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University of Oulu

On the Multi-component Structures of Low-mass Galaxies in the Local Universe

SMAKCED

Stellar Masses and Kinematics of
Cluster Early-type Dwarf Galaxies

A. Boselli, M. Den Brok, J. Falcon-Barroso, J. Gorgas, K.S.A. Hansson,
G. Hensler, J. Janz, E. Laurikainen, T. Lisker, S. Meneses-Goytia, S.-M. Niemi,
S. Paudel, S. Pedraz, R.F. Peletier, A. Rys, H. Salo, E. Toloba

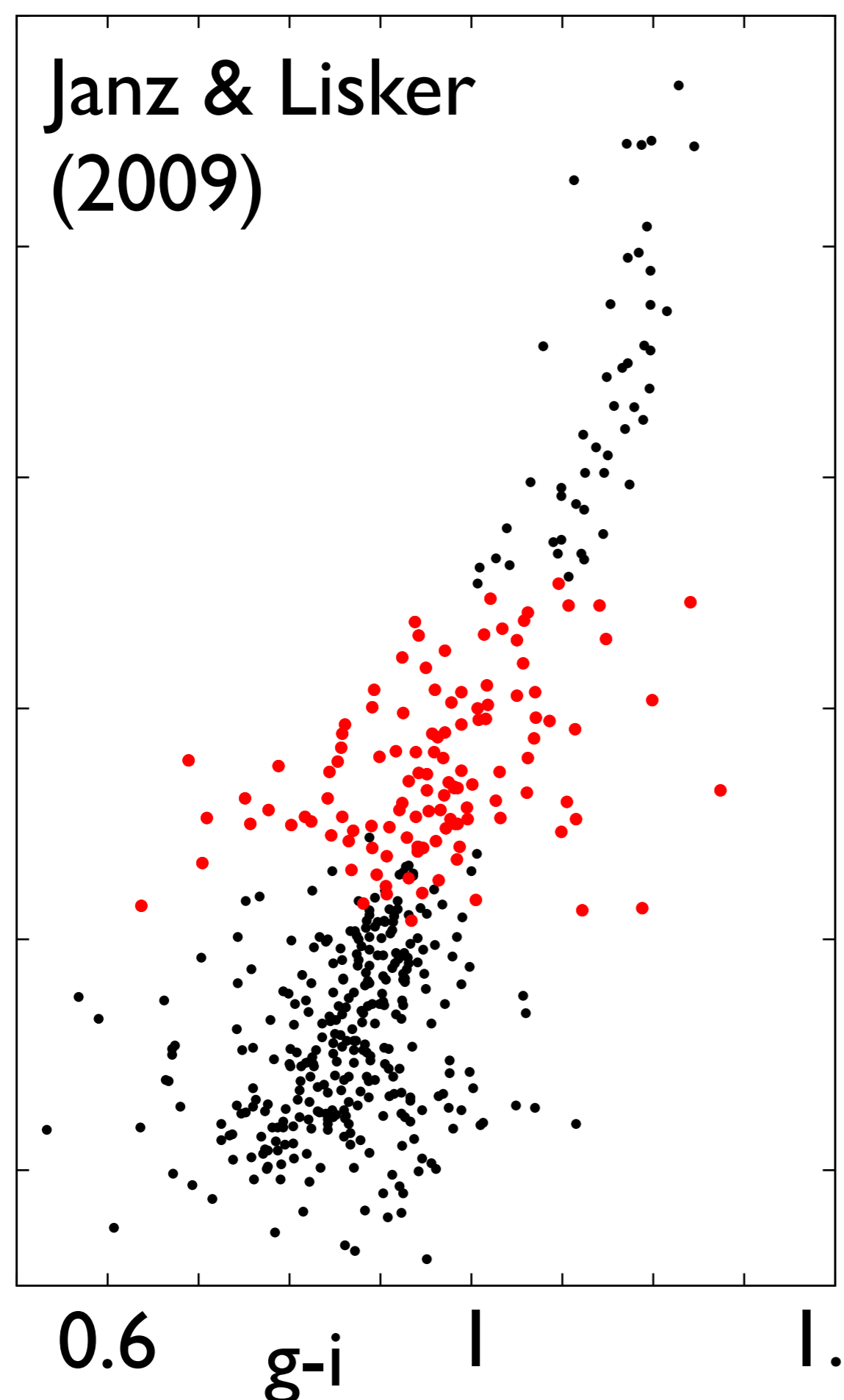
-24

-20

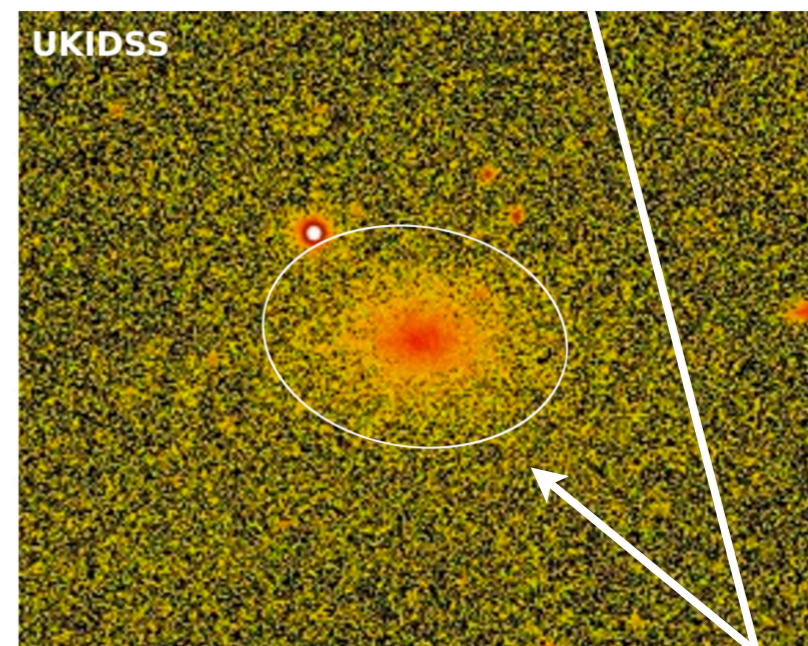
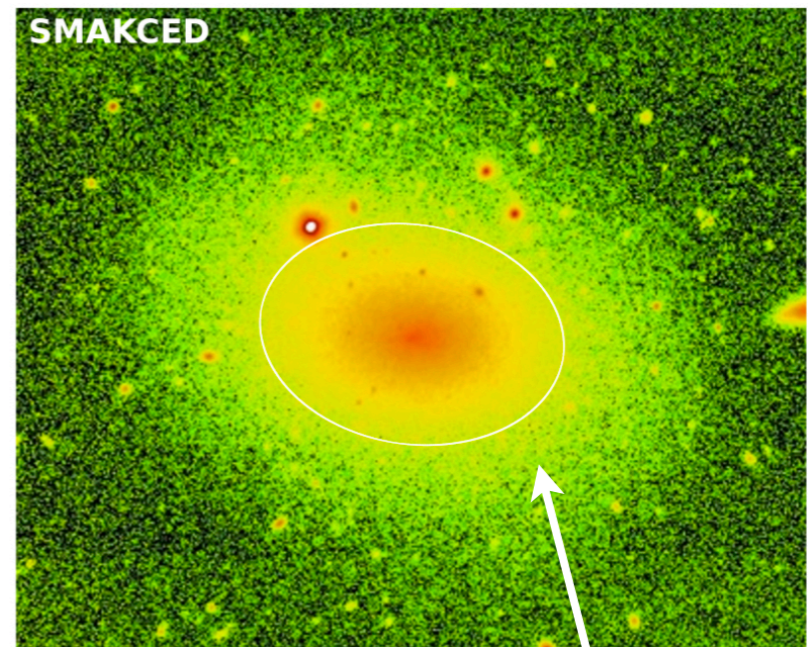
-16

M_r

Janz & Lisker
(2009)



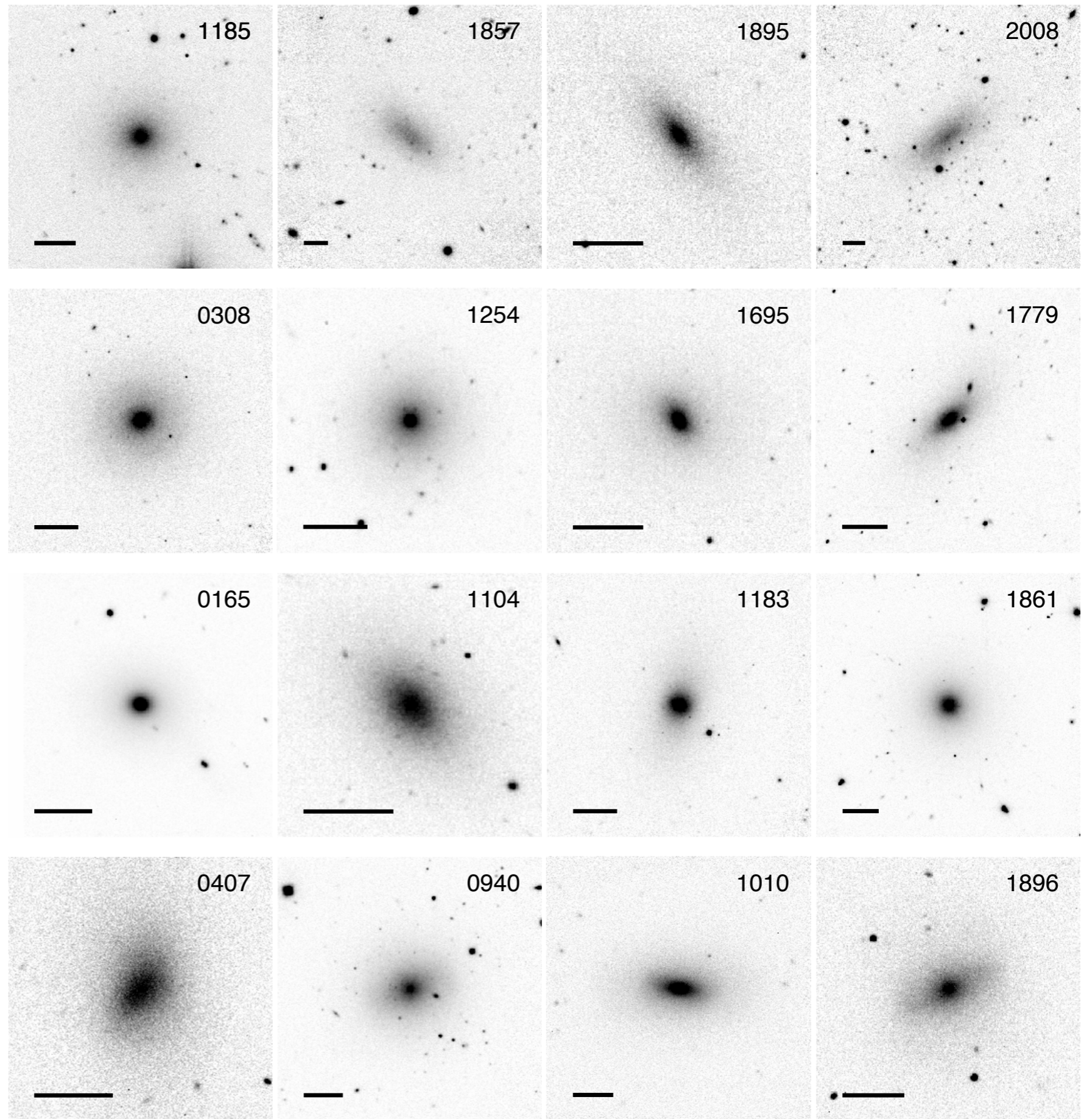
- Deep NIR Images (NTT, TNG, NOT)
- Complete down to $M_r = -16.76$ mag
- Janz et al. (2012) & Janz et al. (2013)



