Luminosity function of galaxies in groups in the SDSS DR7

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Group Identification

- FoF algorithm (Huchra & Geller 1982, Merchán & Zandivarez 2002, 2005)
- V_0= 200 km/s ; $\delta\rho/\rho$= 200
- Double identification (Diaz-Gimenez et al. 2005)
- Iterative group centre algorithm.

The Galaxy Group Catalogue

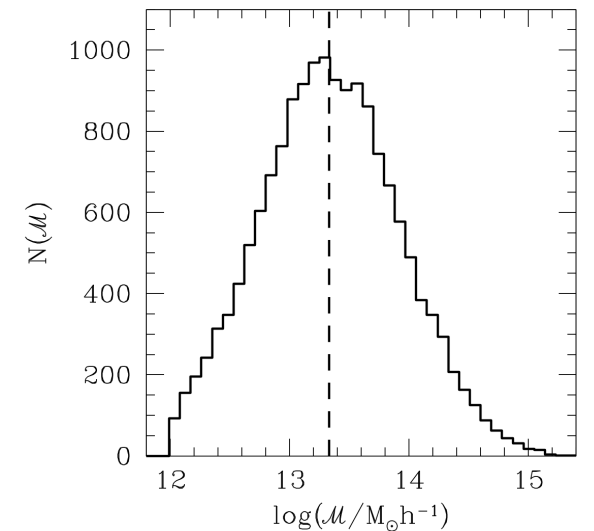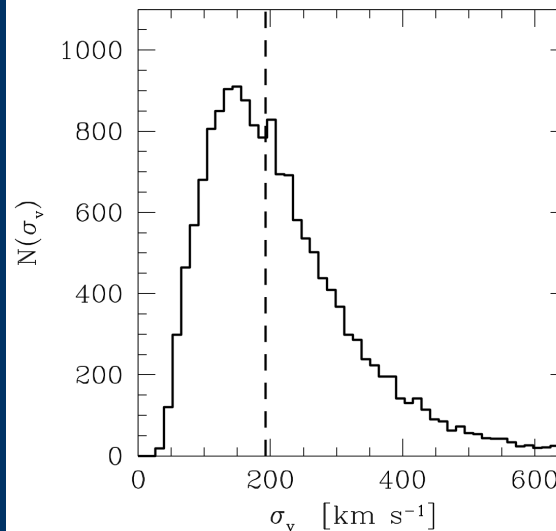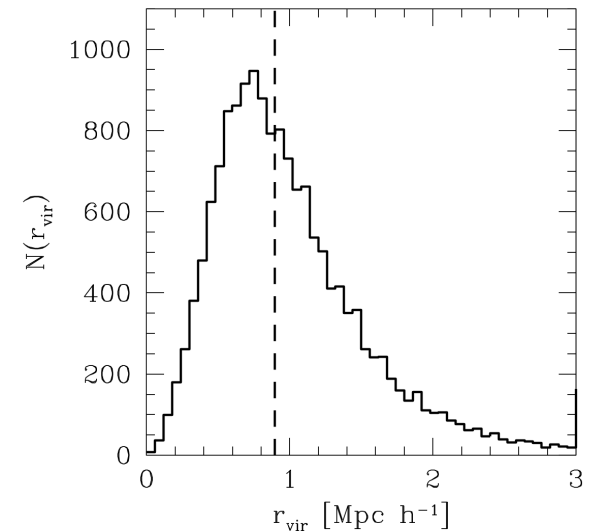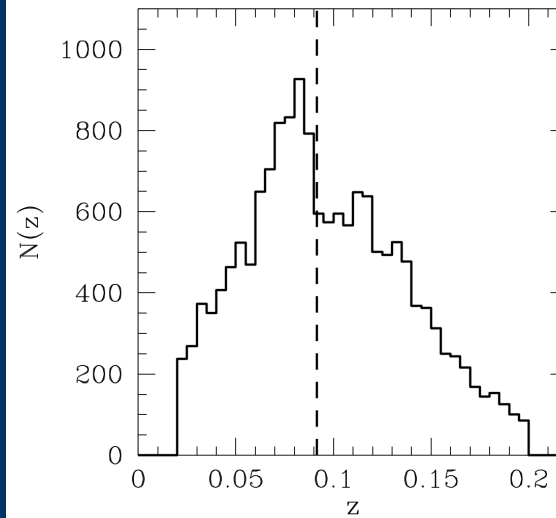- 15,961 groups N>4
- 103,342 group galaxies
- Median values:

