

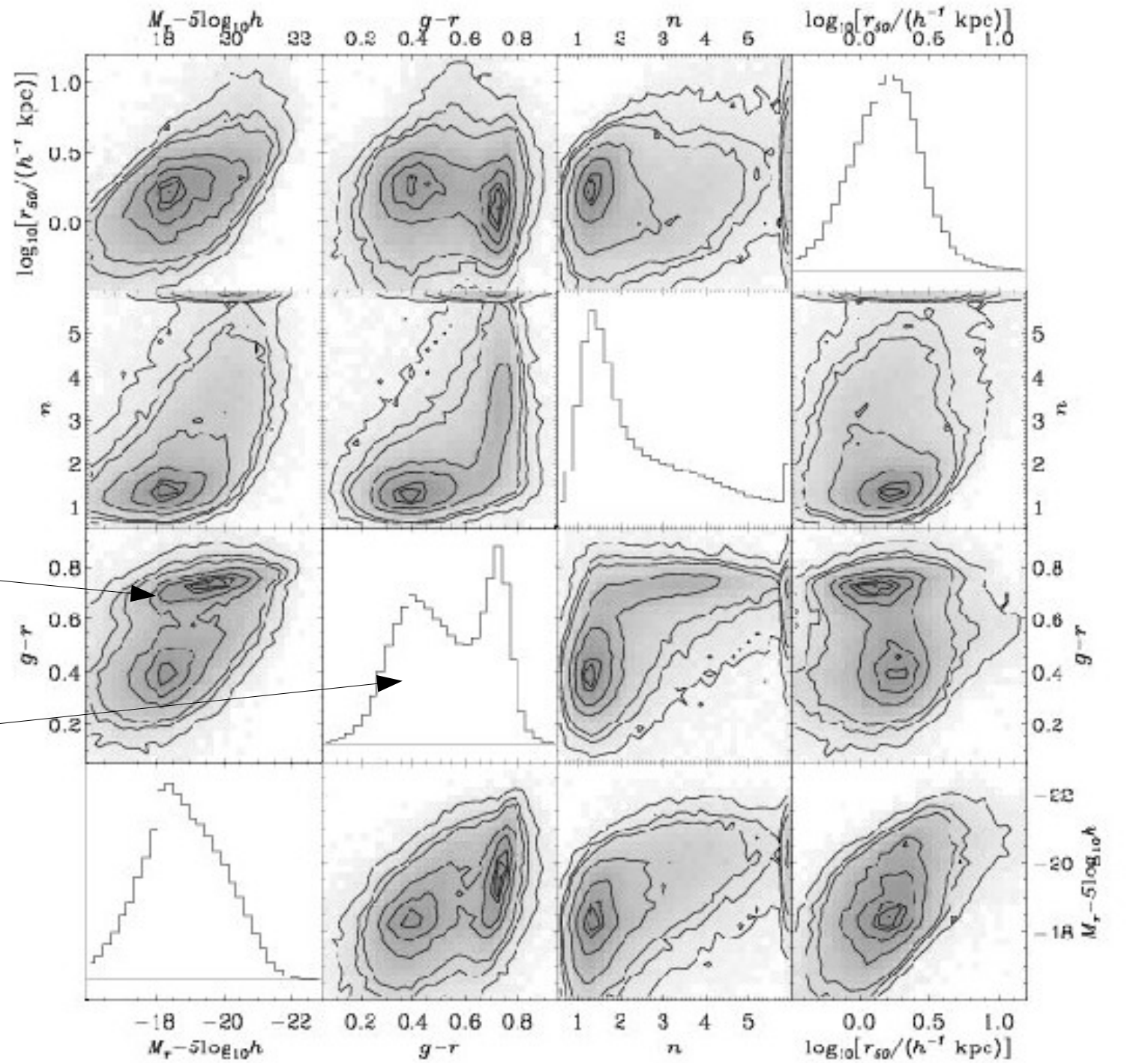
Optical  
broad band  
Properties.