optical r_e

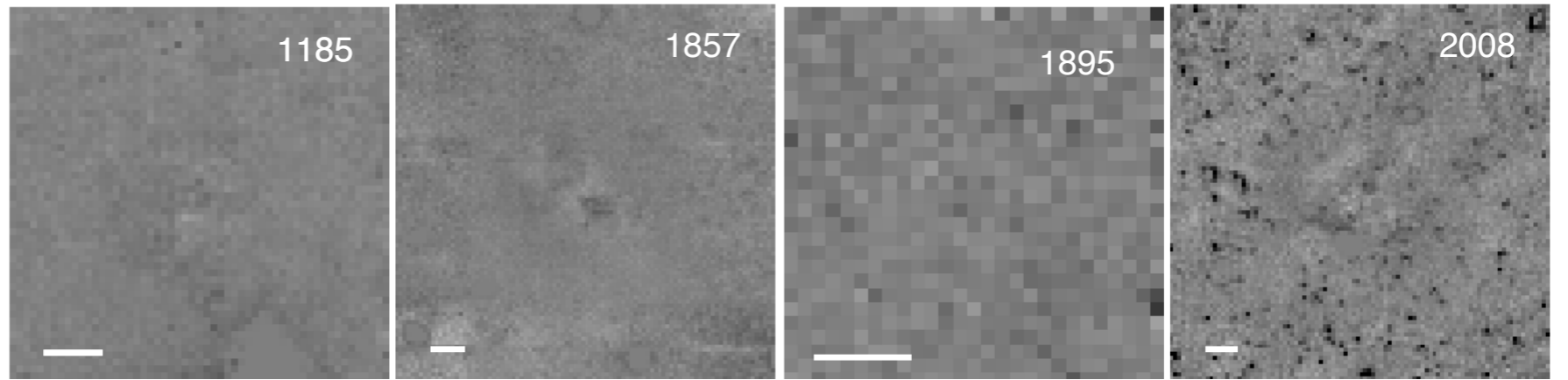
(Janz & Lisker, 2008)

rulers = 20''

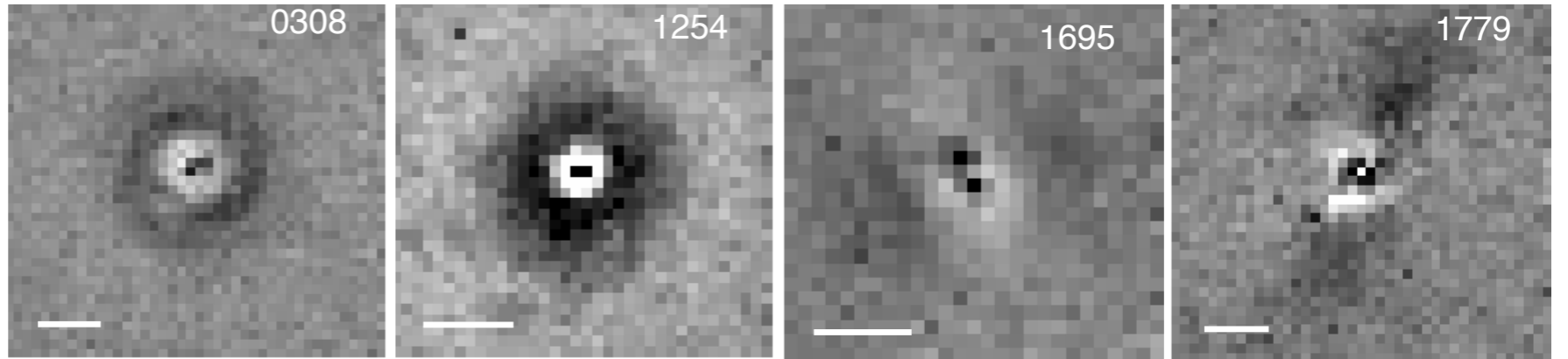


rulers = 20''

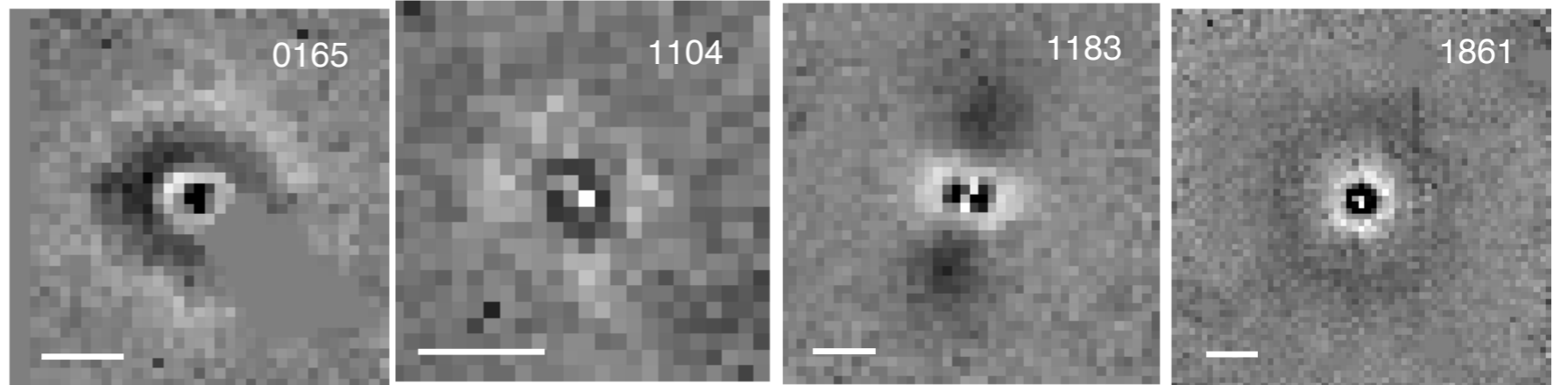
Simple



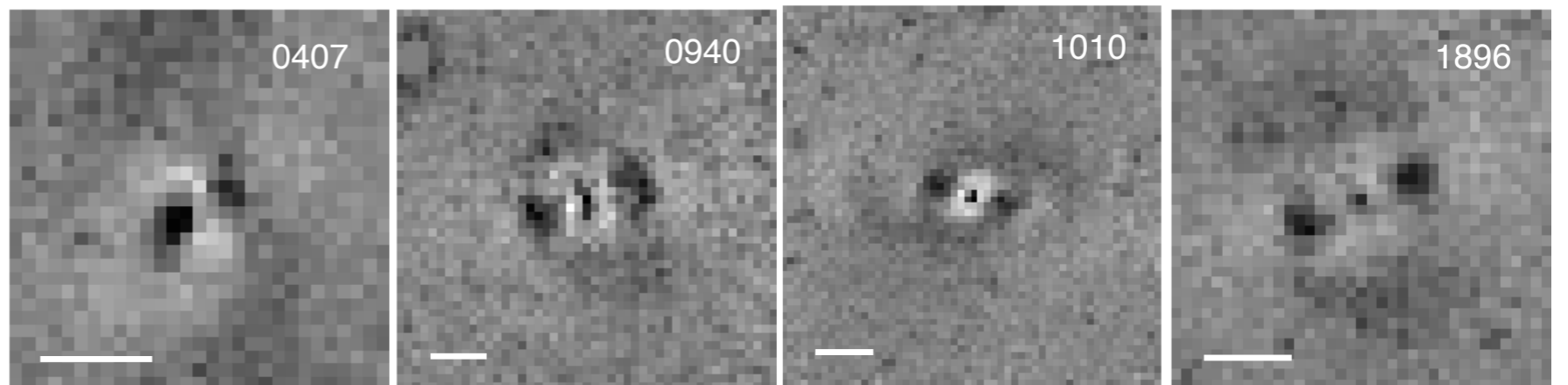
Complex



Complex

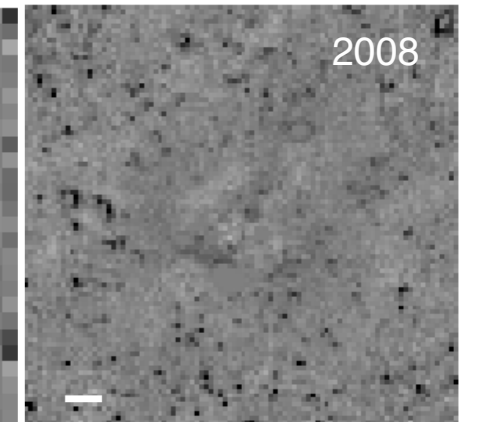
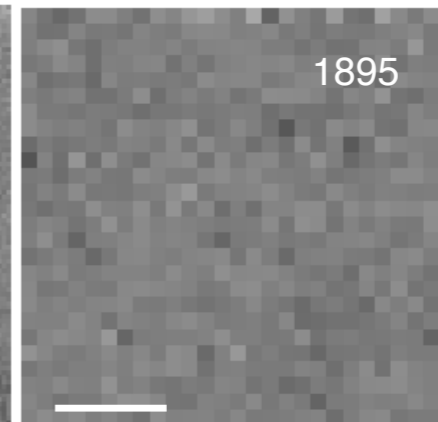
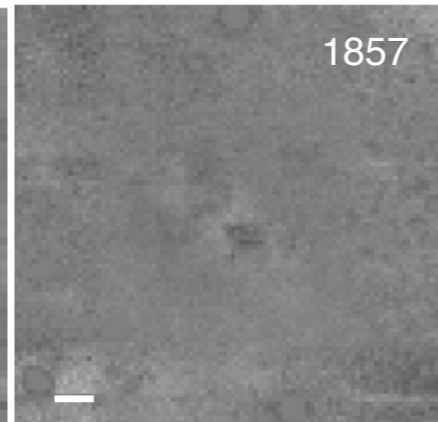
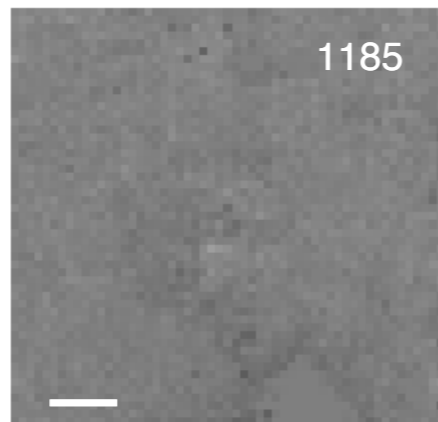


