

Subaru MOIRCS Ks-band Imaging at EGS



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Outline

0. Resent Results from MOIRCS DEEP Survey

GOODS-N

1. MOIRCS Ks-band Imaging Data at **EGS**

MOIRCS

(Multi-Object InfraRed Camera and Spectrograph)

Subaru 8.2m telescope

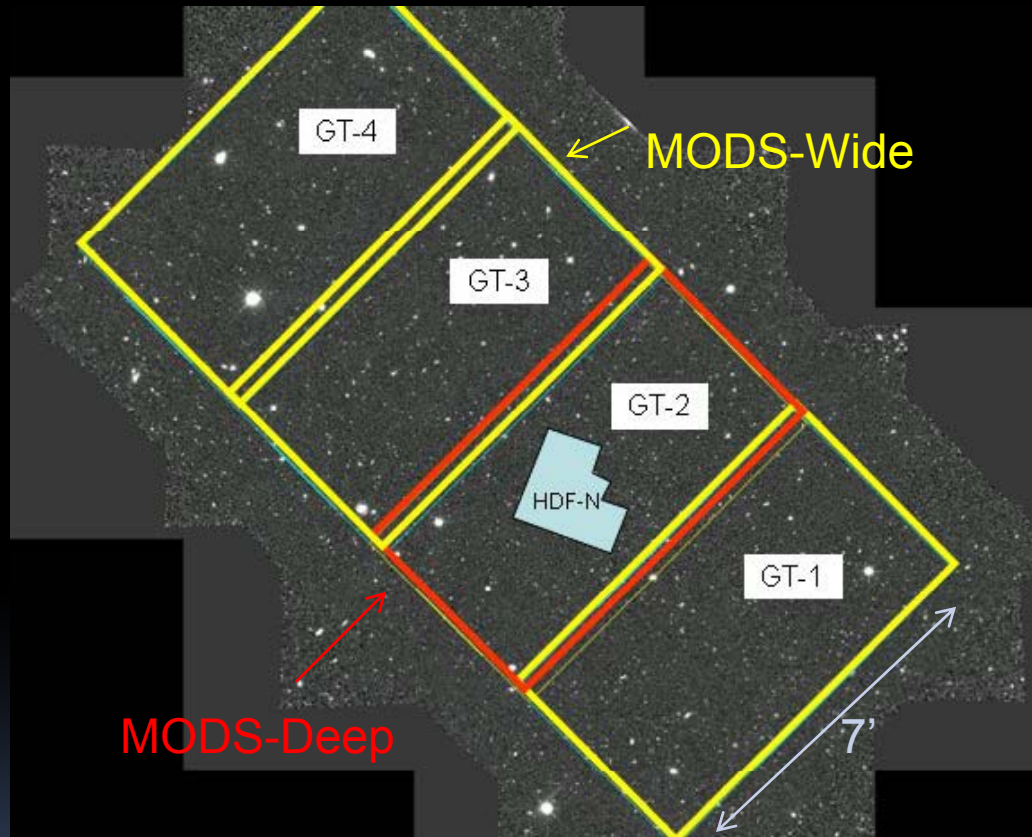
2 x HAWAII-2 (ch1, ch2)

Imaging FoV 4' x 7' YJHKs

0. Resent Results from
MOIRCS DEEP Survey
GOODS-N

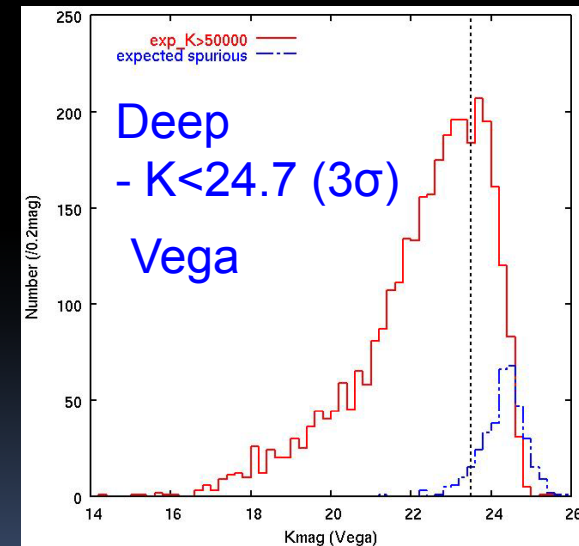
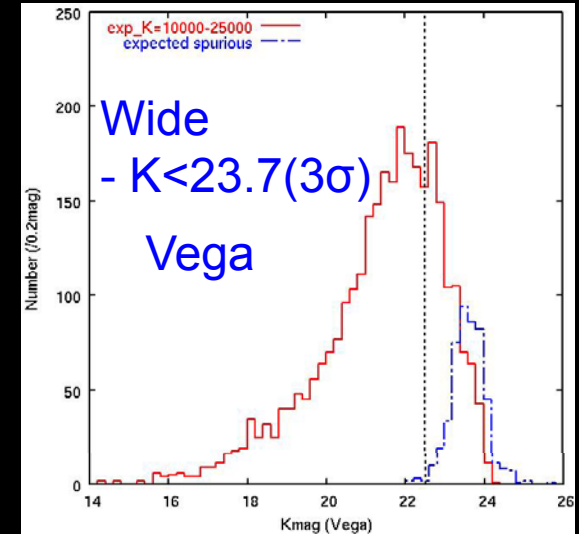
MOIRCS Deep Survey (MODS)

