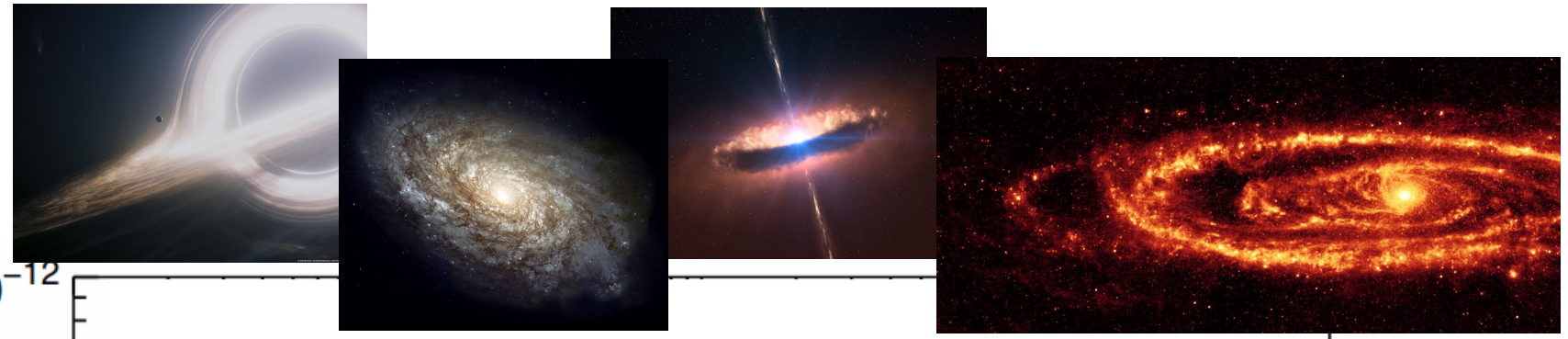
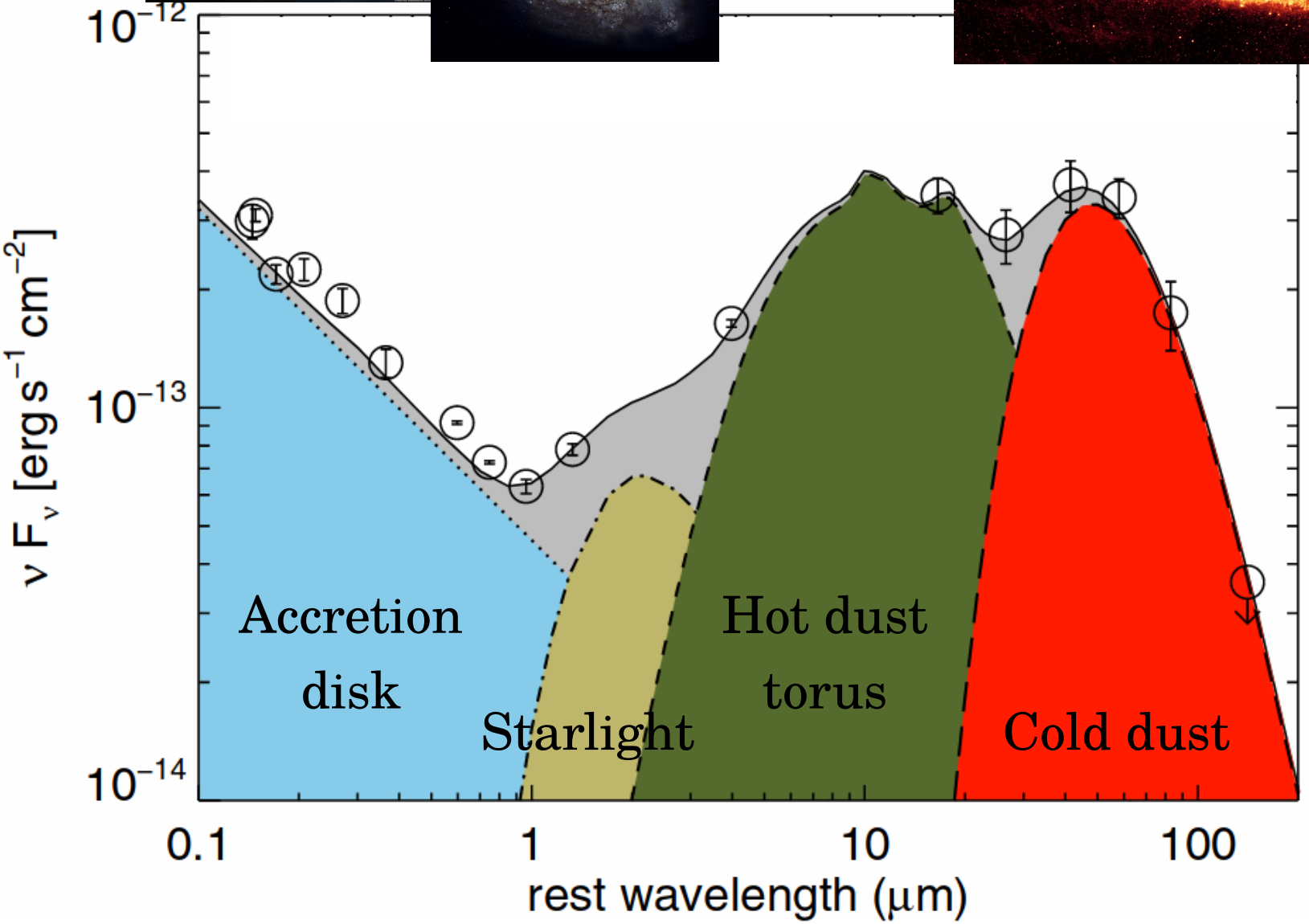
Roberto Decarli
INAF Osservatorio Astronomico di Bologna