z = 0.09

r_{vir} = 0.9 Mpc h^{-1}

σ_v = 193 km/s

M_{vir} = 2.1 x 10^{13} M$_{sun}$ h^{-1}
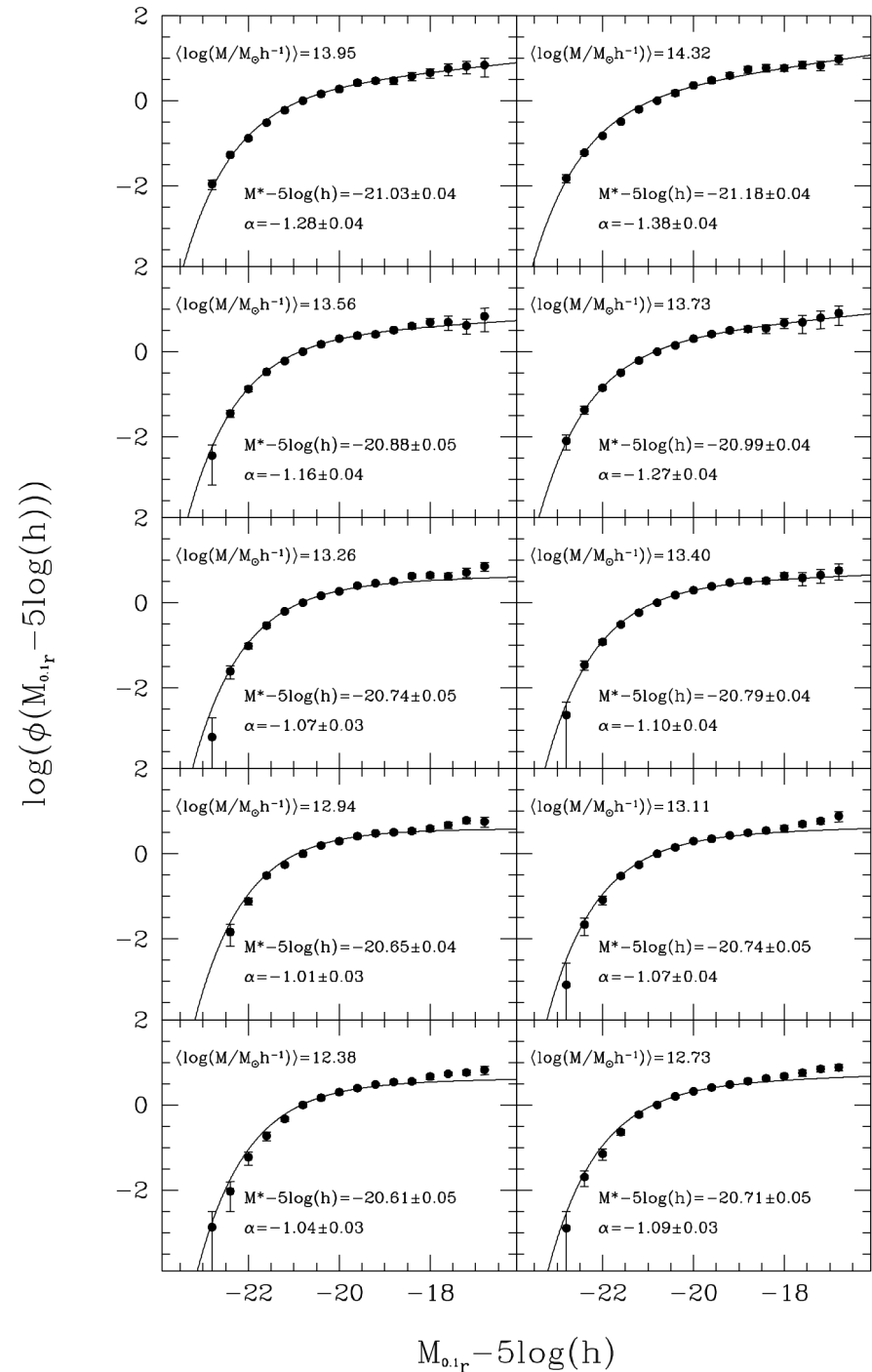
- K-corrected mag. to z=0.1