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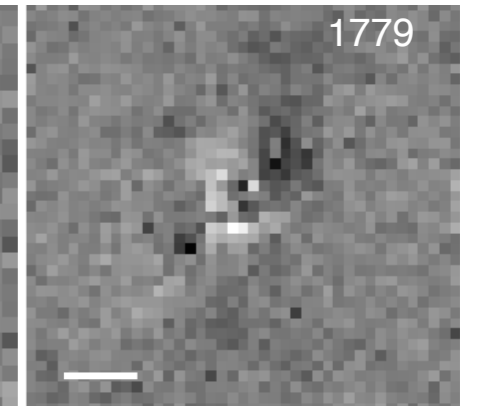
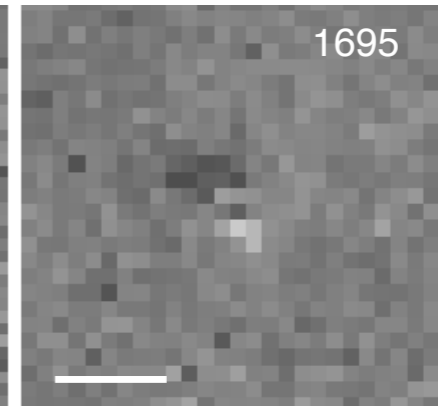
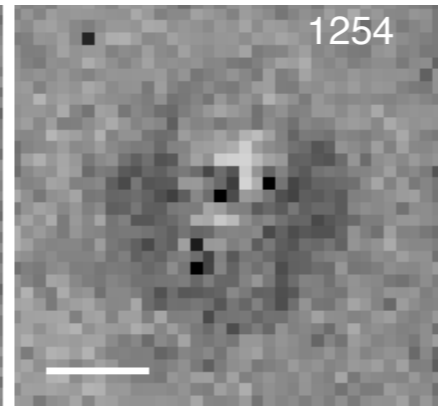
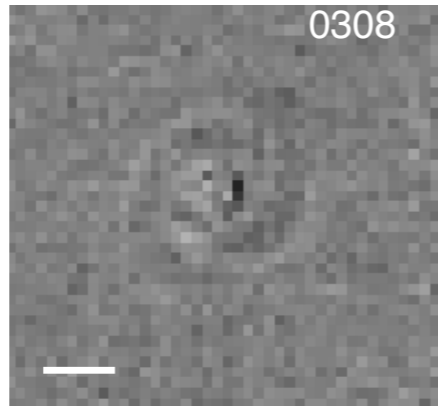


rulers = 20''

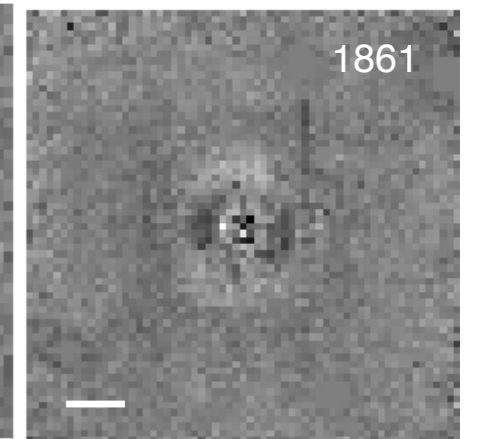
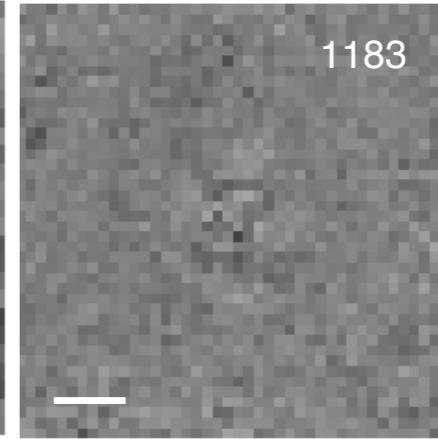
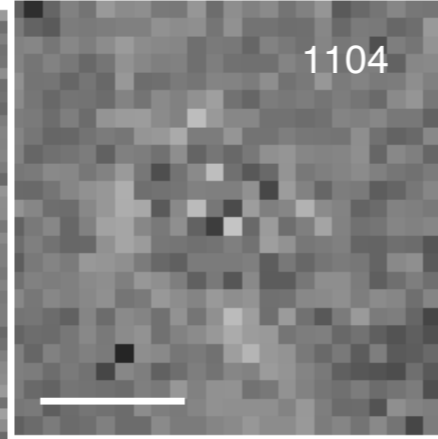
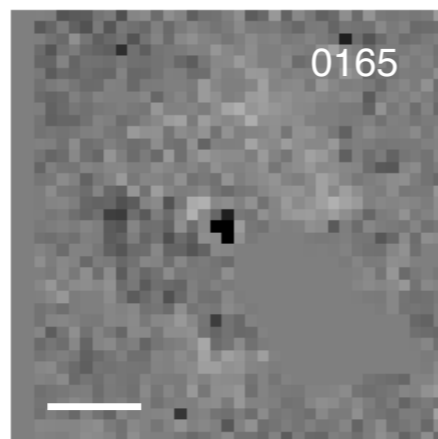
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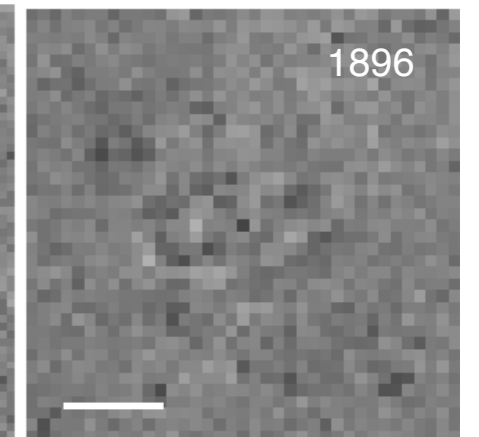
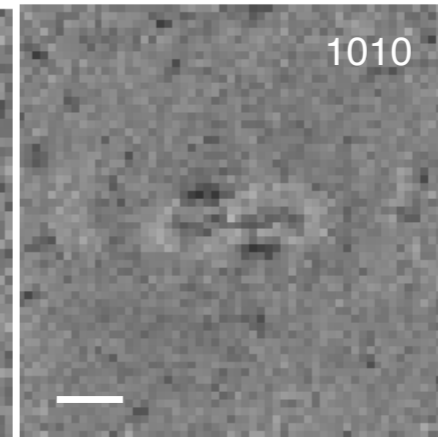
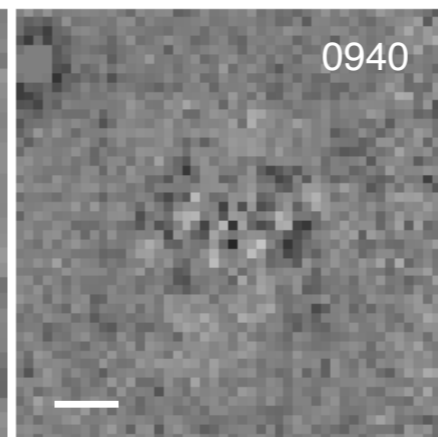
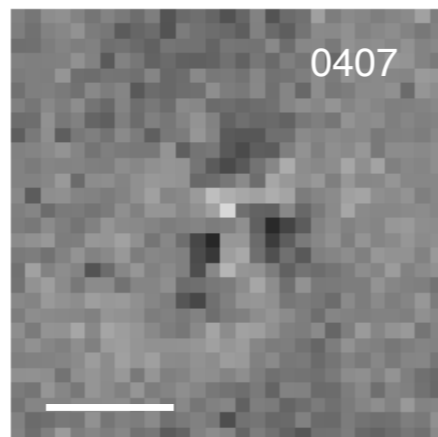
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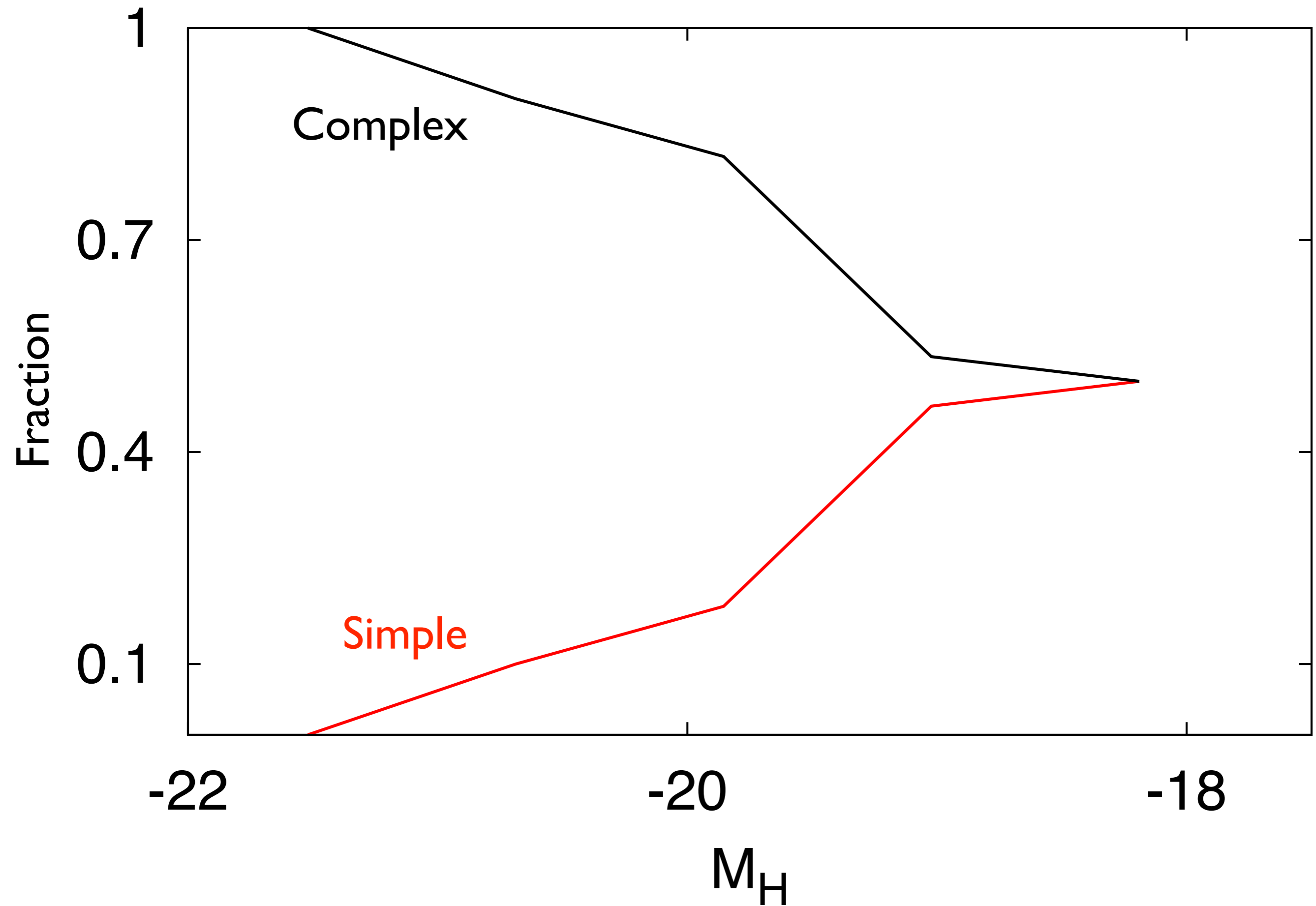