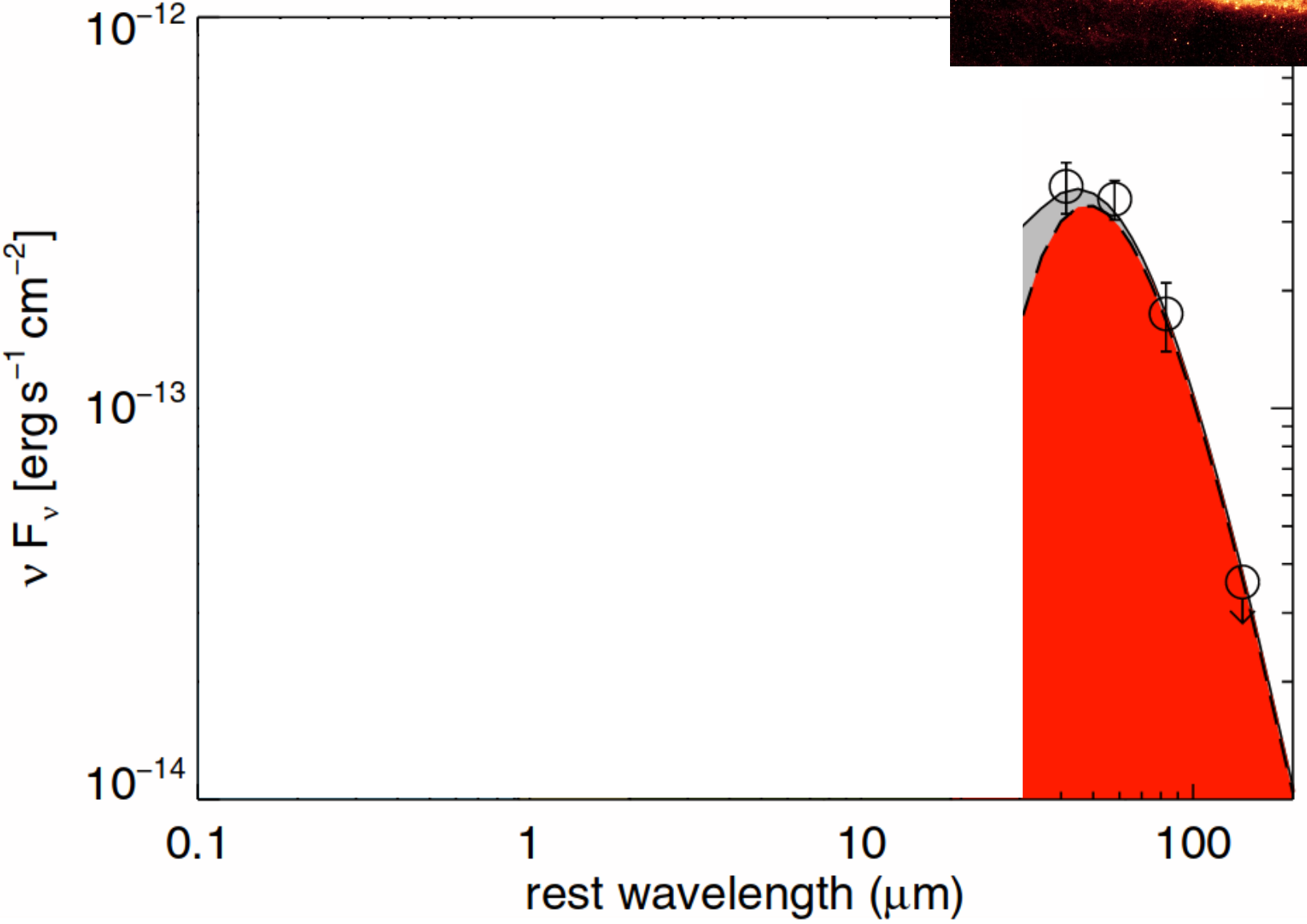
The cold side of AGN