*LF vs M*vir

C- method (Lynden-Bell 1971)

STY method (Sandage, Tammann & Yahil 1979)

Schechter (1976)
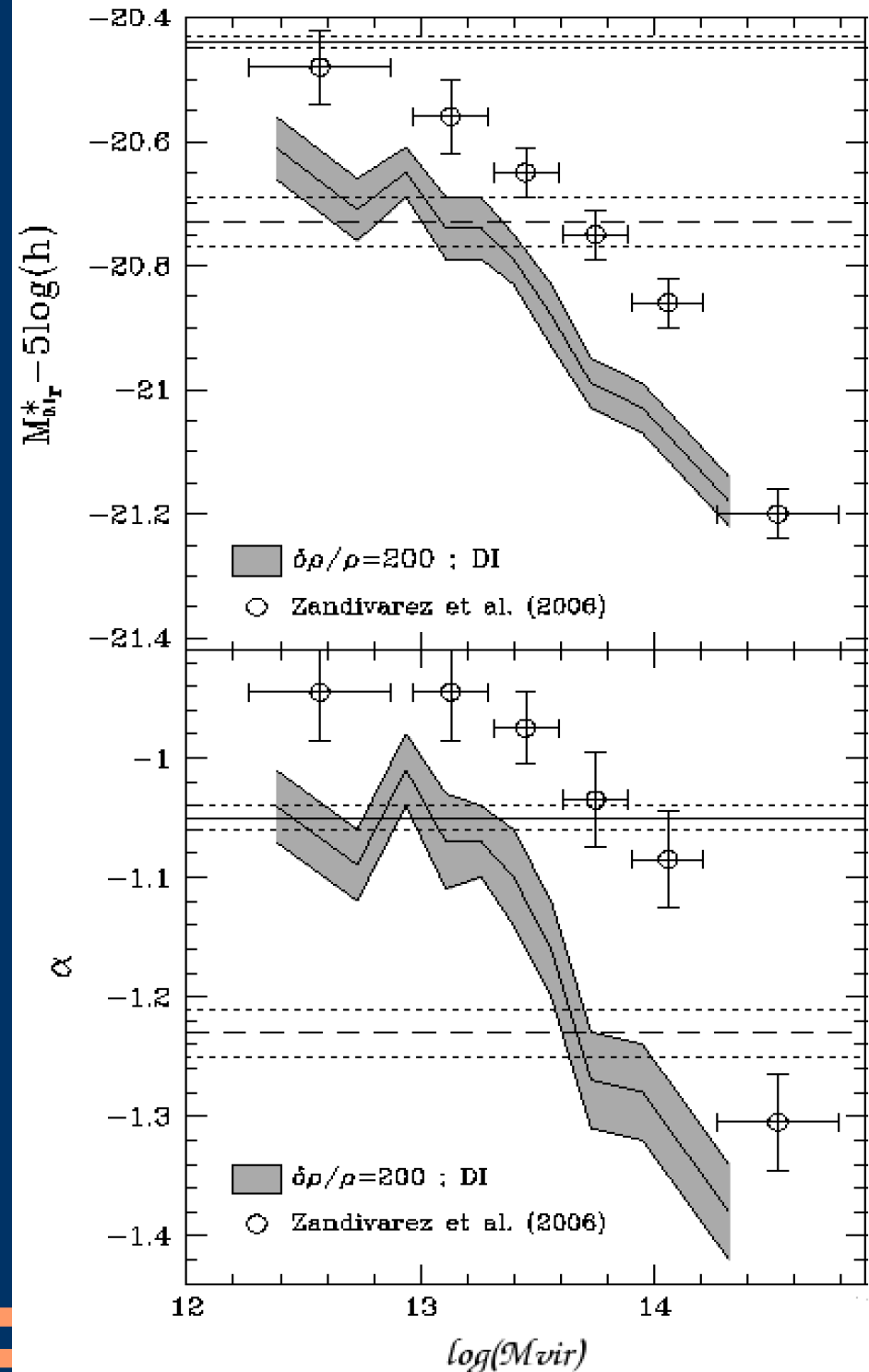
LF Schechter parameters