J, H, K_s, (NB119)



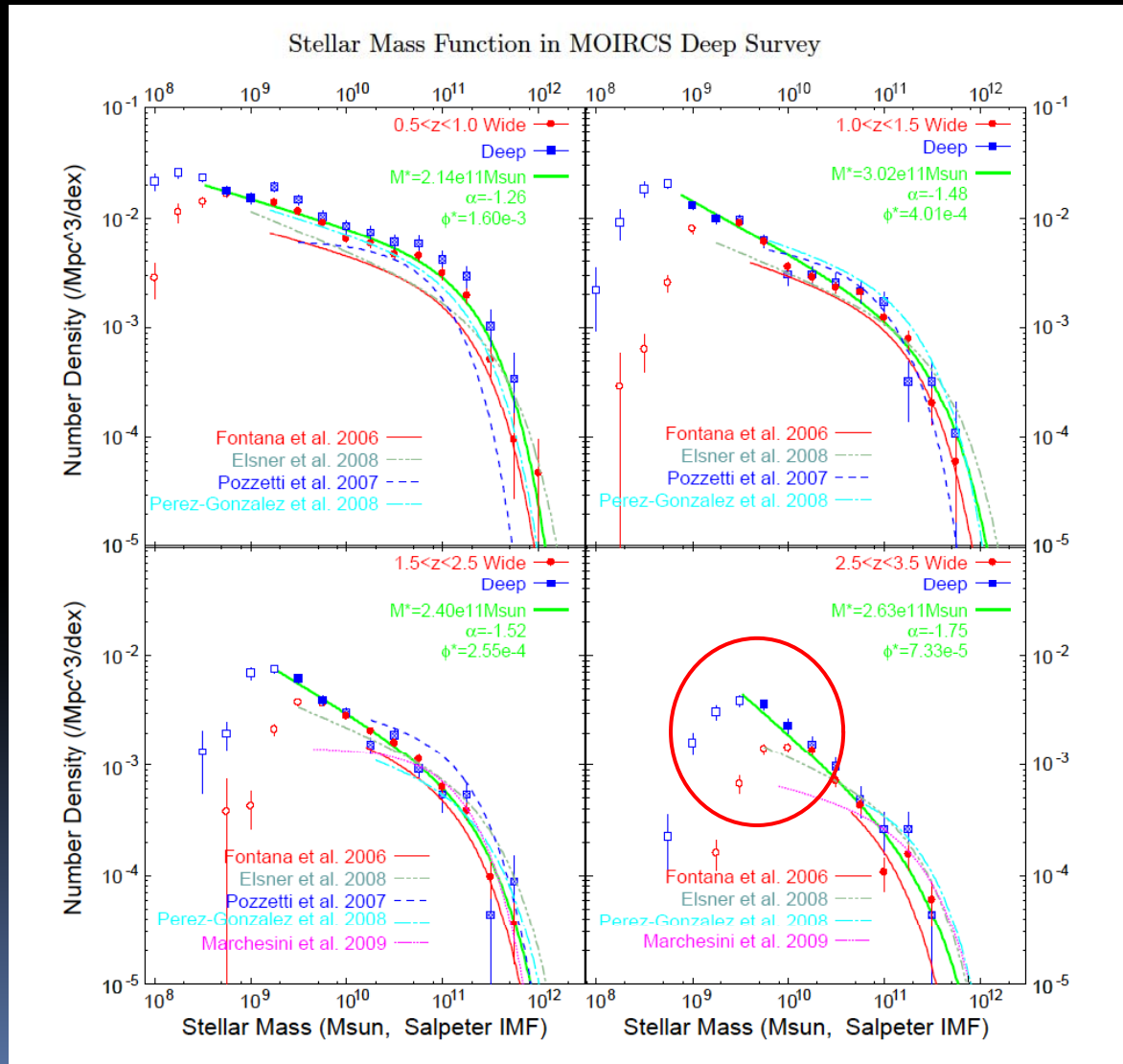
BVIZJHK IRAC ch1-4

GOODS-N

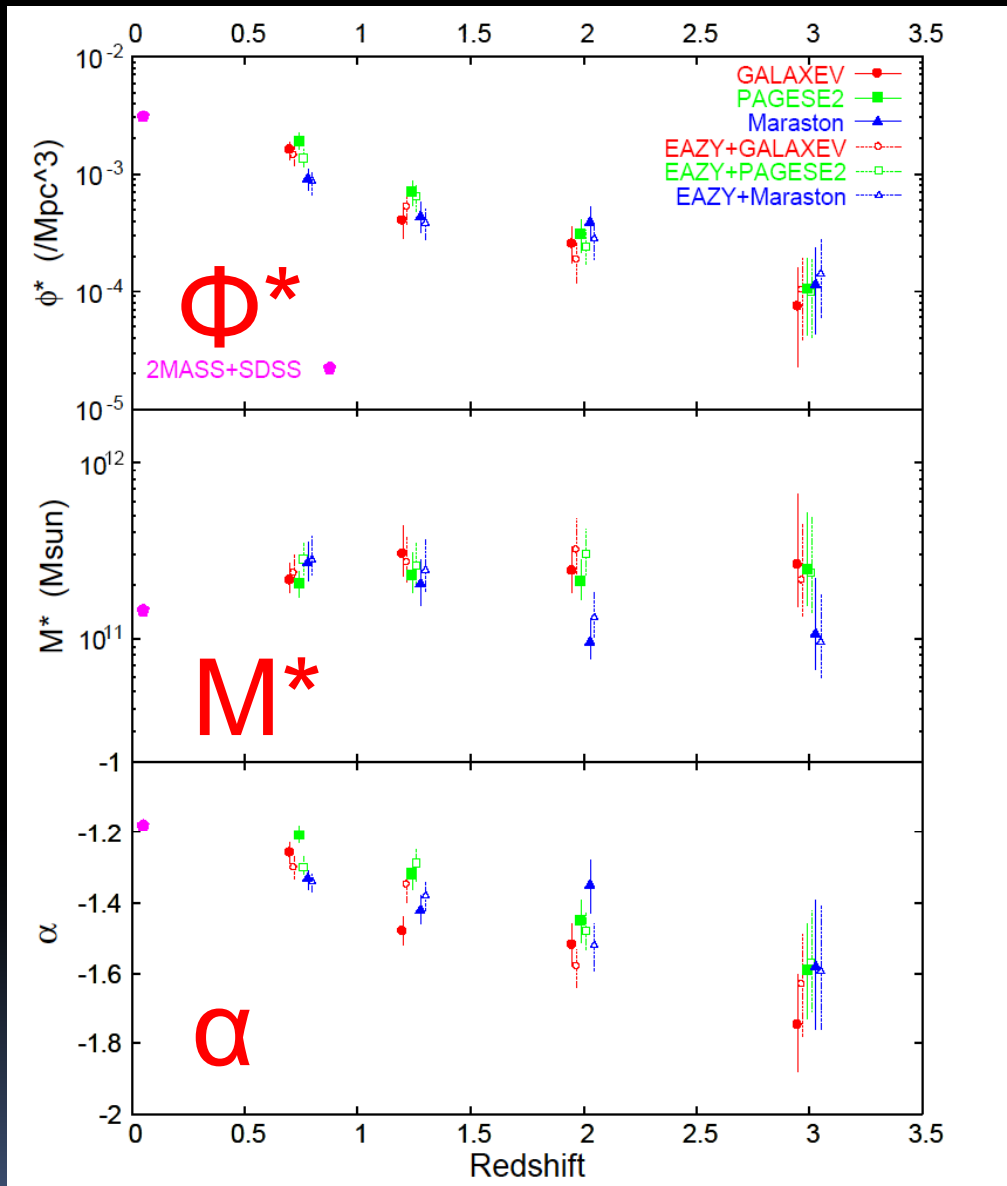


P.I. Takashi Ichikawa

Evolution of the Stellar Mass Function of Galaxies (Kajisawa et al. 2009 MOIRCS Deep Survey IV)