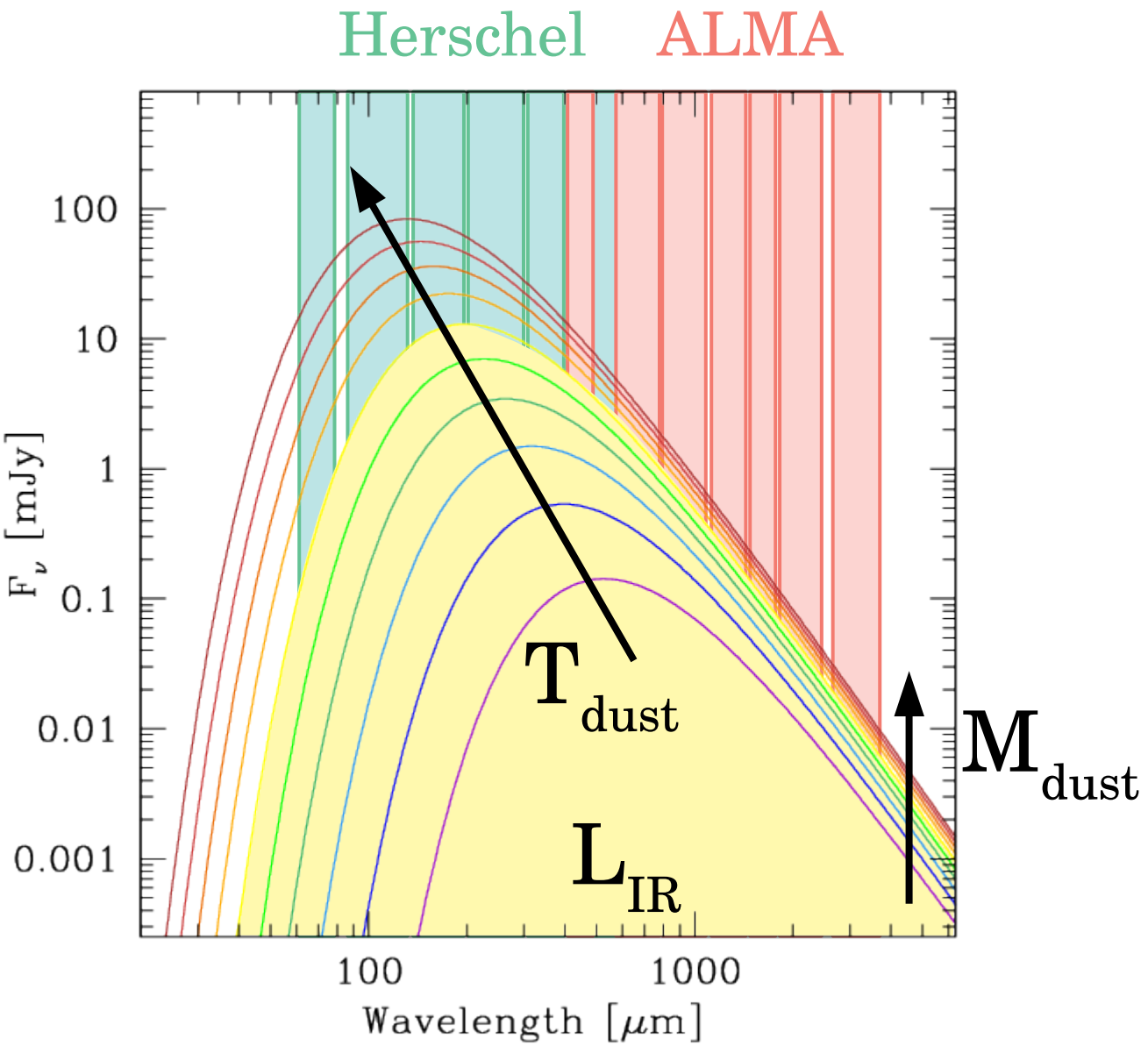
Adapted from Leipski et al. (2014)