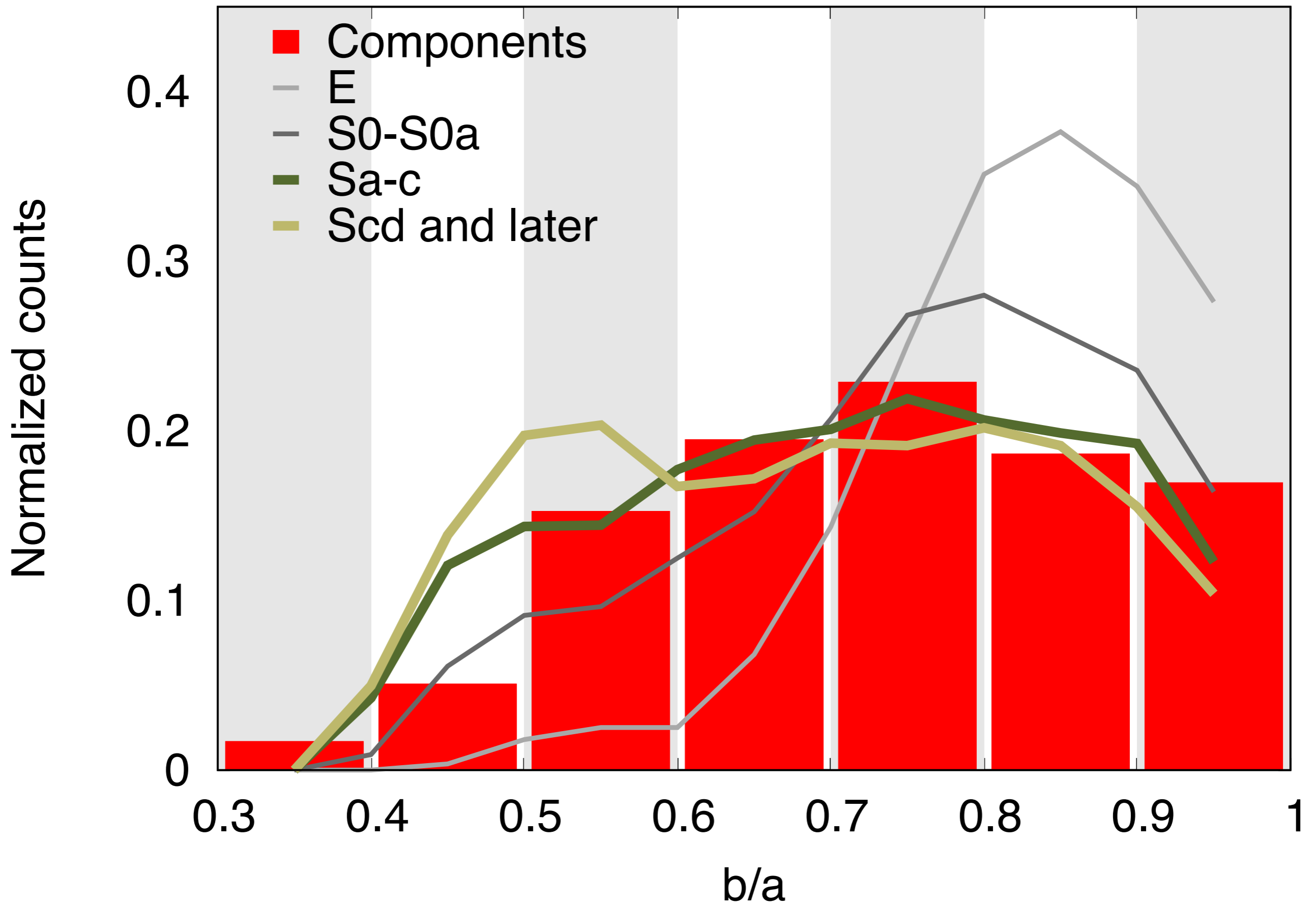
Complex



Complex

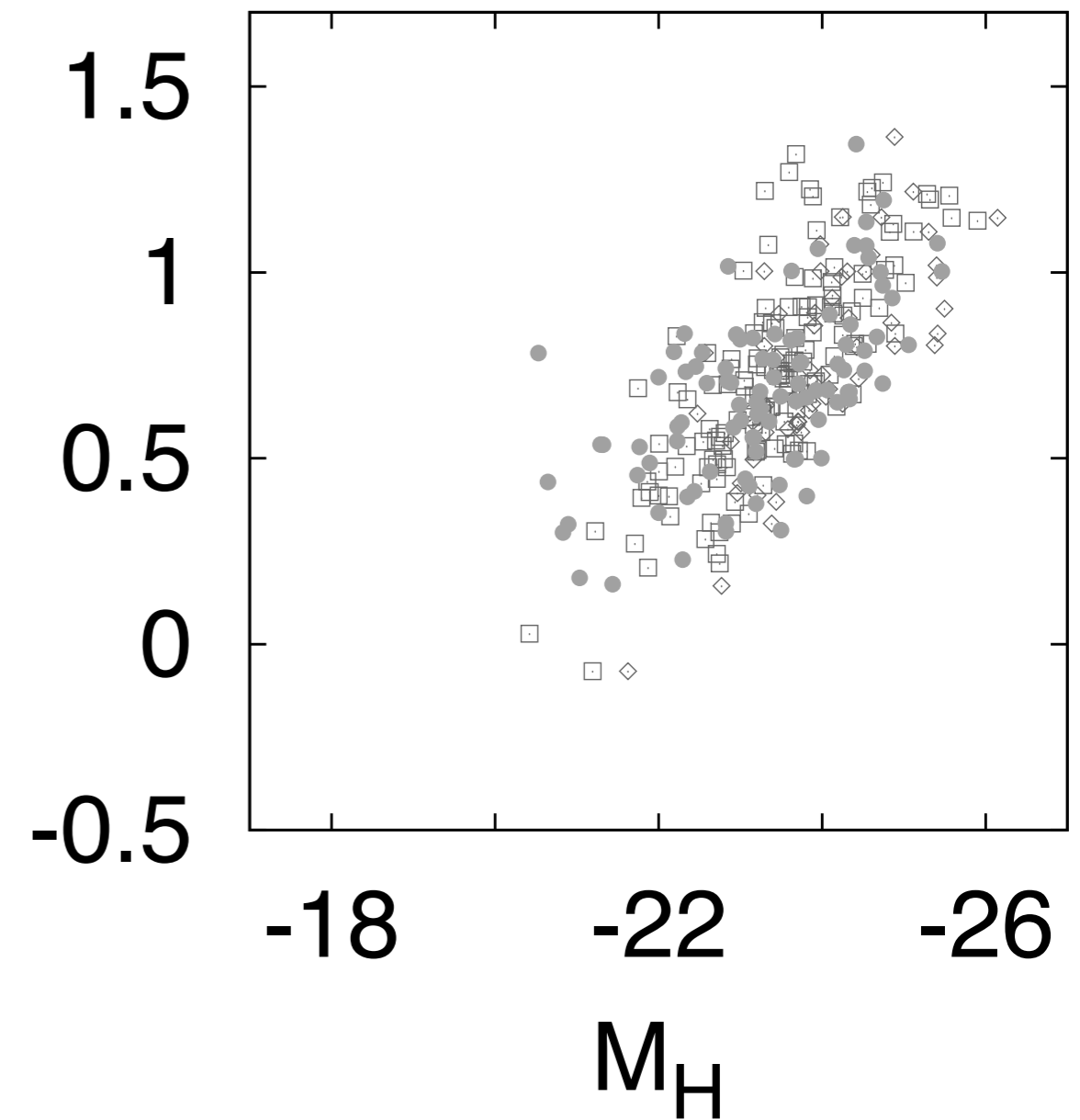
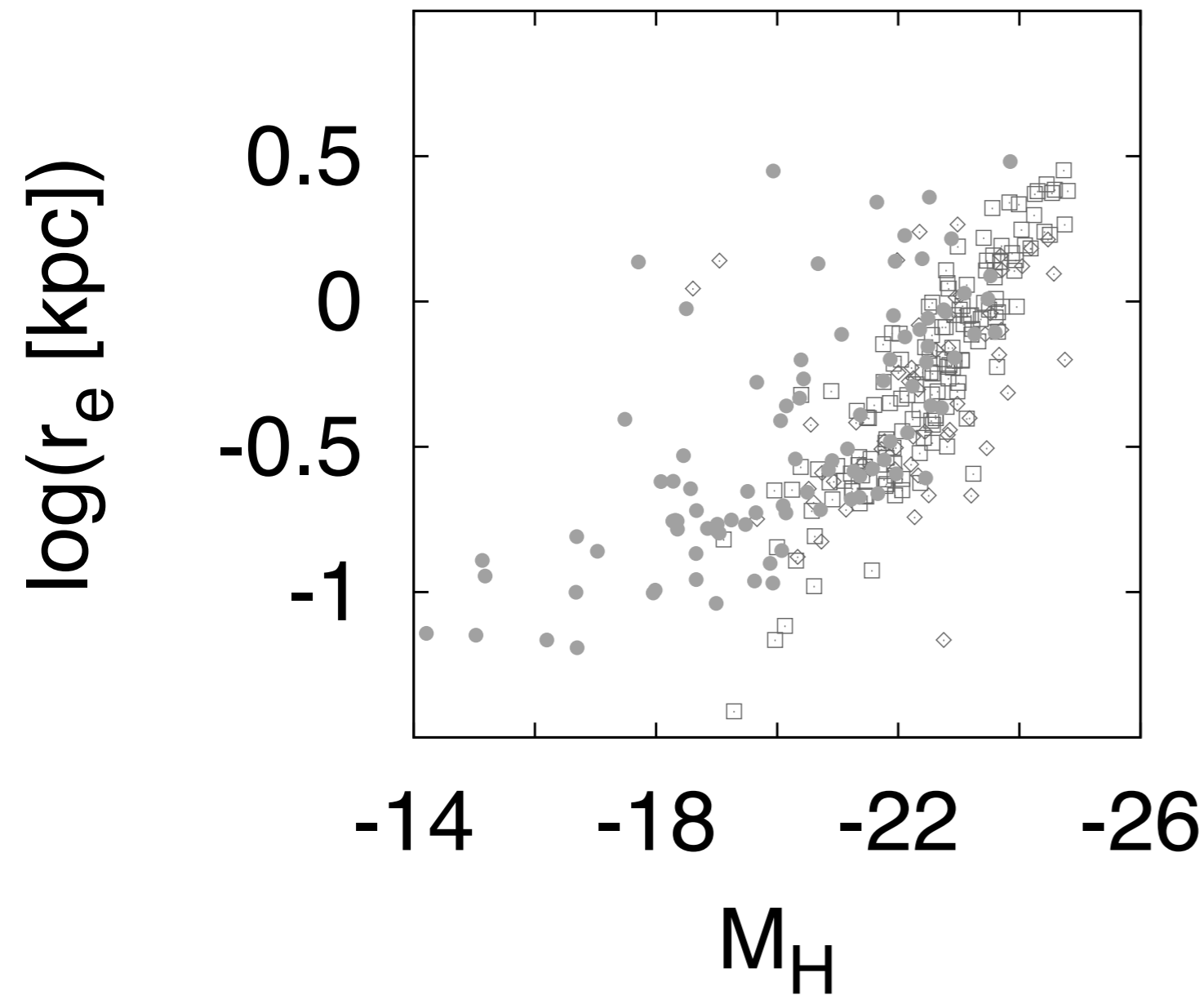