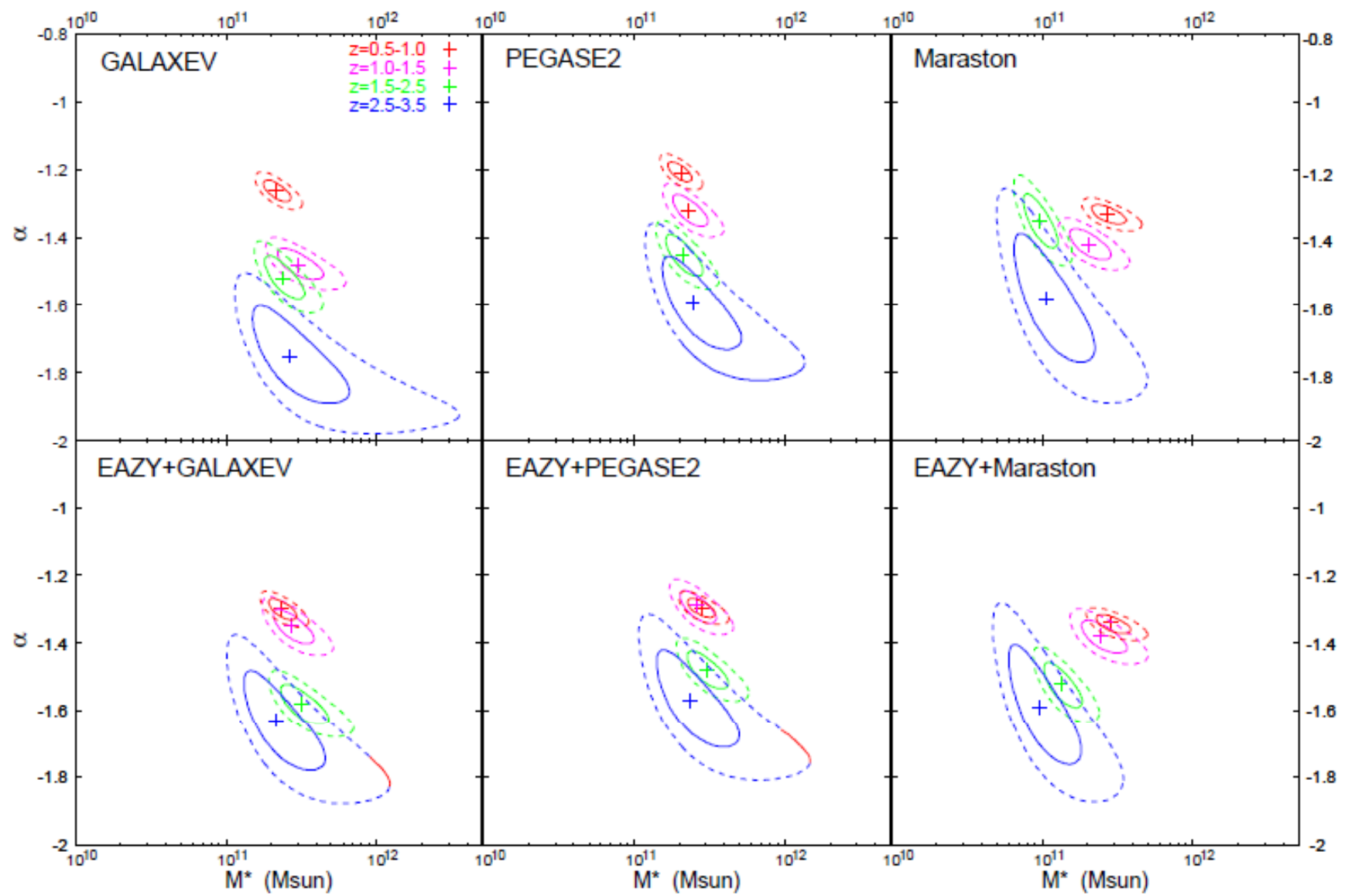


Evolution
at “less-massive-end”
or “light-end”



Strong evolution of the number density

Evolution of the faint-end slope



- Number-density evolution of massive and less massive galaxies since $z \sim 3$:

~ x 20 increase of N of galaxies with $10^{11} < M_{\text{str}} < 10^{12}$

ϕ^* : ~50% at $z=0.75$

~16% at $z=1.25$

~ 9% at $z=2$

~ 3% at $z=3$

similar trend with Fontana et al. (2006), Perez-Gonzales et al. (2008),
Marchesini et al. (2008)

- **Mass-dependent evolution of the Stellar Mass Function**

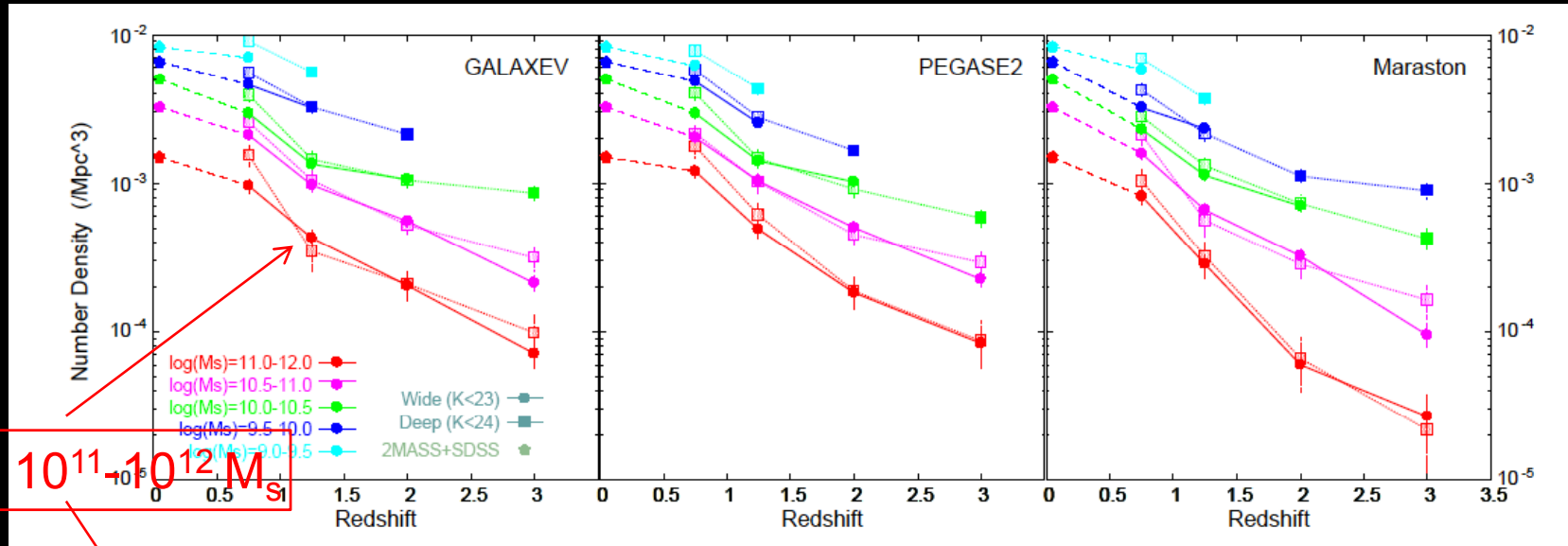
Significant evolution of the less-mass-end slope, α