I. Dust, gas, and star formation in AGN

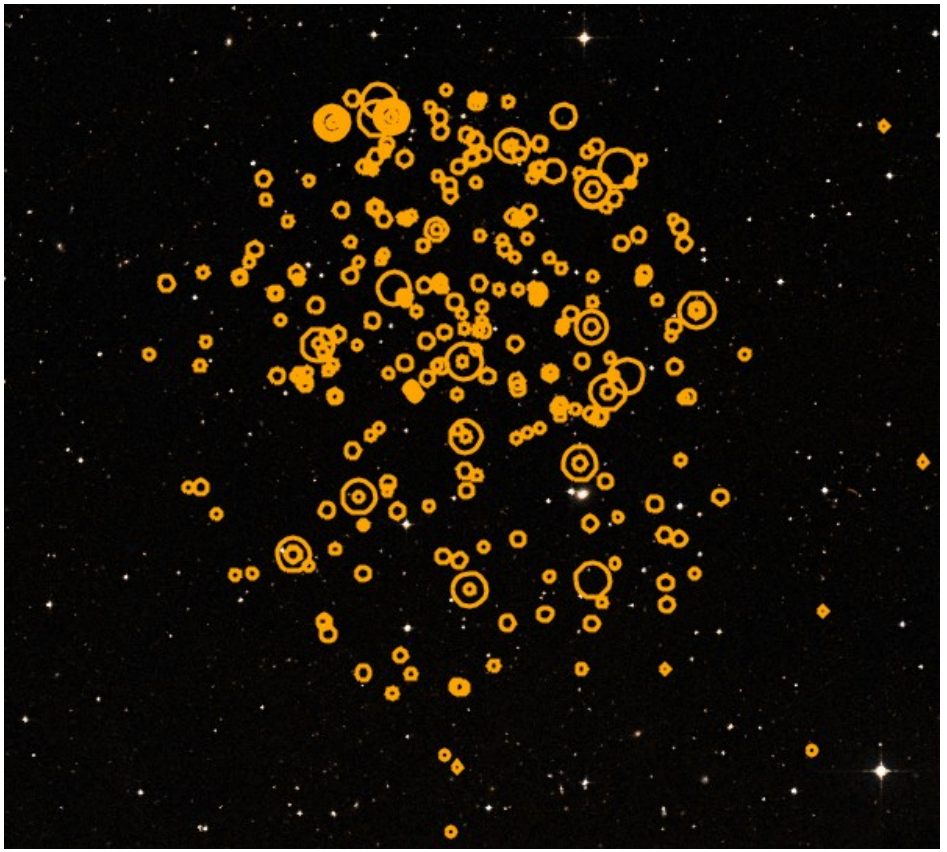


Adapted from Leipski et al. (2014)