M* = characteristic absolute
   magnitude

α = faint-end slope
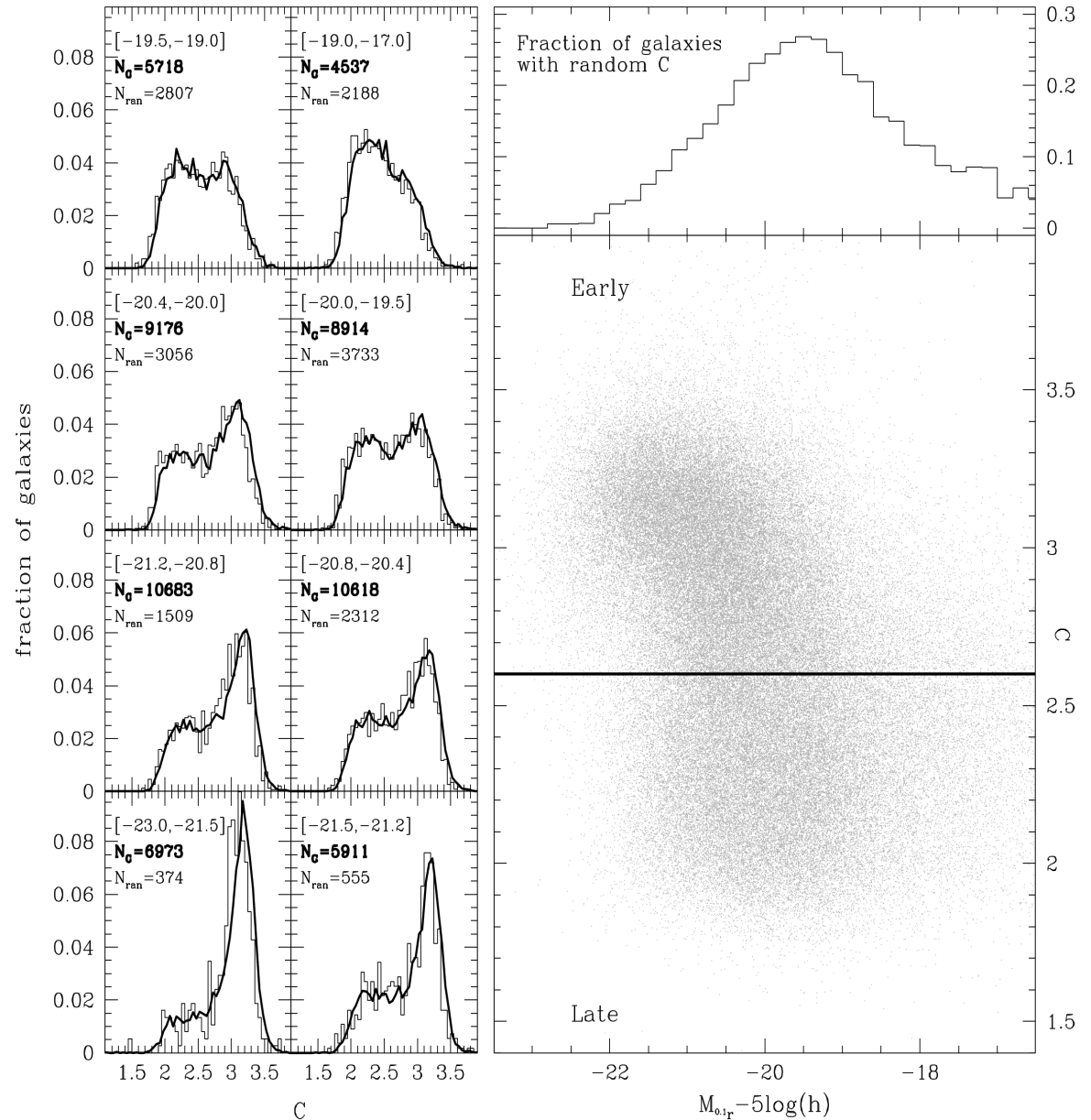