$$\alpha = -1.62 \pm 0.14 \quad \text{at } 2.5 < z < 3.5$$

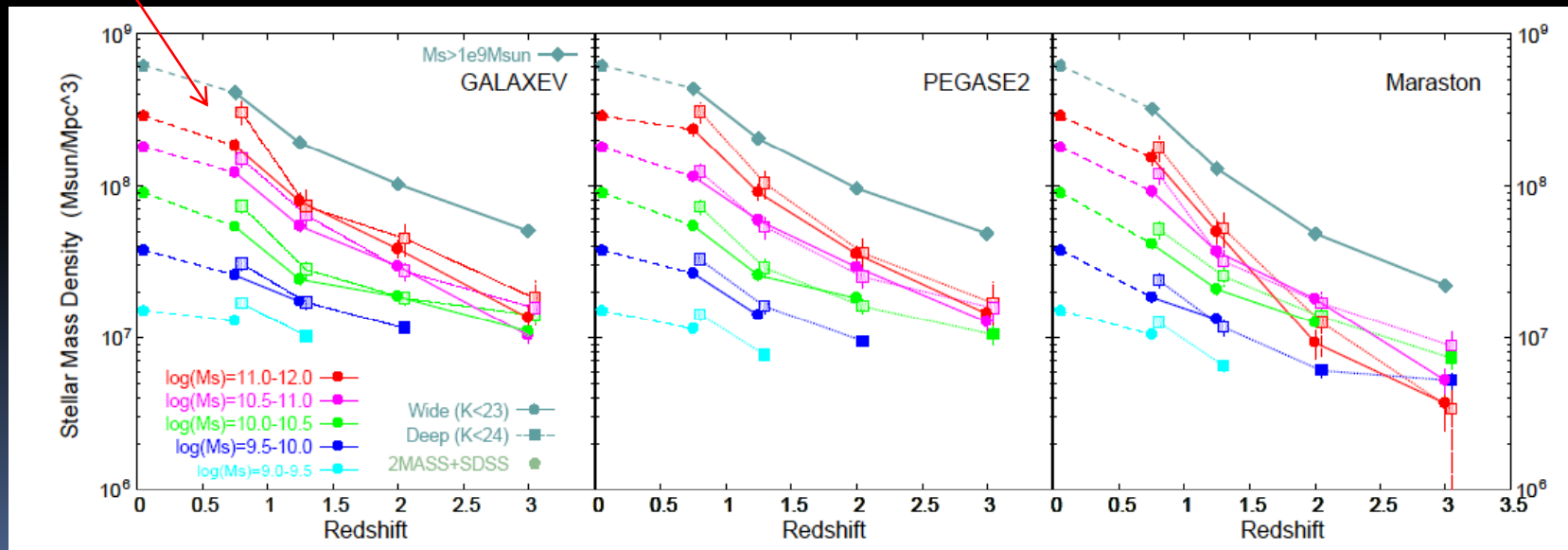
$$\alpha = -1.29 \pm 0.03 \quad \text{at } 0 < z < 0.5$$

Steepening at High-Redshift \leftrightarrow merging growth ?