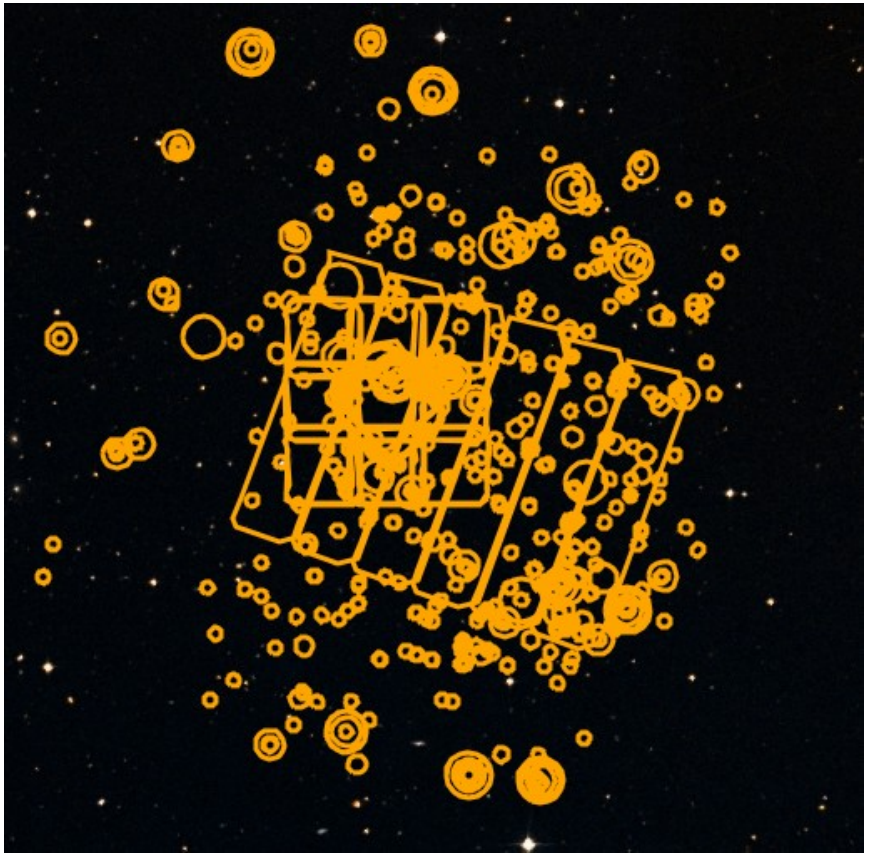
I. Dust, gas, and star formation in AGN



Public archival data on many fields



COSMOS



GOODS-South

I. Dust, gas, and star formation in AGN

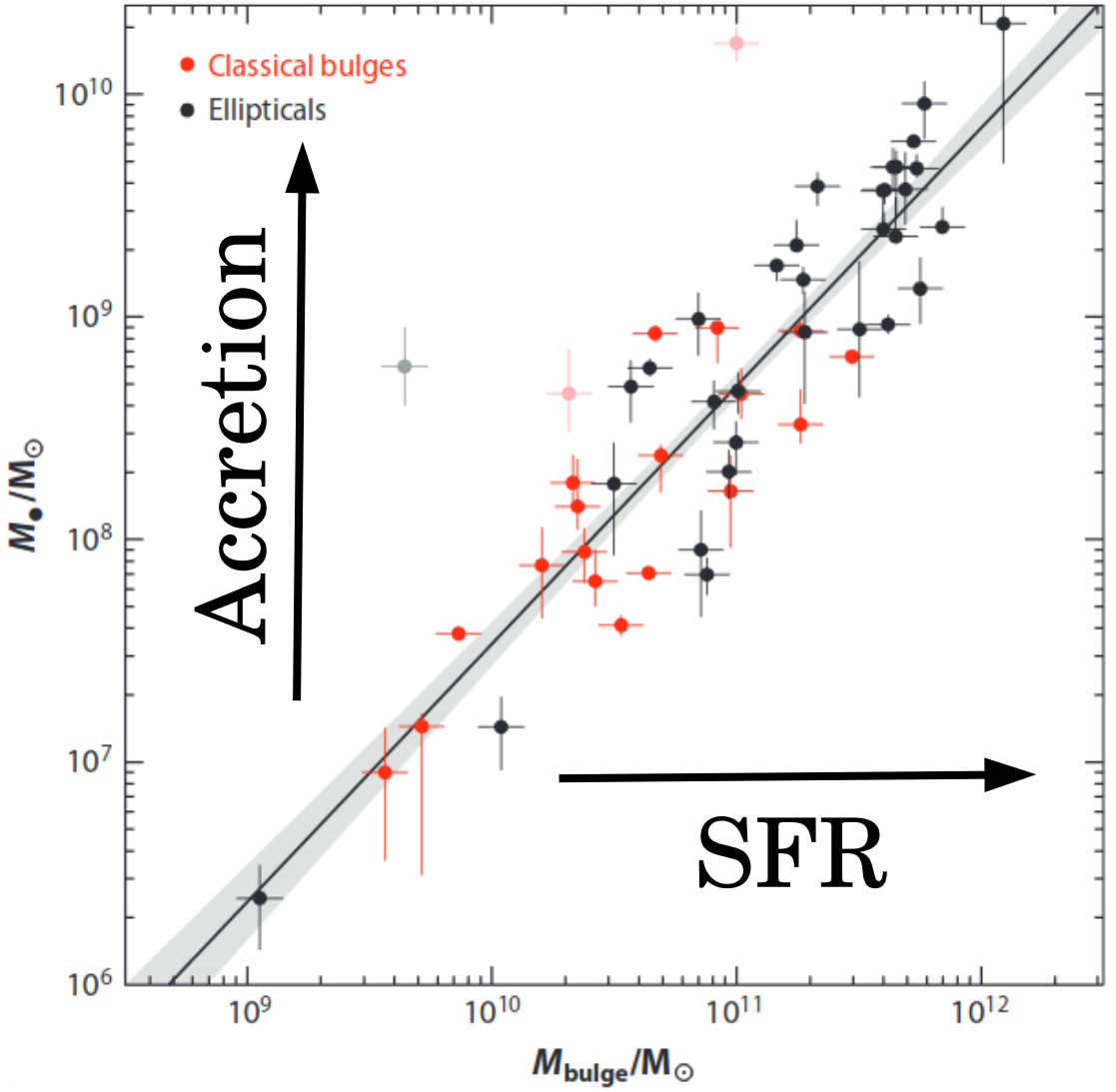