proxy for morpho

Color-magnitude  
Relation

Color bimodality

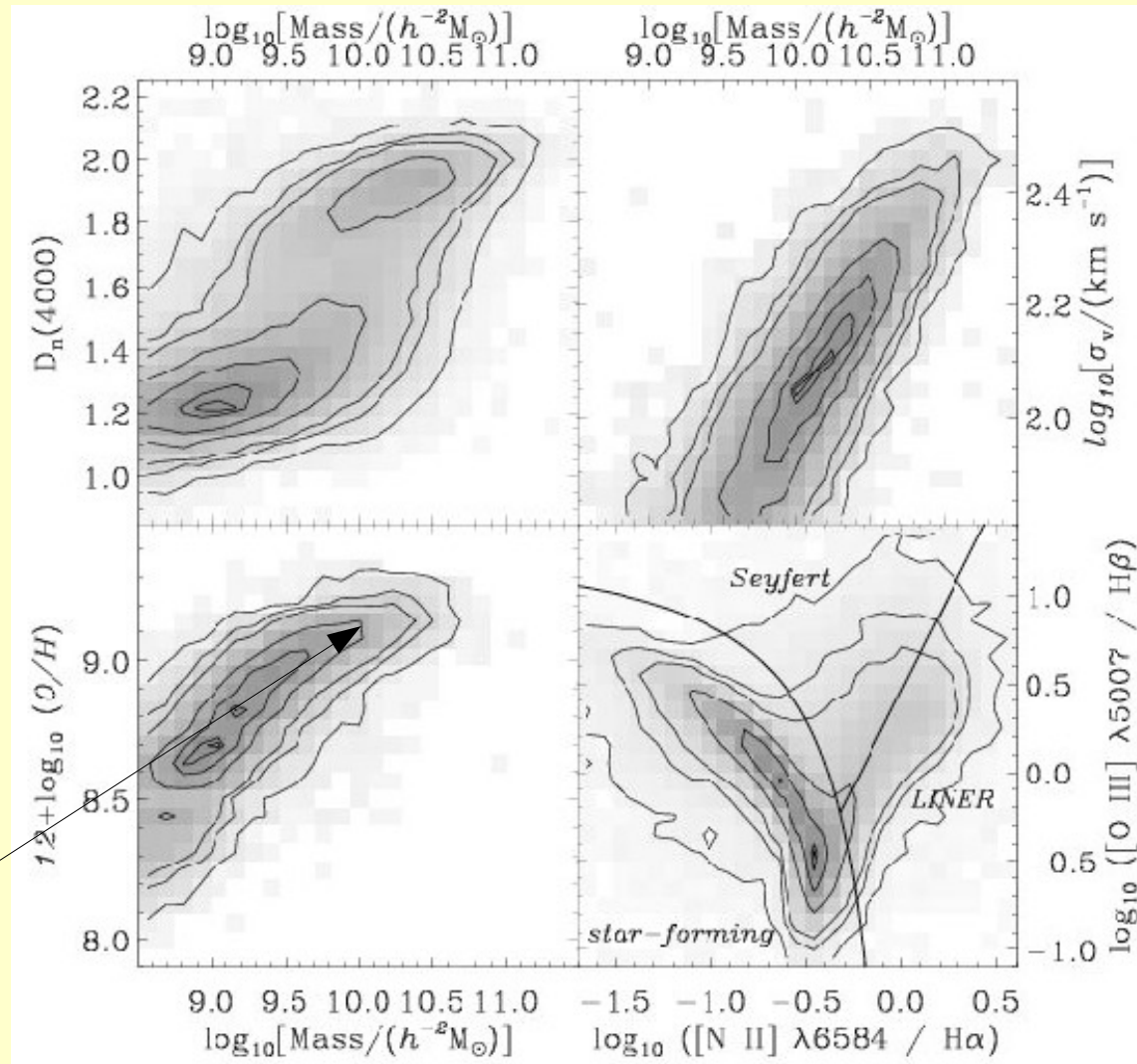
Credit to  
Blanton &  