Number Density Evolution in Different Mass Range

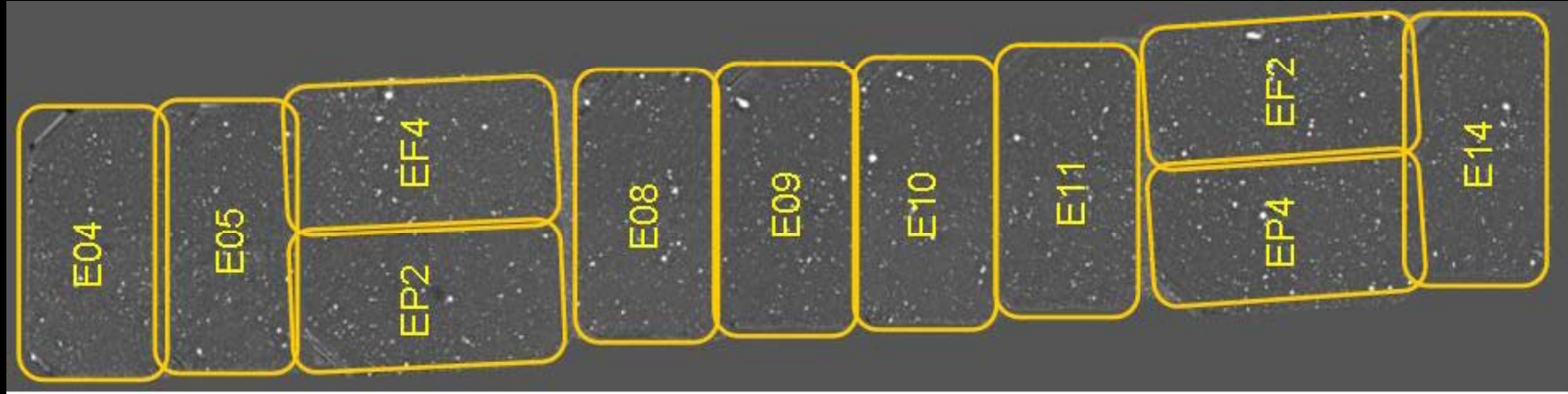


Stellar-Mass Density Evolution in Different Mass Range



MOIRCS Ks-band Imaging Data at **EGS**

MOIRCS K-band EGS



11 X 4'x7' FoV

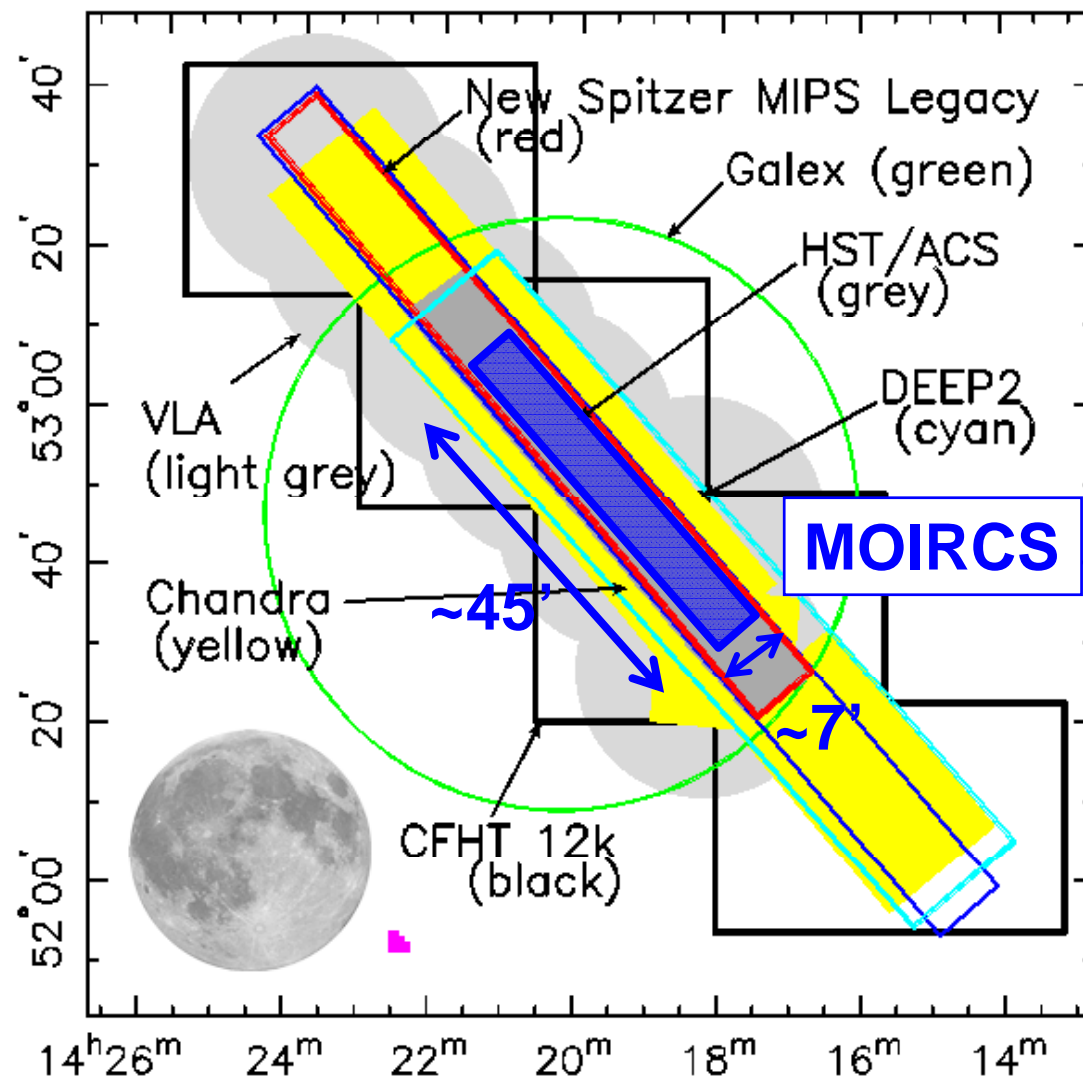
Mosaiced images available

(no convolution/PSF-matched)

Texp ~ 3600 sec (deepest E09 8400sec)

FWHM ~ 0.4"-0.6" (sharpest E08 0.41")

Photometric zero point 24.390 (Vega)