$M_{dust} \sim M_{gas}$

Connecting
star formation
and black hole
accretion
to the gaseous
reservoir

I. Dust, gas, and star formation in AGN

$M_{dust} \sim M_{gas}$

$L_{IR} \sim SFR$



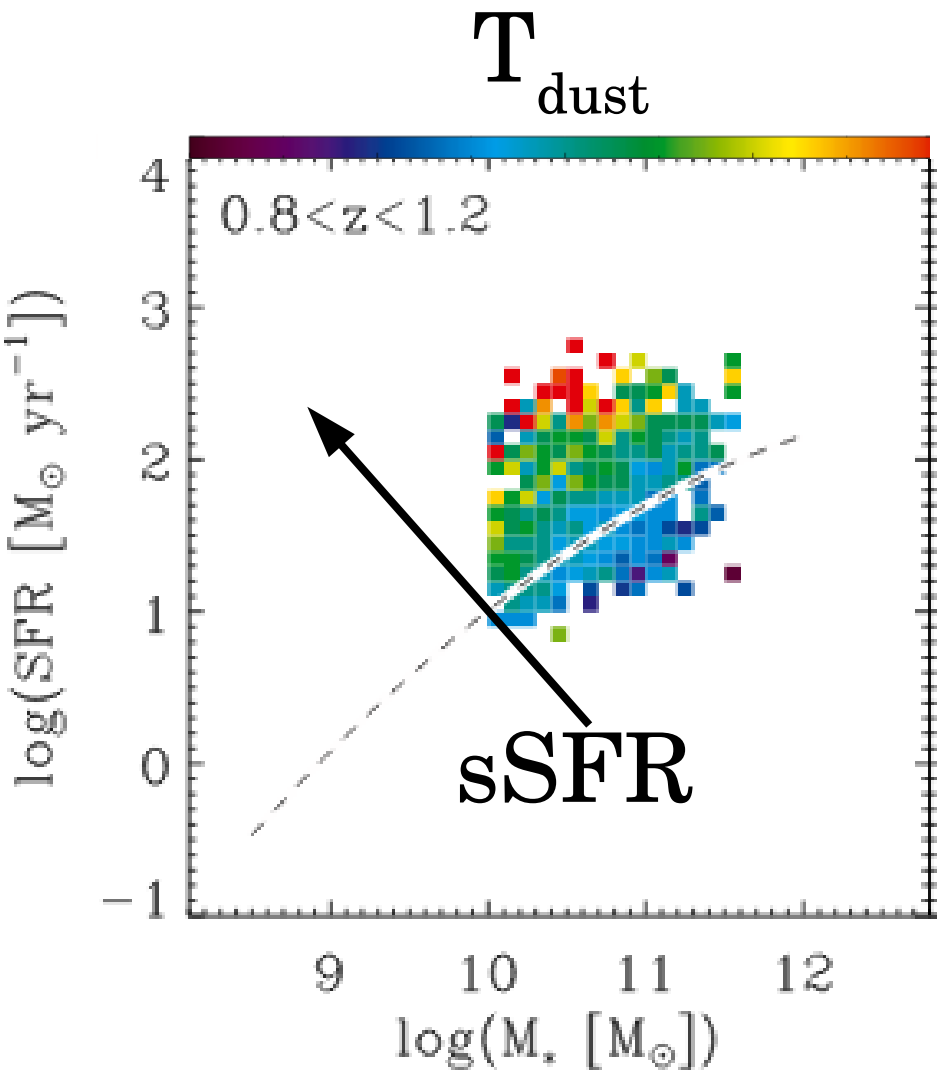
Kormendy & Ho (2013)