Inner

Outer



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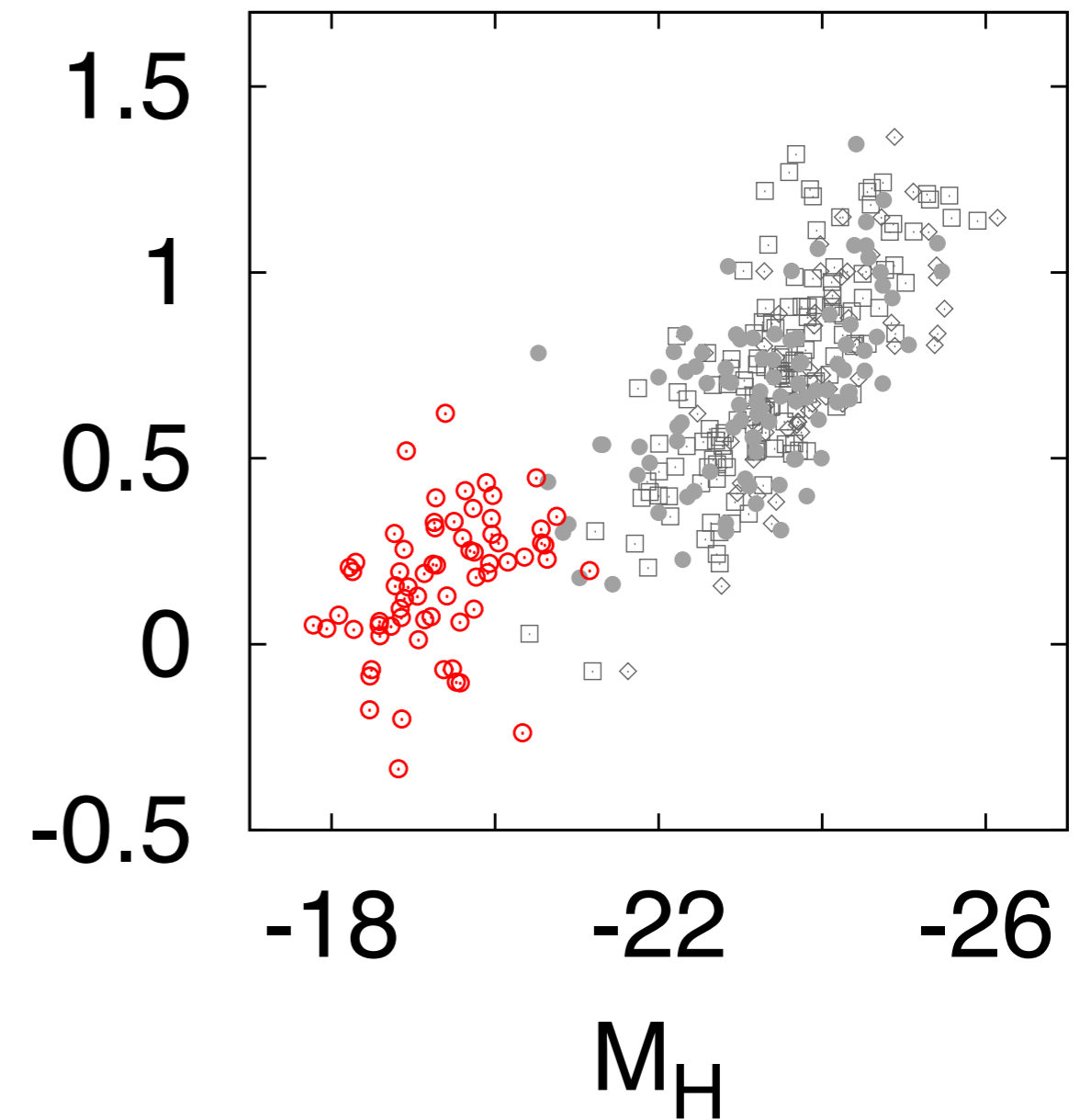
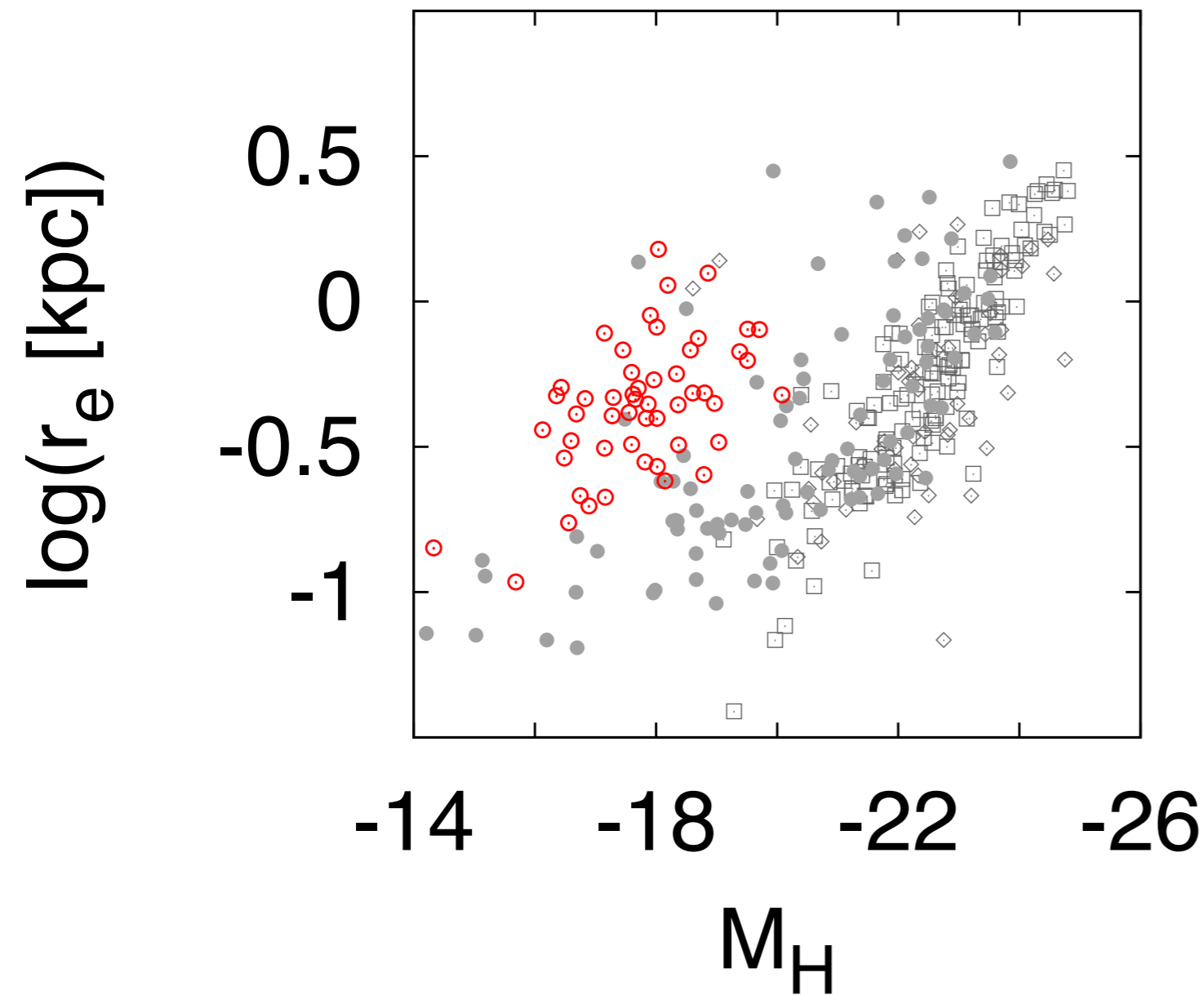
Laurikainen +04, +11