○ PSF and Depth magnitude: Vega

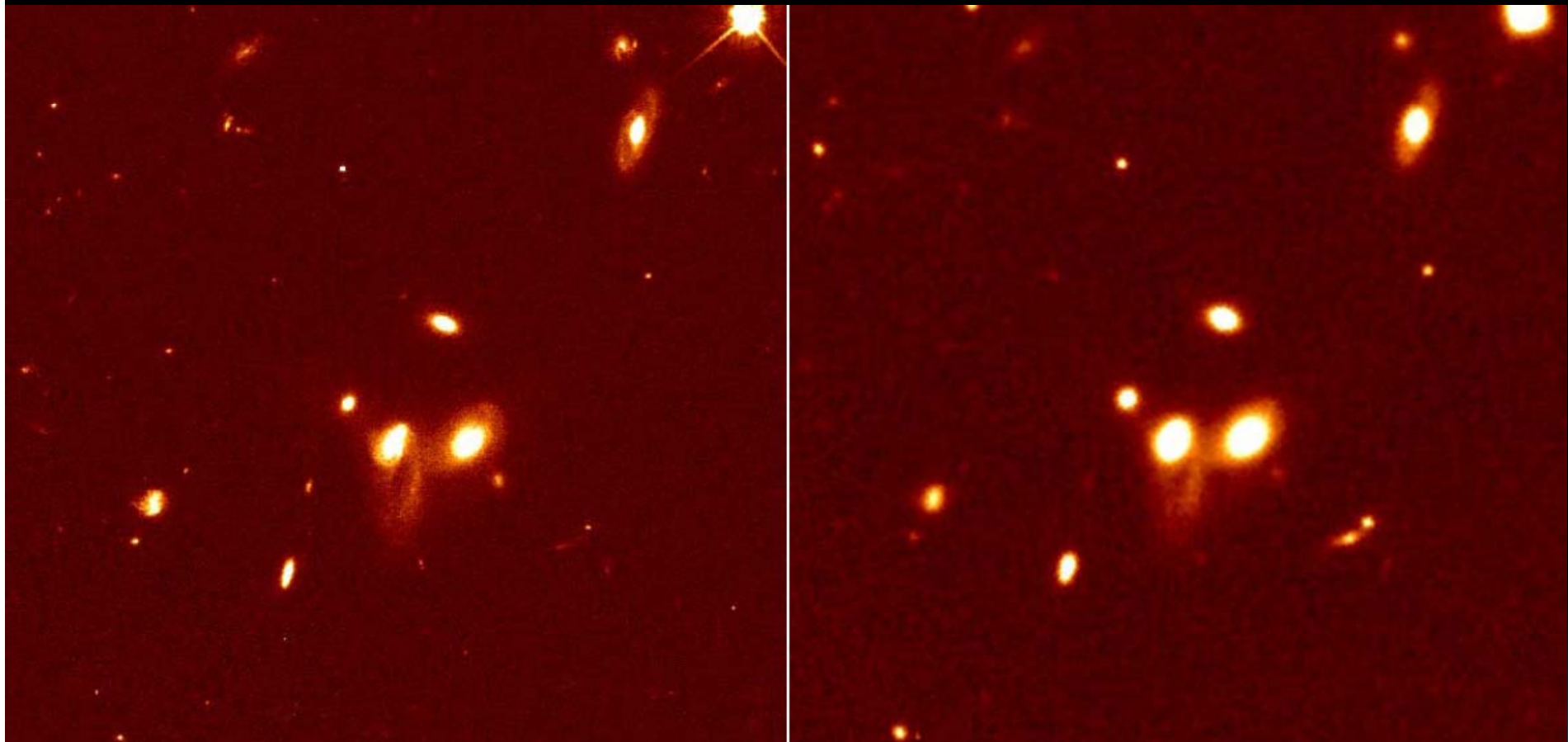
Field	FWHM (arcsec)	5sigma limit (2xFWHM)	(1.4" for conv.)	exposure (sec)
E04 ch1	0.505	22.093	21.798	3915
ch2	0.509	22.128	21.835	3915
E05 ch1	0.450	22.332	21.830	3765
ch2	0.450	22.422	21.997	3915
EF4 ch1	0.661	21.724	21.658	3450
ch2	0.659	21.781	21.705	3450
EP2 ch1	0.550	22.130	21.929	3645
ch2	0.538	22.194	21.935	3645
E08 ch1	0.410	22.898	22.305	6960
ch2	0.413	22.928	22.370	7110
E09 ch1	0.447	22.803	22.276	8460
ch2	0.459	22.799	22.297	8055

Field	FWHM (arcsec)	5sigma limit (2xFWHM)	(1.4" for conv.)	exposure (sec)
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E10 ch1	0.462	22.694	22.232	6045
ch2	0.474	22.695	22.251	6045
E11 ch1	0.558	22.053	21.795	3375
ch2	0.558	22.055	21.809	3375
EF2 ch1	0.538	22.118	21.862	3800
ch2	0.562	22.080	21.855	3800
EP4 ch1	0.591	22.124	21.923	4050
ch2	0.585	22.135	21.915	4050
E14 ch1	0.524	22.311	22.008	4050
ch2	0.517	22.316	21.994	4050

ACS

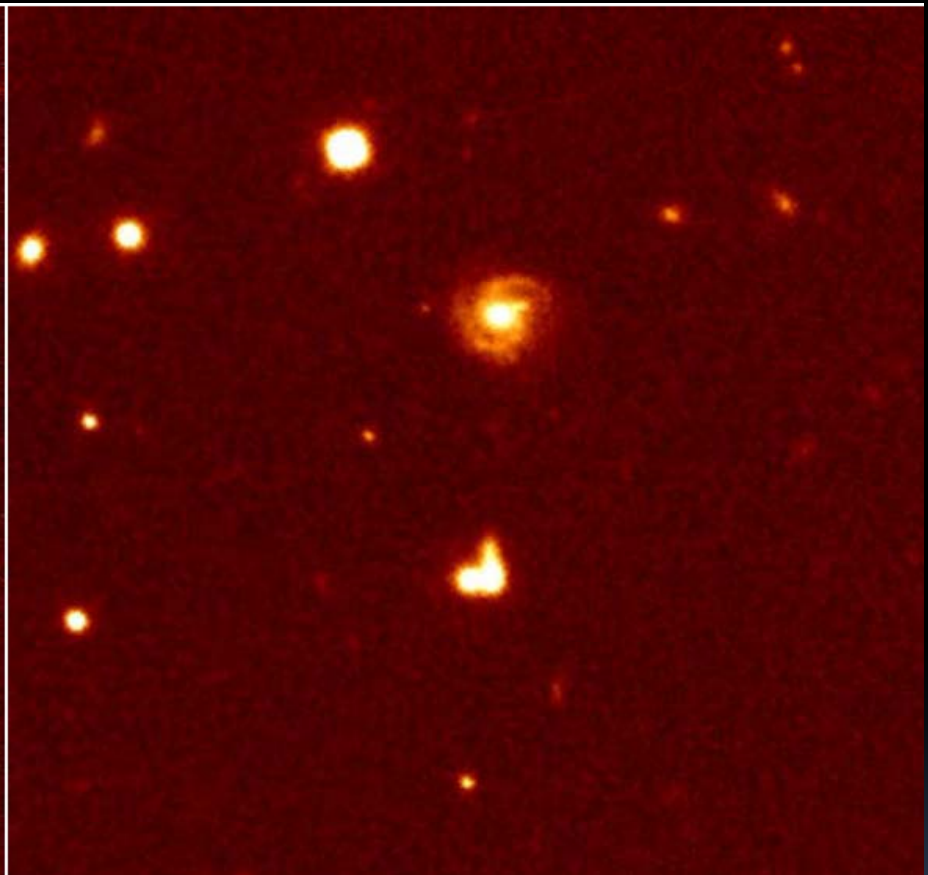
MOIRCS



~44''