I. Dust, gas, and star formation in AGN

$M_{dust} \sim M_{gas}$

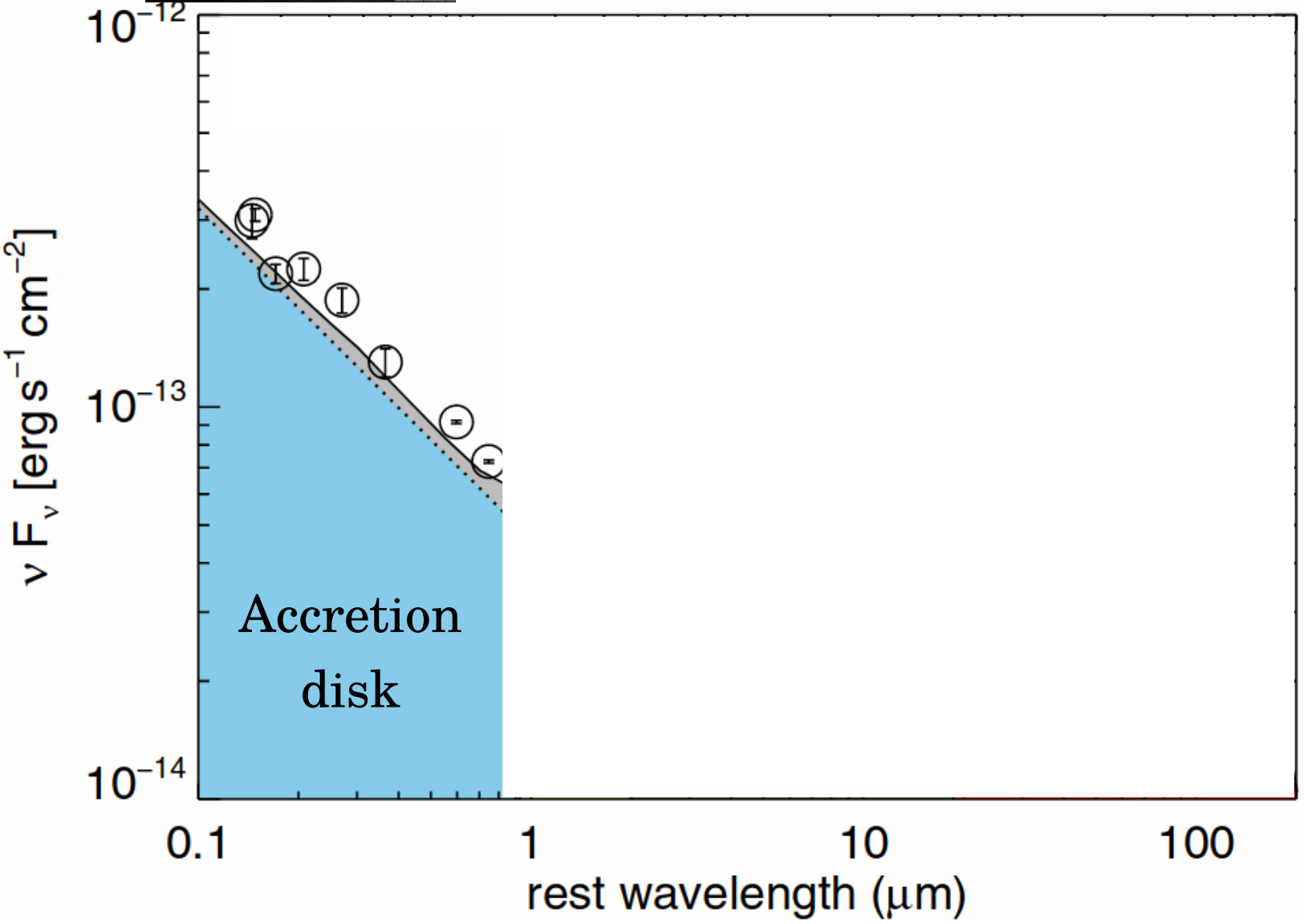
$L_{IR} \sim SFR$

$T_{dust} \sim sSFR$, powering mechanism



Adapted from Magnelli et al. (2014)

II. Quasars at the dawn of cosmic time



Adapted from Leipski et al. (2014)