Moustakas



# Spectral properties

All galaxies  
 +Dn(4000)  
 +passive=SF  
 Stopped a long  
 time ago

Star forming  
 +massive  
 +metallicity



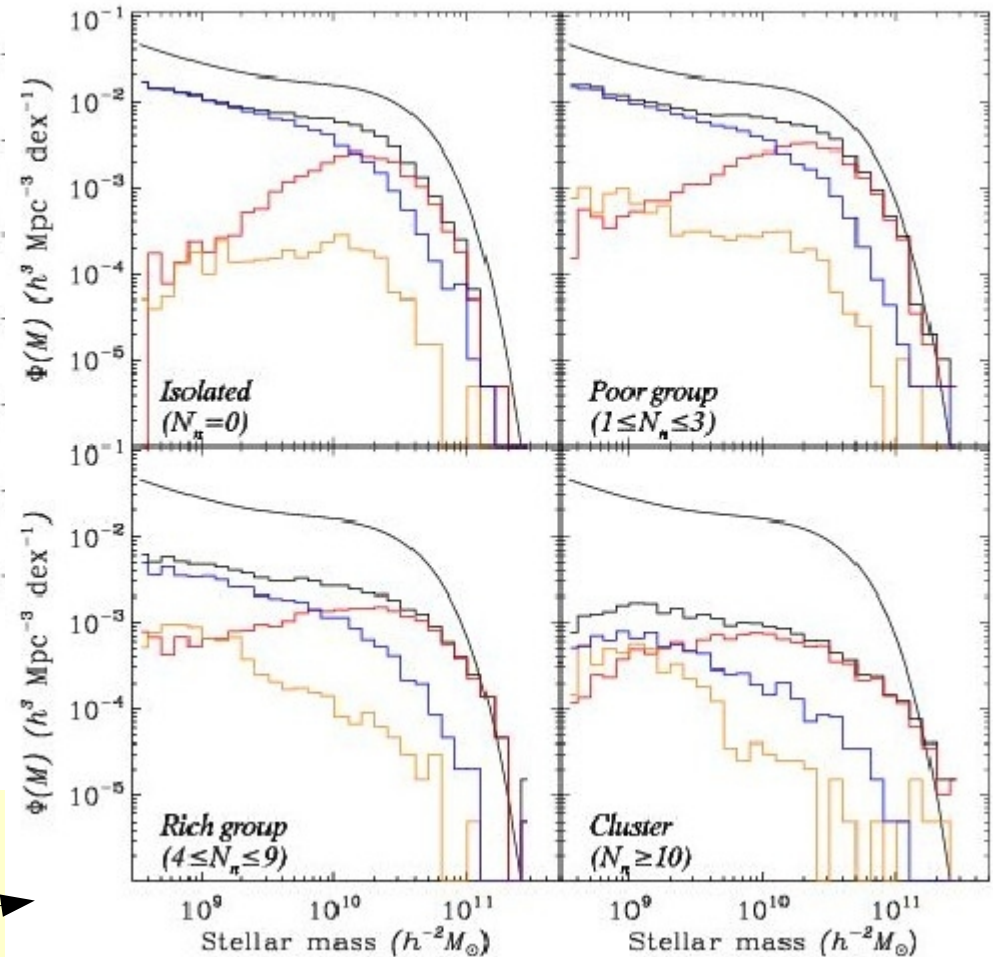
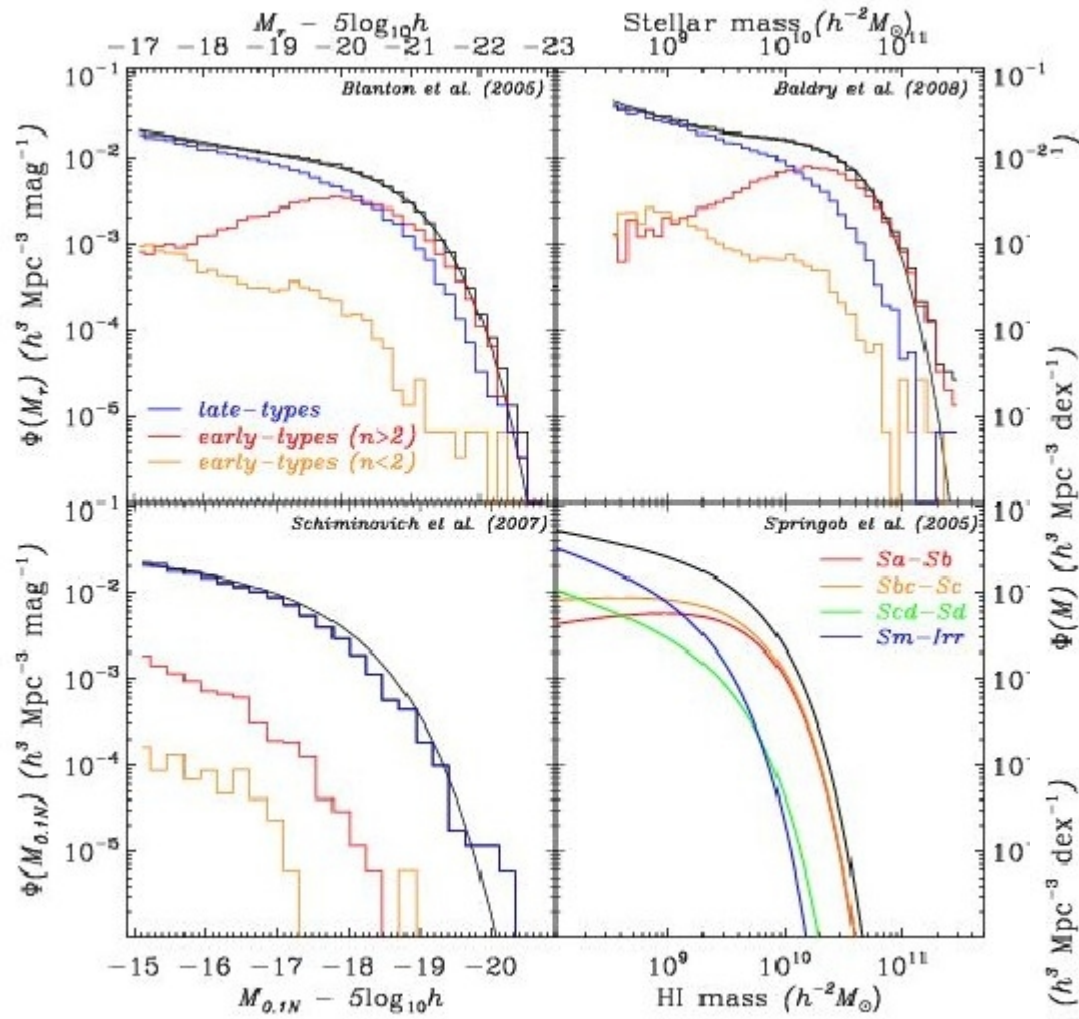
Passive  
 Faber-Jackson  
 relation