Field LF

Blanton et al (2003)
Montero-Dorta & Prada (2009)
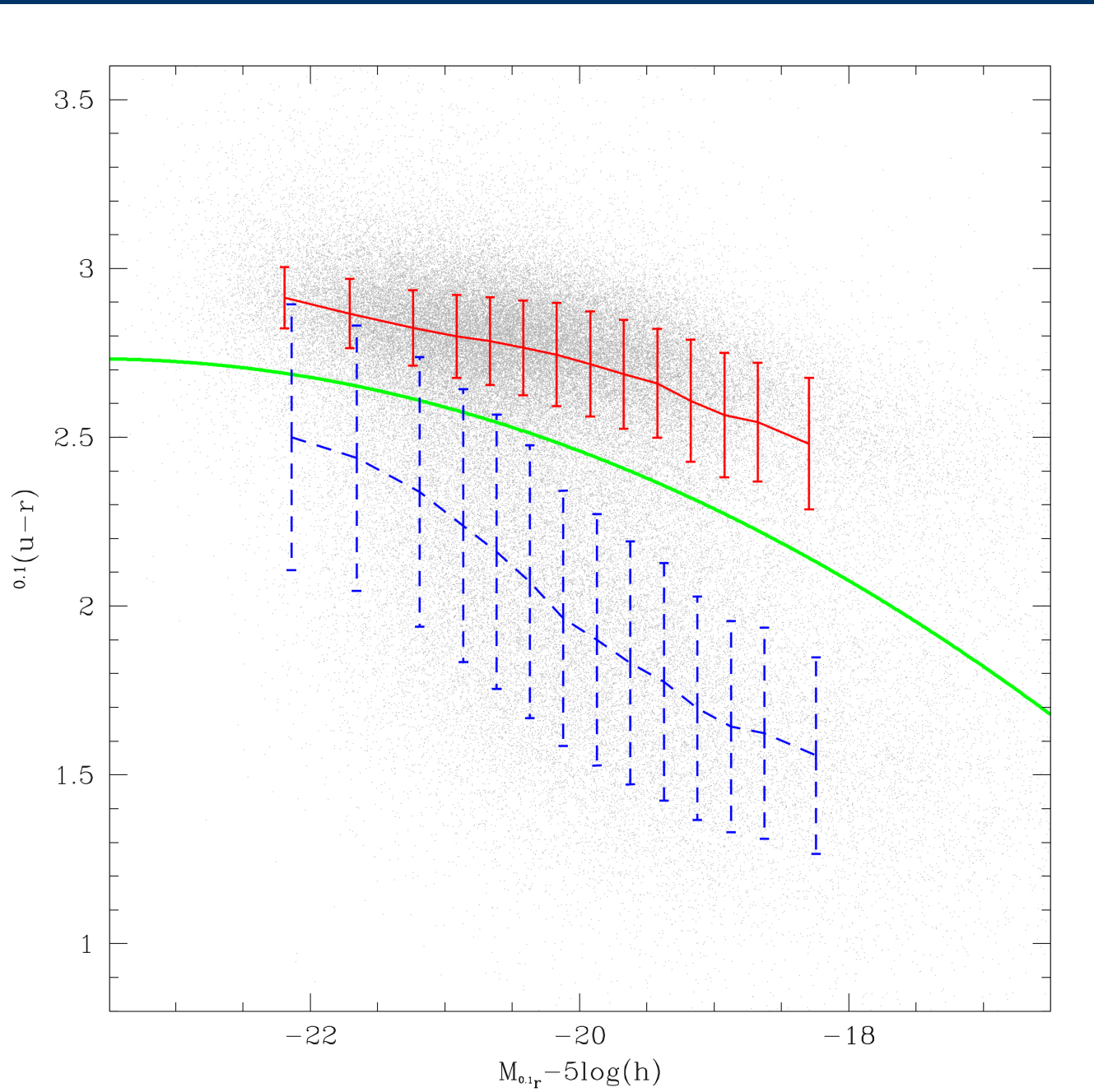
Different galaxy populations