Virgo early-type dwarfs

Lenticular and spiral galaxies

Inner

Outer



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Laurikainen +04, +11

Virgo early-type dwarfs

Lenticular and spiral galaxies

Spitzer Survey of Stellar Structure in Galaxies

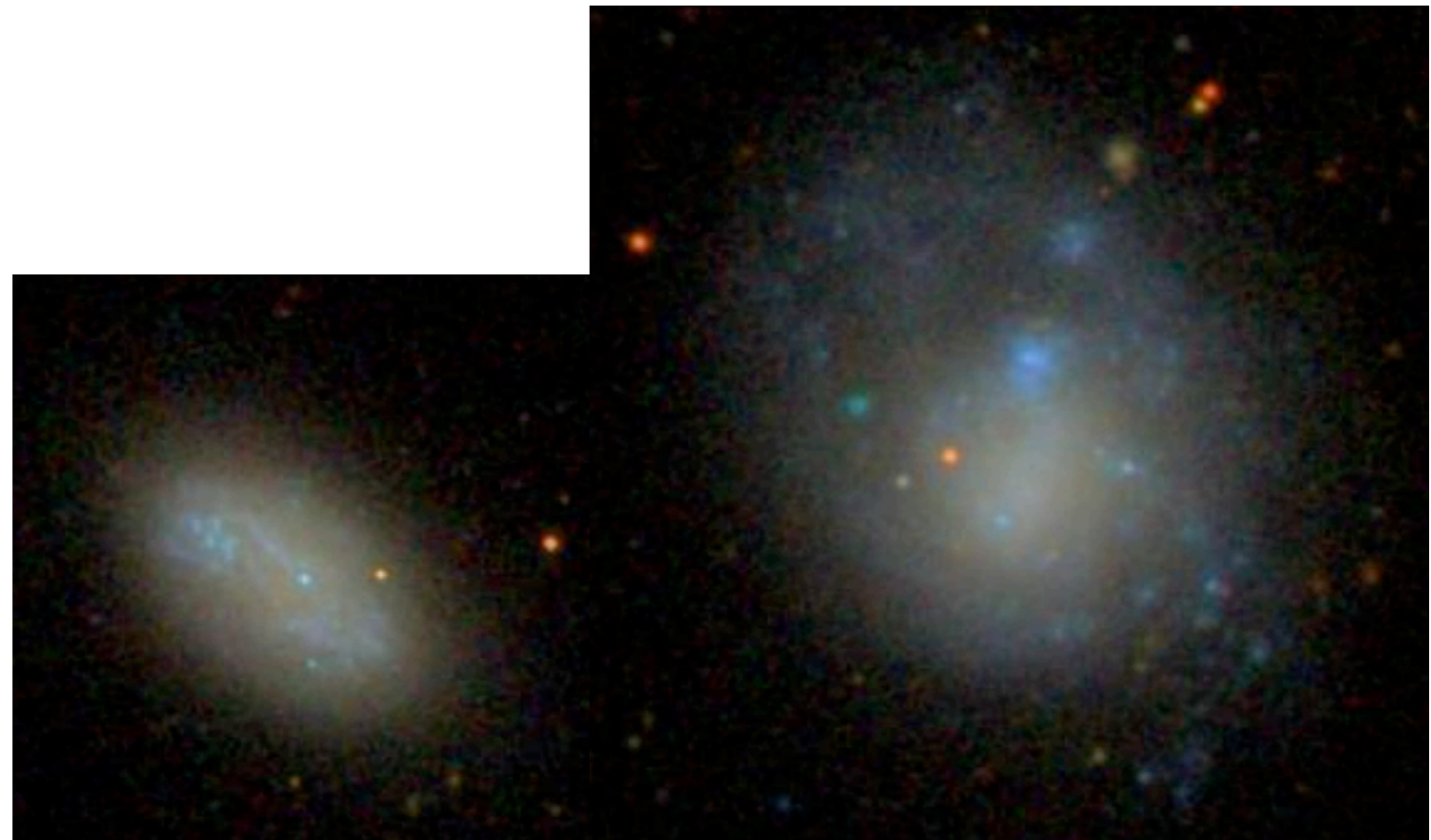
PI Kartik Sheth, Sheth et al. 2010

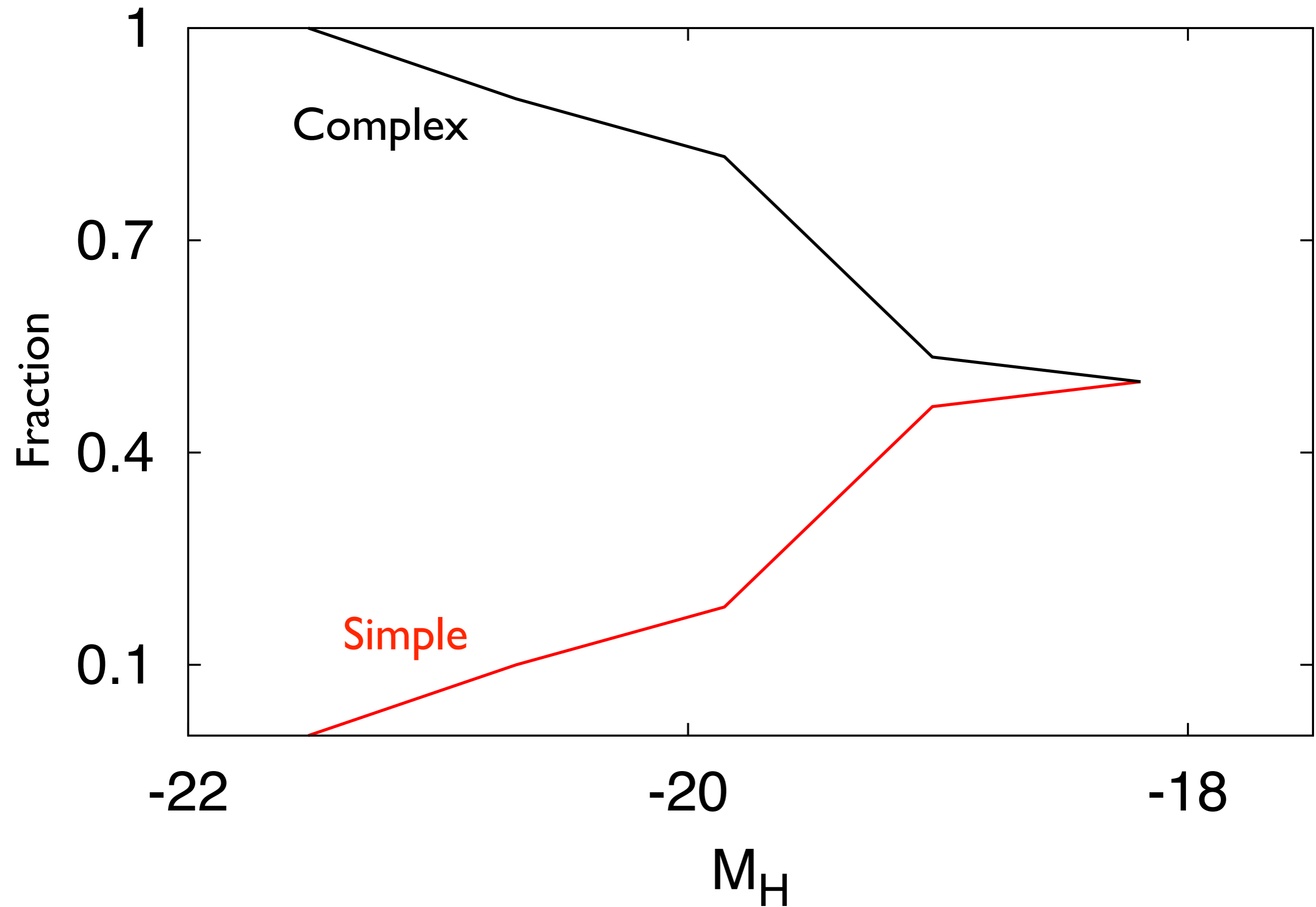


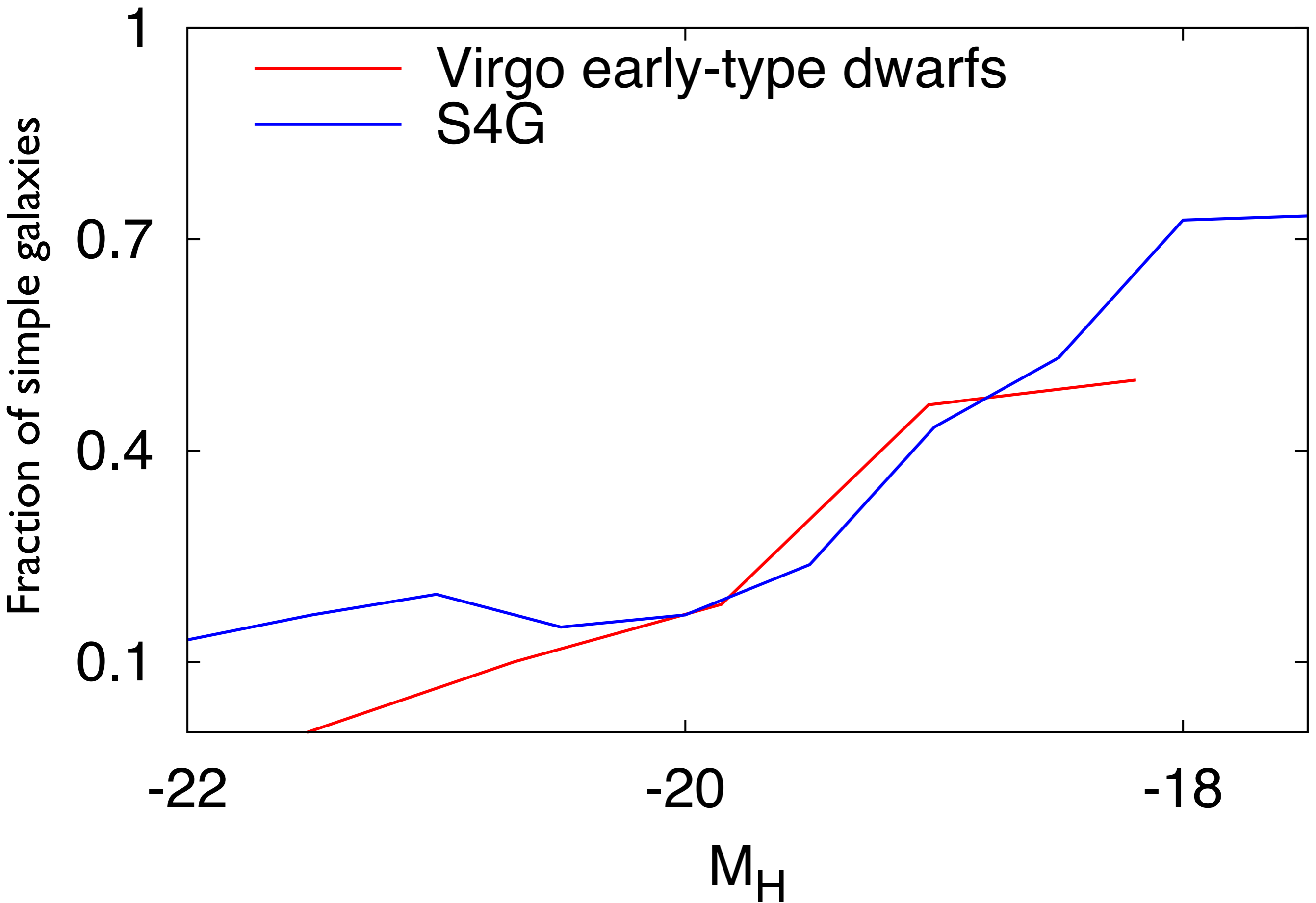
deep 3.6 (and 4.5) micron images for > 2000 galaxies in the Local Universe.