Active  
 Diagram of  
 Baldwin  
 Phillips  
 Terlevich  
 Diagnostic for  
 AGN/SF gals

optical

$\langle (M^*/L^*)_{\text{red}} \rangle > \langle (M^*/L^*)_{\text{blue}} \rangle$

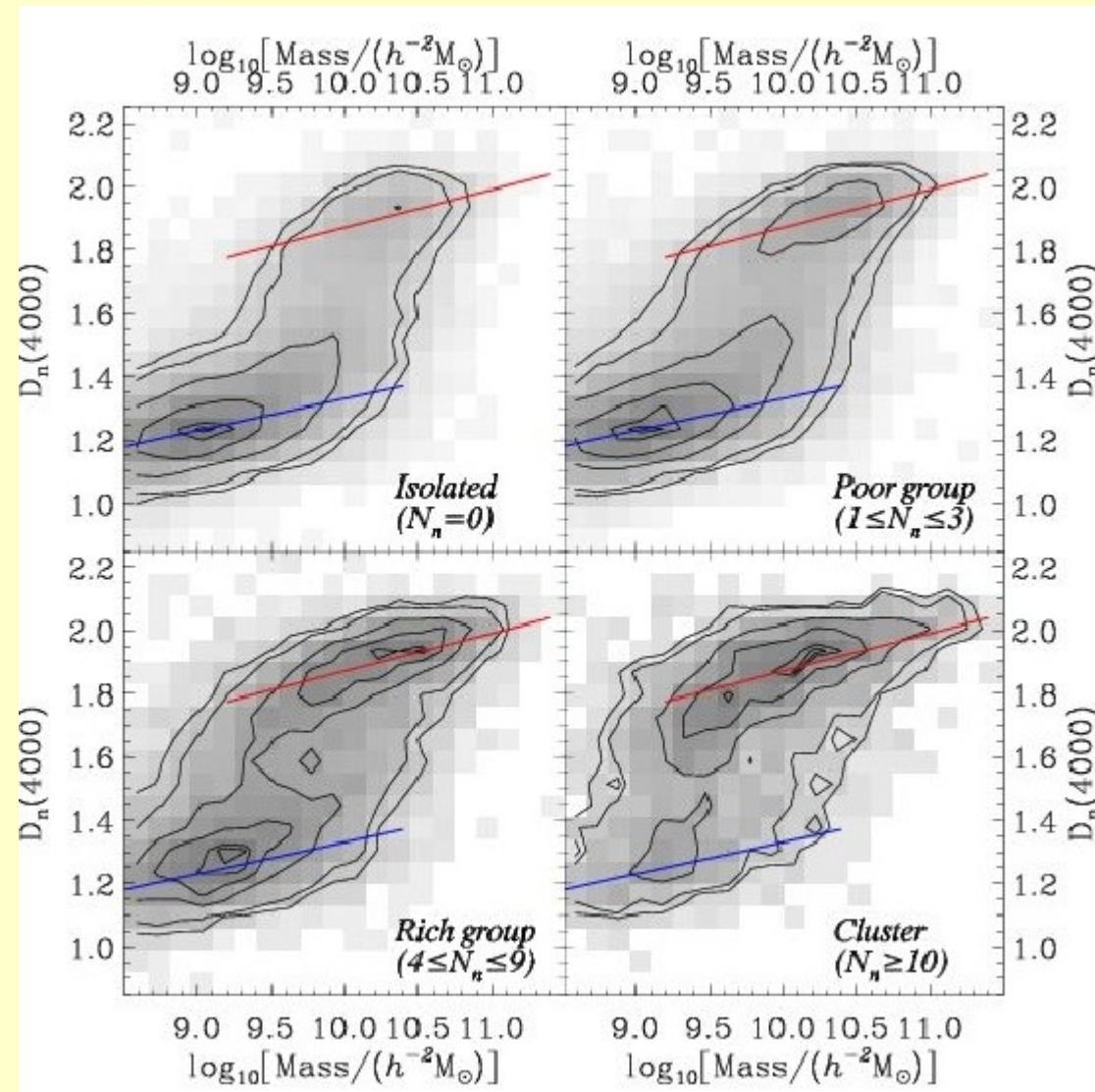
Luminosity Function



Fixed the type, LFs are similar,

Different gals populates different environments in a different way.