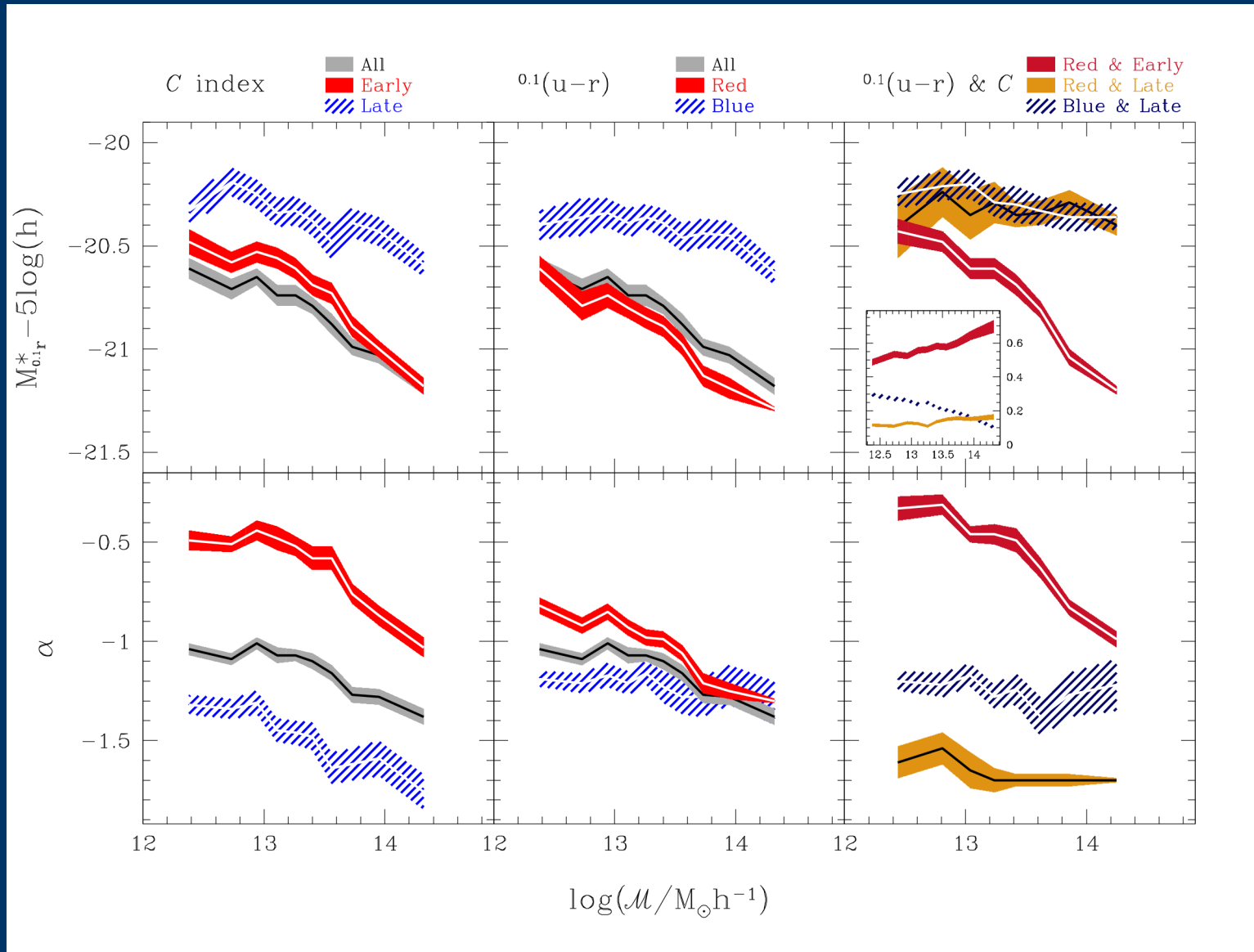
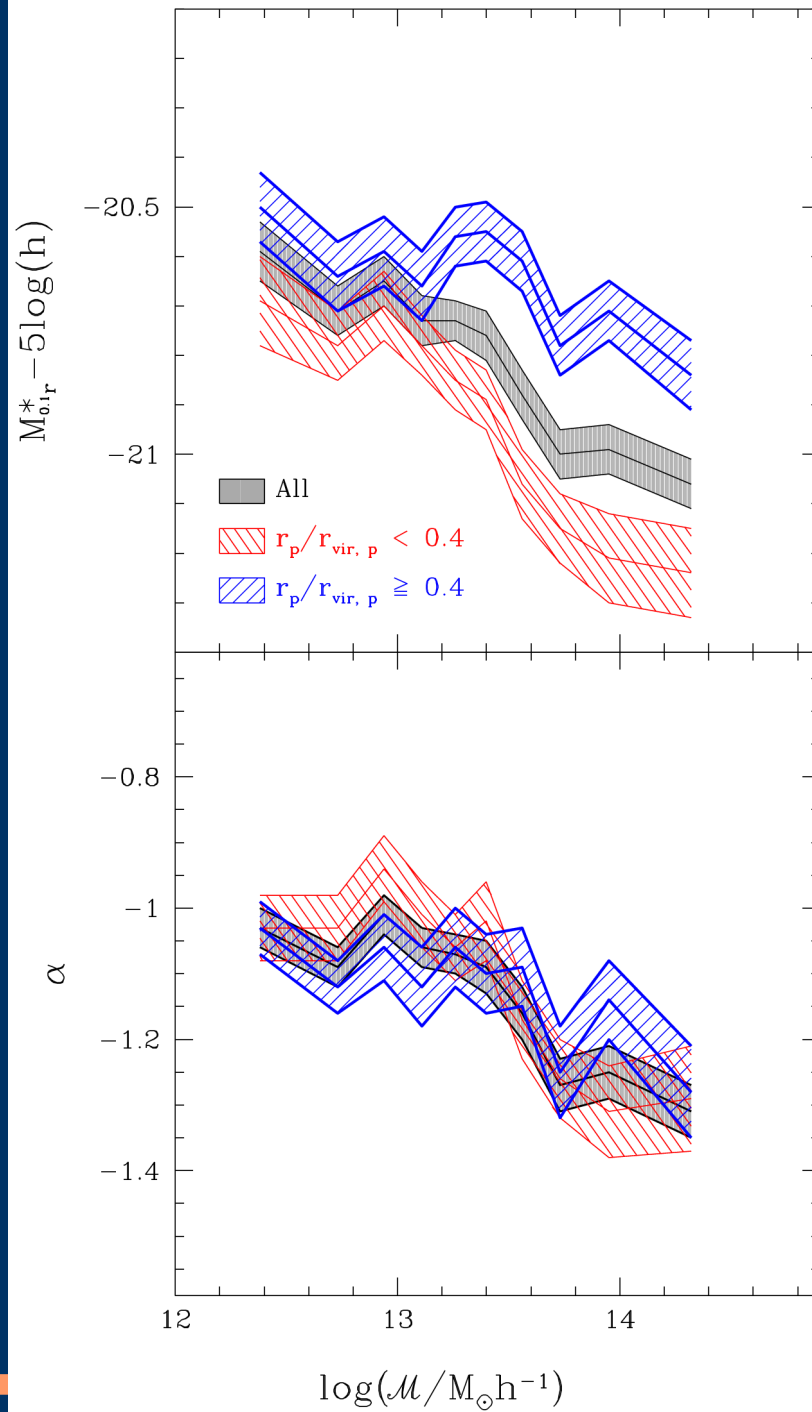$$C = r_{90}/r_{50}$$