Pipeline 4, people in Oulu, Salo et al. 2014:

Decompositions

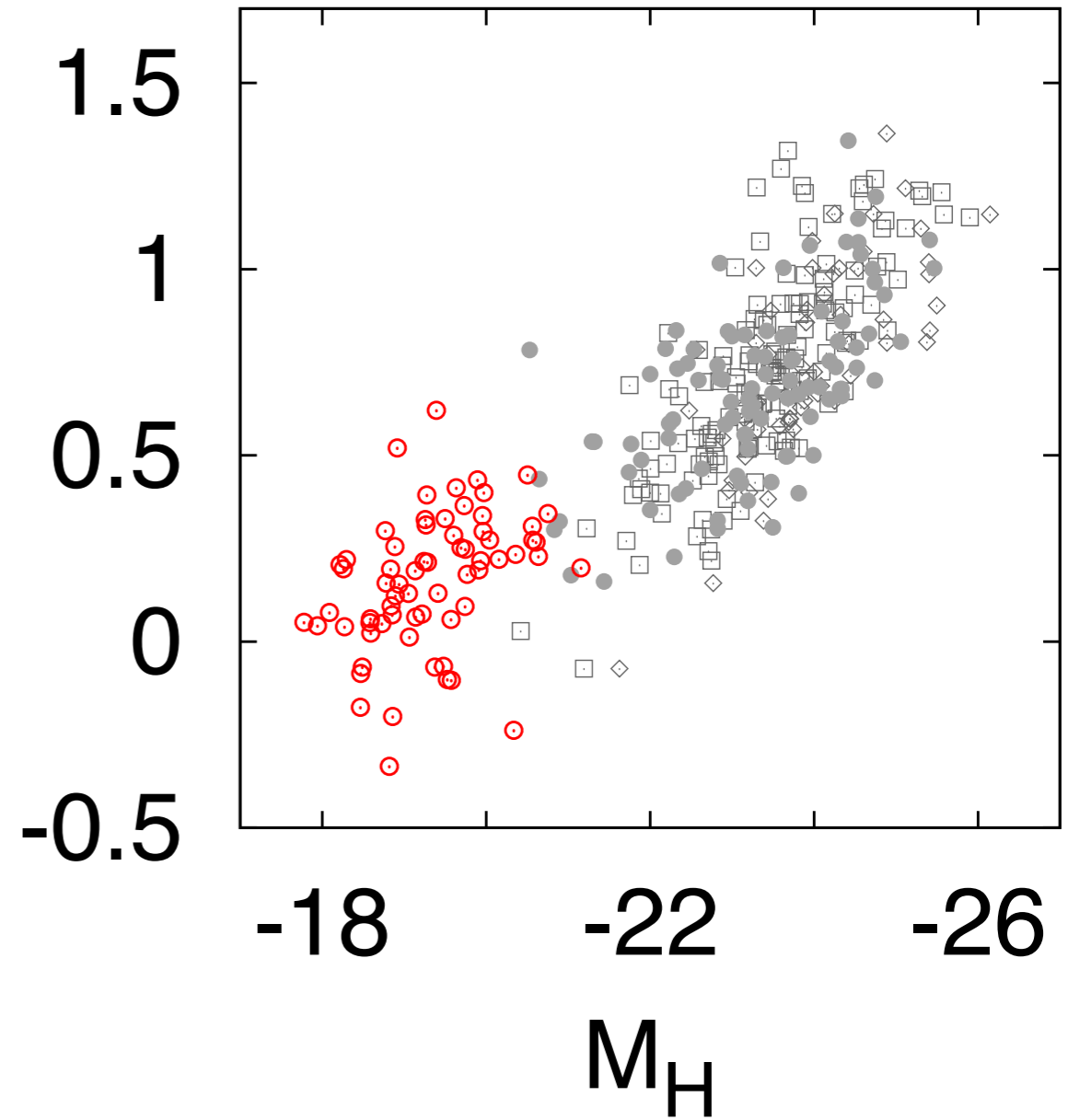
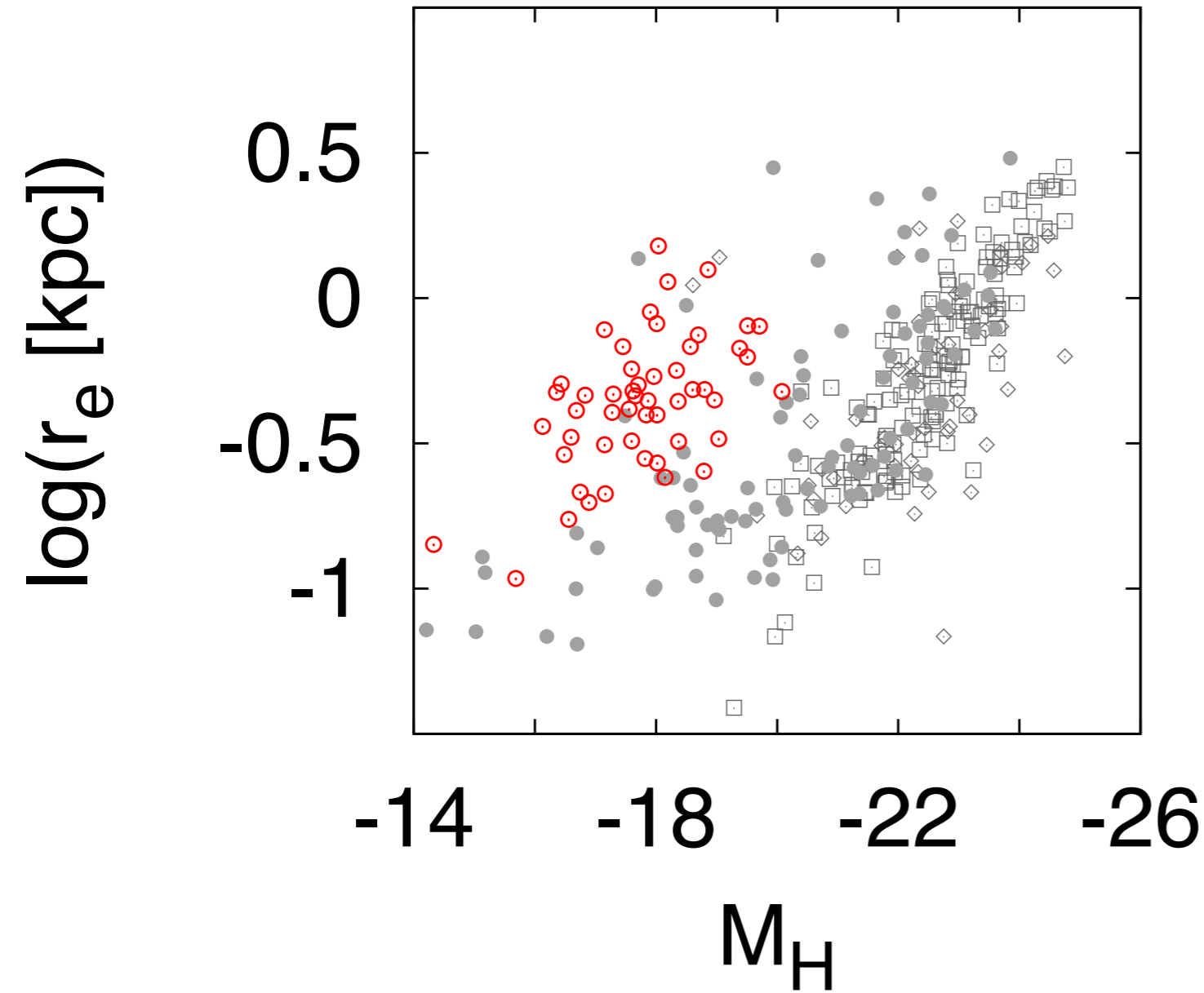






Inner

Outer



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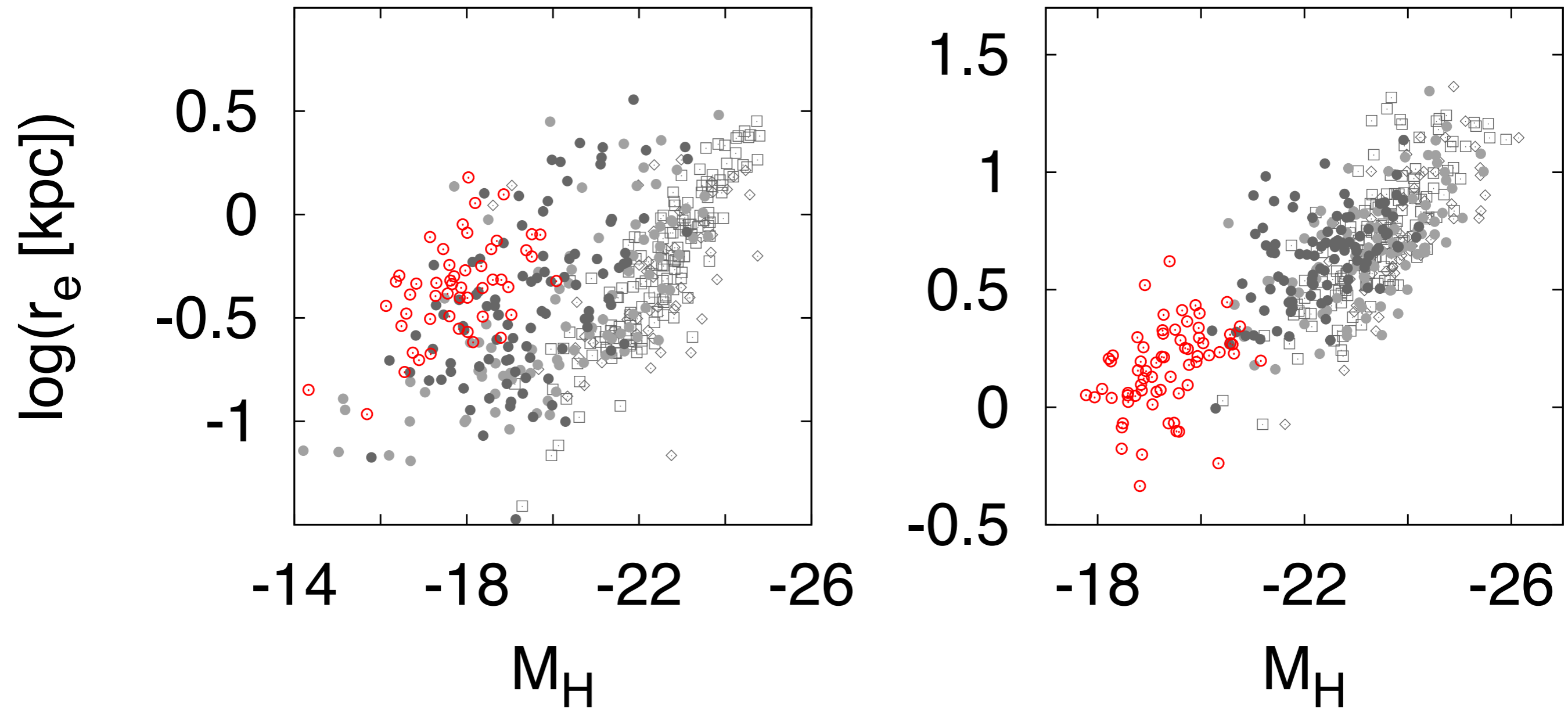
Virgo early-type dwarfs