Quasars at z>6

~120 known

BH mass ~10^{9} M_{sun}

Host mass ~$10^{10\text{-}11}$ M_{sun}

Host SFR=100-1000 M_{sun}/yr

Chemically enriched

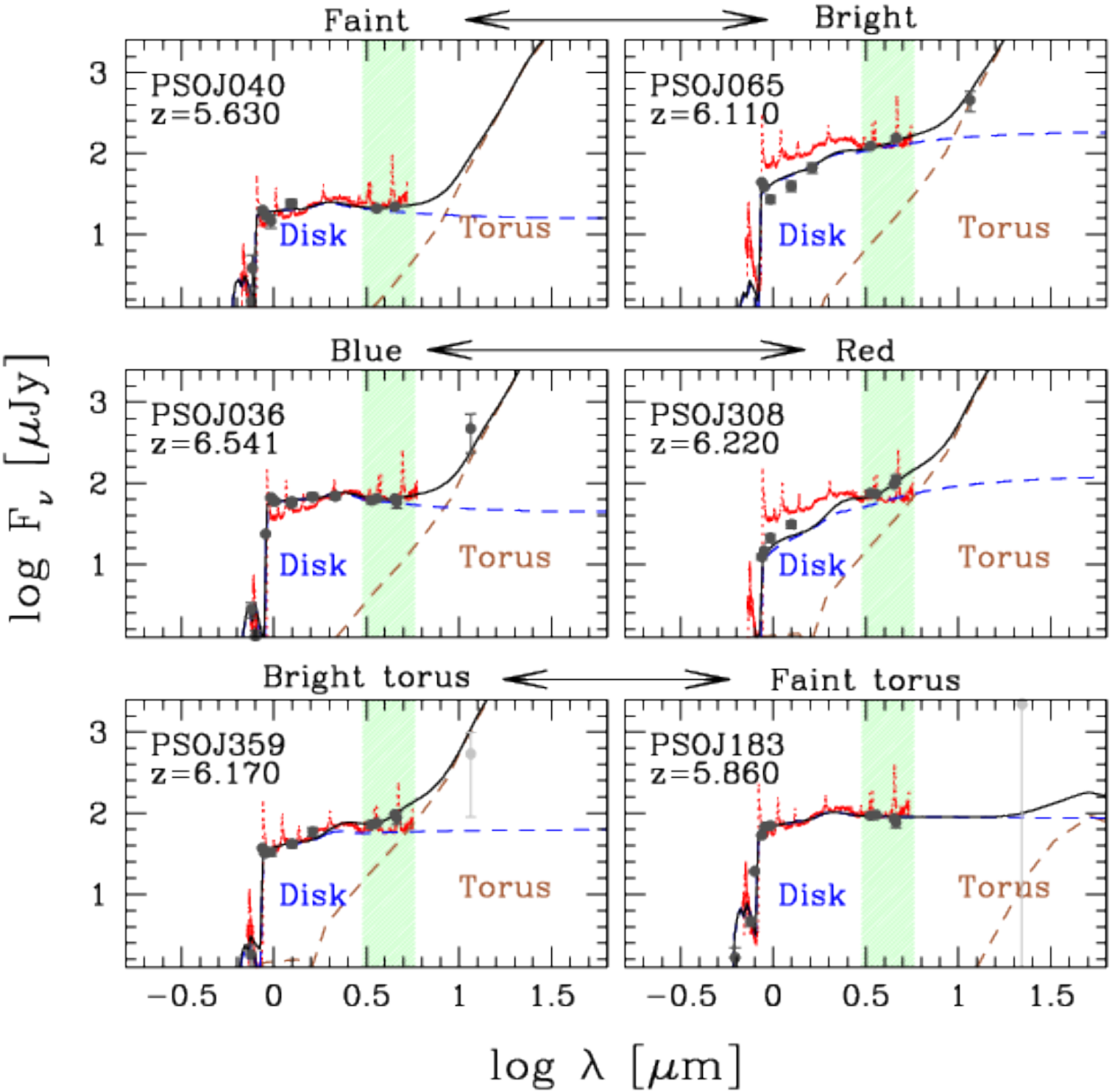
The most active objects in the universe at z>6

Dedicated Spitzer program (81 sources)

+ dedicated optical/NIR photometry

+ archival WISE and Spitzer data

+ photometry from wide area optical/NIR surveys


Faint
Bright
PSOJ040
z=5.630
PSOJ065
z=6.110
Disk
Torus
Blue
Red
PSOJ036
z=6.541
PSOJ308
z=6.220
Bright torus
Faint torus
PSOJ359
z=6.170
PSOJ183
z=5.860
log F$_\nu$ [μJy]
log λ [μm]

Compute

→ reddening

→ reddening-corrected luminosities

→ energy balance

→ bolometric corrections

Compare with similar analysis at low redshift

I. Dust, gas, and star formation in AGN

→ Roberto Decarli (INAF/OABO)

→ Marcella Brusa (Univ. Bologna)

II. Quasars at the dawn of cosmic time

→ Roberto Decarli (INAF/OABO)

→ Christian Vignali (Univ. Bologna)

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