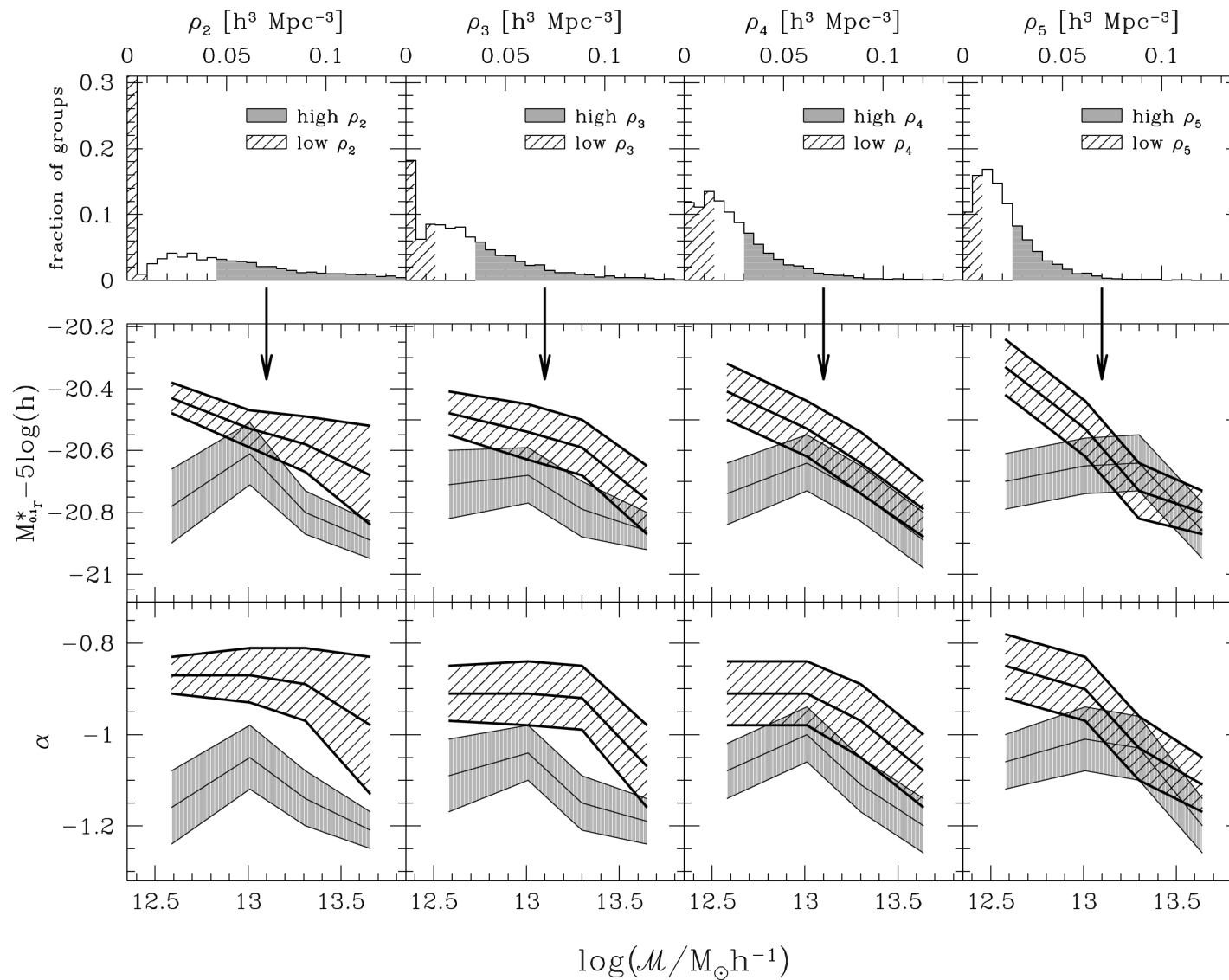$r_{50} < 1.6$ arcsec

16%

Different galaxy populations

LF for different galaxy populations

LF of inner and outer galaxies

LF dependence on large scale

Conclusions

- The Schechter parameters are decreasing functions when group virial masses increases.

- The red spheroids galaxy population shows the strongest variation.

- We observe a luminosity segregation for galaxies in massive systems.

- Galaxies in groups at high density regions (large environment) do not show significant luminosity variation with group virial mass (local environment) while local environment is more important for galaxy luminosities in groups at low density regions.

LF dependence on dynamics