Laurikainen +04, +11

Lenticular and spiral galaxies

Inner

Outer



SMAKCED

Laurikainen +04, +11

Salo +14

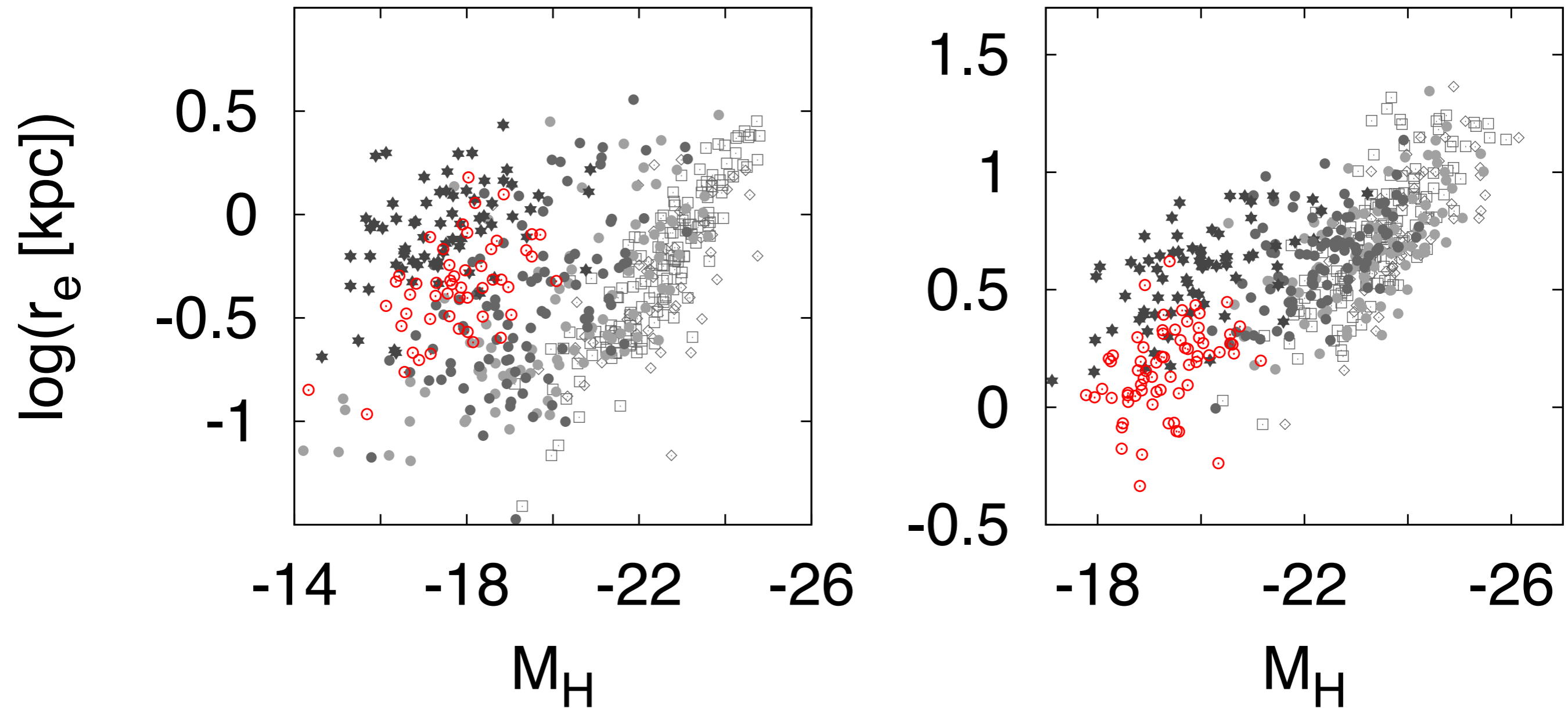
Virgo early-type dwarfs

Lenticular and spiral galaxies

S4G Sbc, Sc

Inner

Outer



SMAKCED

Laurikainen +04, +11

Salo +14

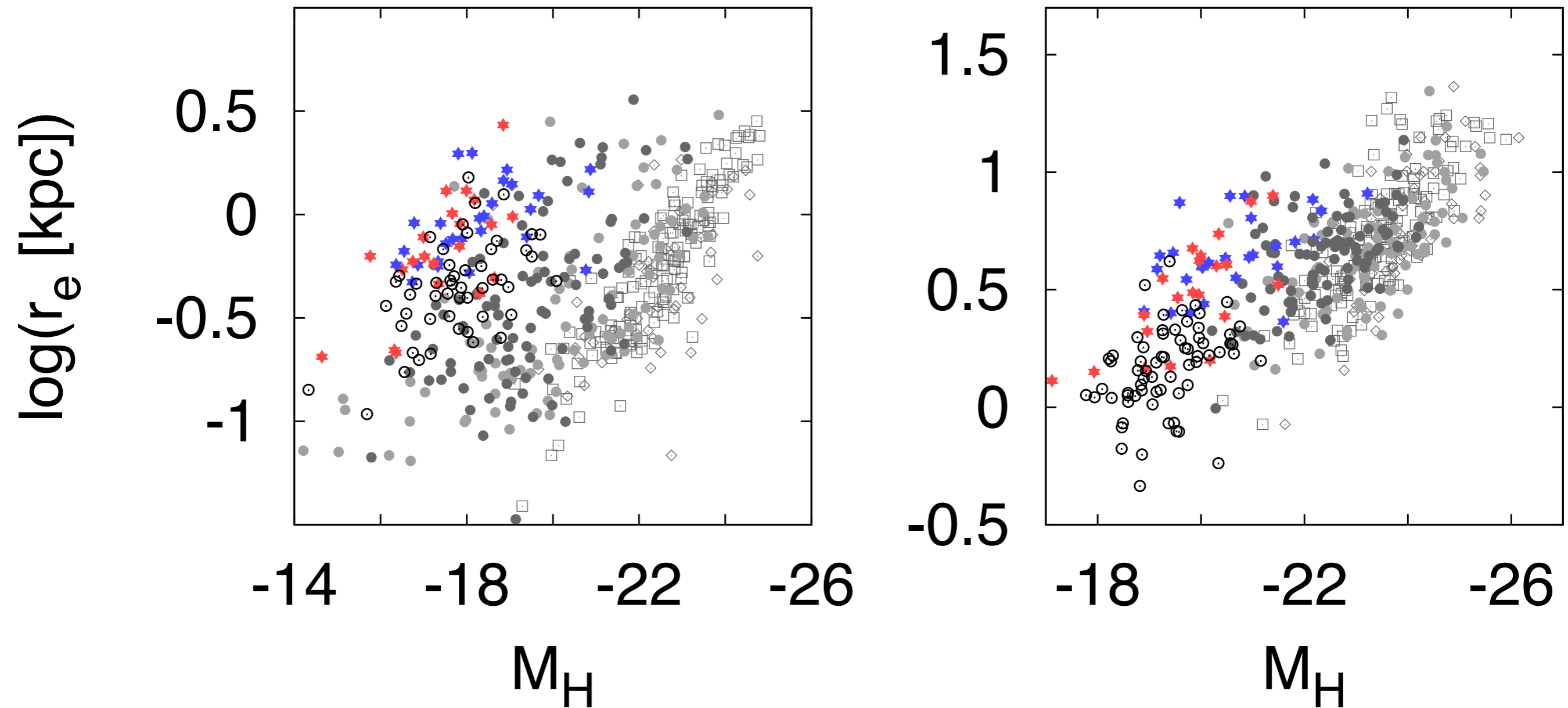
Virgo early-type dwarfs

Lenticular and spiral galaxies

S4G Sbc, Sc, and later

Inner

Outer



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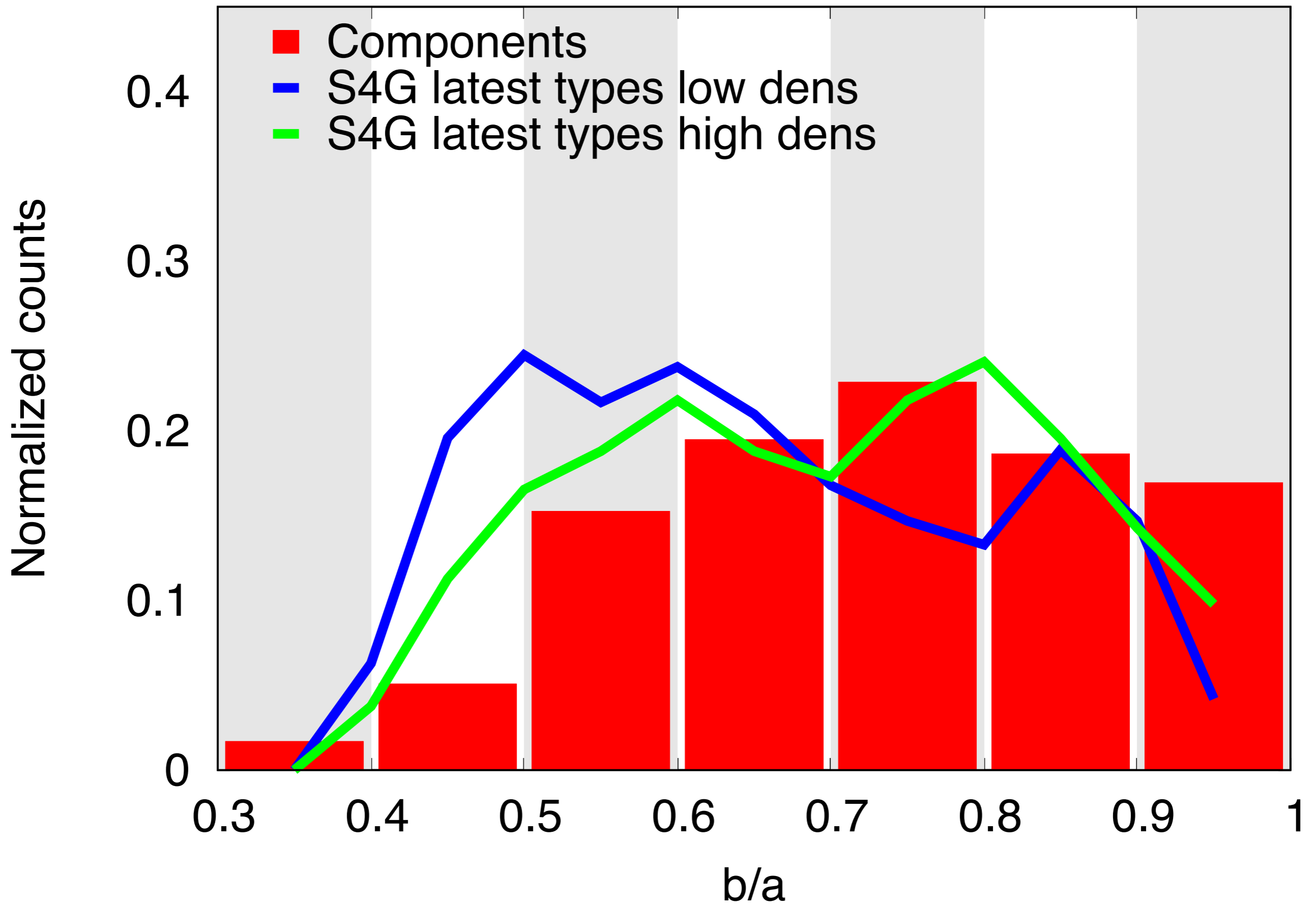
Laurikainen +04, +11

Salo +14

Virgo early-type dwarfs

Lenticular and spiral galaxies

S⁴G Sbc, Sc; later: **low** and **high**
local galaxy density



Summary

- More structure in Virgo early-type dwarfs
- One way to explain them could be that they are parts of disks

Janz et al. 2012, ApJ, 745, L24

Janz et al. 2013, ApJ, in press, arxiv:1308.6496

<http://www.smakced.net/data.html>

- Intriguing to compare to low-mass late types