ACS

MOIRCS



~44''

DEEP2 16h field (field2)

Field	FWHM (arcsec)	5sigma limit (2xFWHM)	(1.2" for conv.)	exposure (sec)
F01ch1	0.564	22.183	22.096	3960
ch2	0.564	22.040	21.964	3520
F02ch1	0.481	22.263	22.109	3780
ch2	0.481	22.314	22.147	3630
F08ch1	0.545	22.326	22.223	4650
ch2	0.539	22.295	22.148	4500
F09ch1	0.439	22.486	22.242	3750
ch2	0.440	22.490	22.228	3450
F15ch1	0.479	22.380	22.167	3915
ch2	0.486	22.415	22.190	3915
F16ch1	0.453	22.407	22.183	3660
ch2	0.449	22.377	22.141	3360

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Evolution of Stellar Mass / Dynamical Mass Ratio of intermediate- z galaxies

“back of the envelope analysis”

Summary

Welcome for collaborations
using the MOIRCS EGS data

11 x ~4'x7' FoV, ~middle of ACS AGS

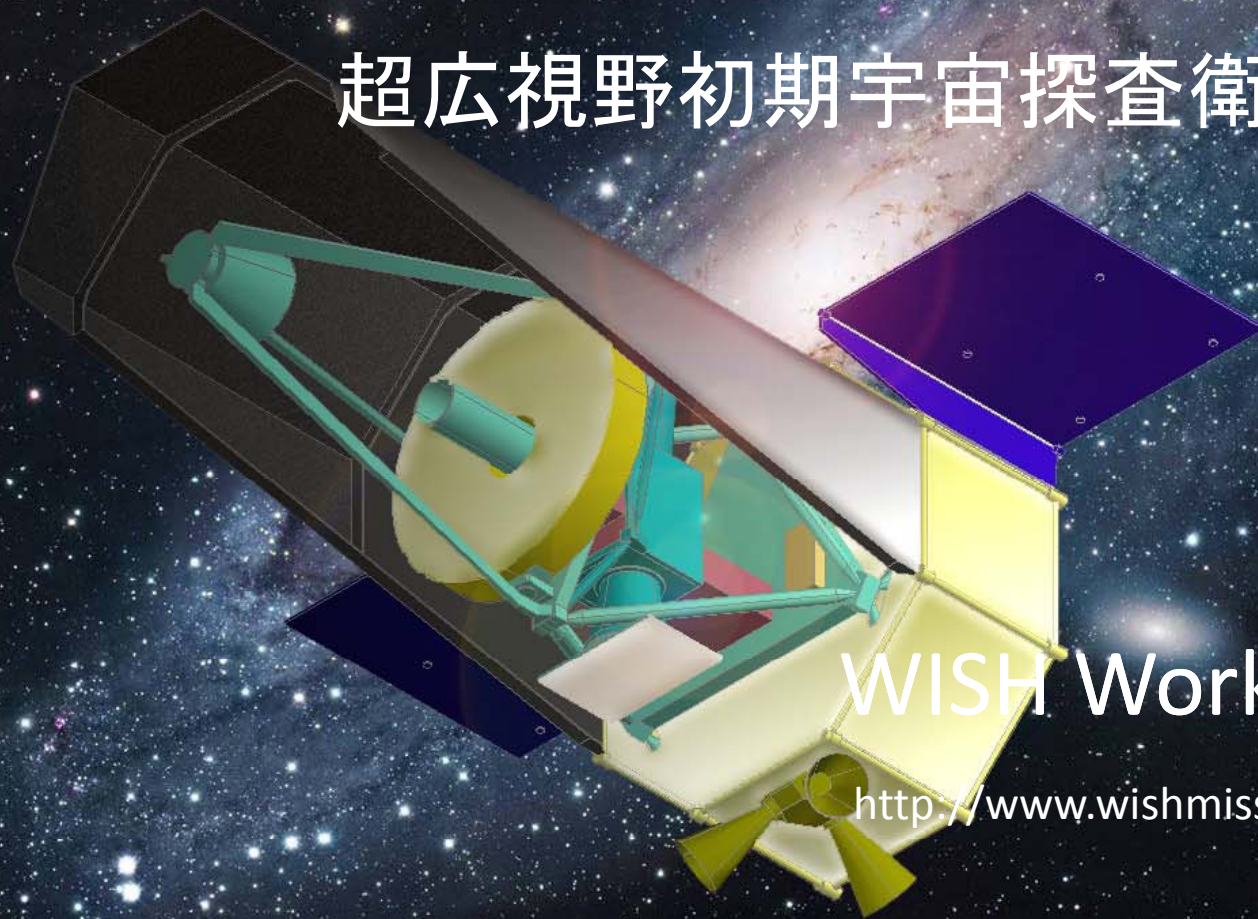
Ks ~ 22mag (Vega)

FWHM 0."4 - 0."6

WISH

Wide-field Imaging Surveyor for High-Redshift

超広視野初期宇宙探査衛星



WISH Working Group

<http://www.wishmission.org/en/index.html>