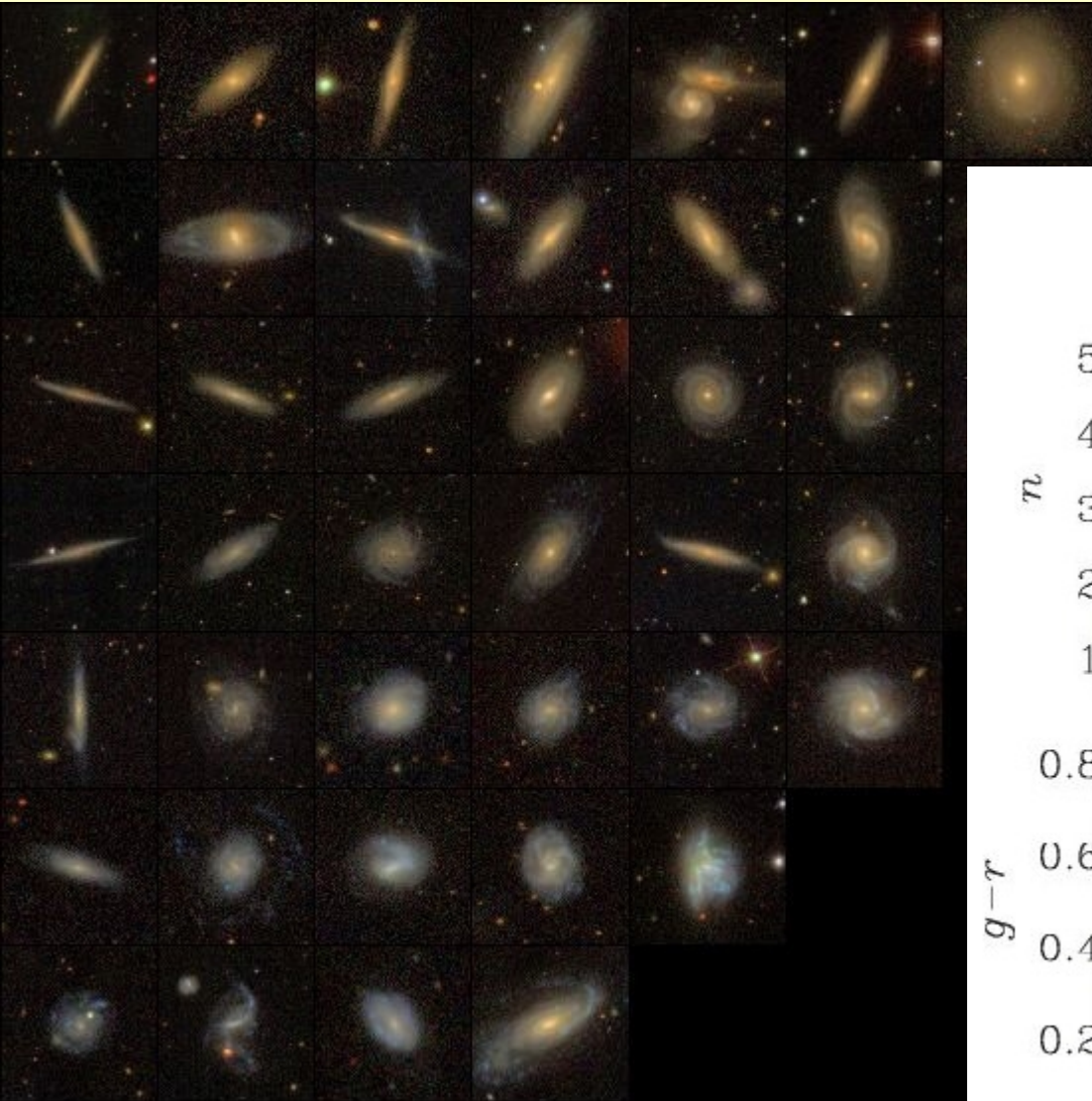
# Relation between Gals properties



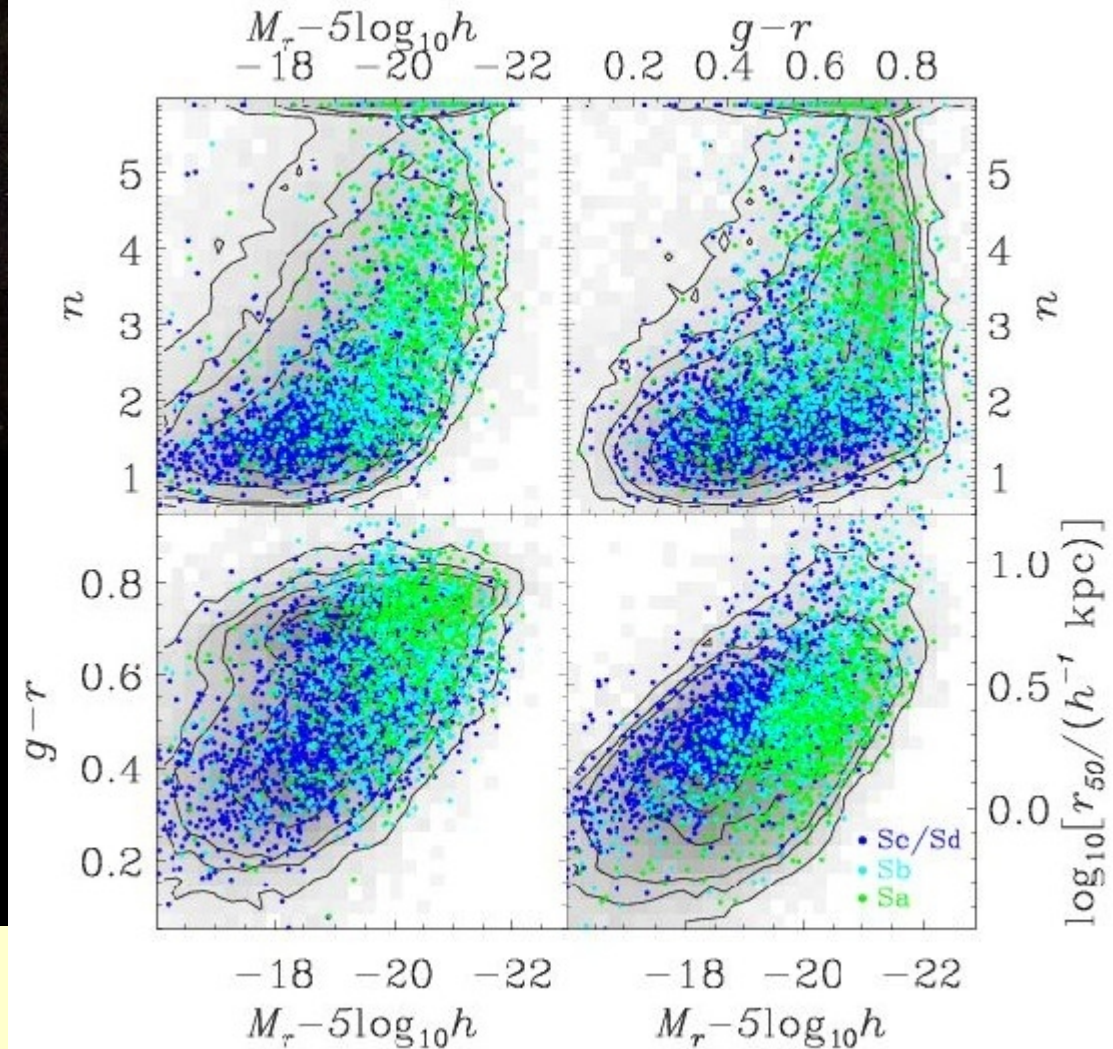
Fixed the type of galaxy, the relations are similar.

Different gals populates different environments in a different way.

# Spiral galaxies

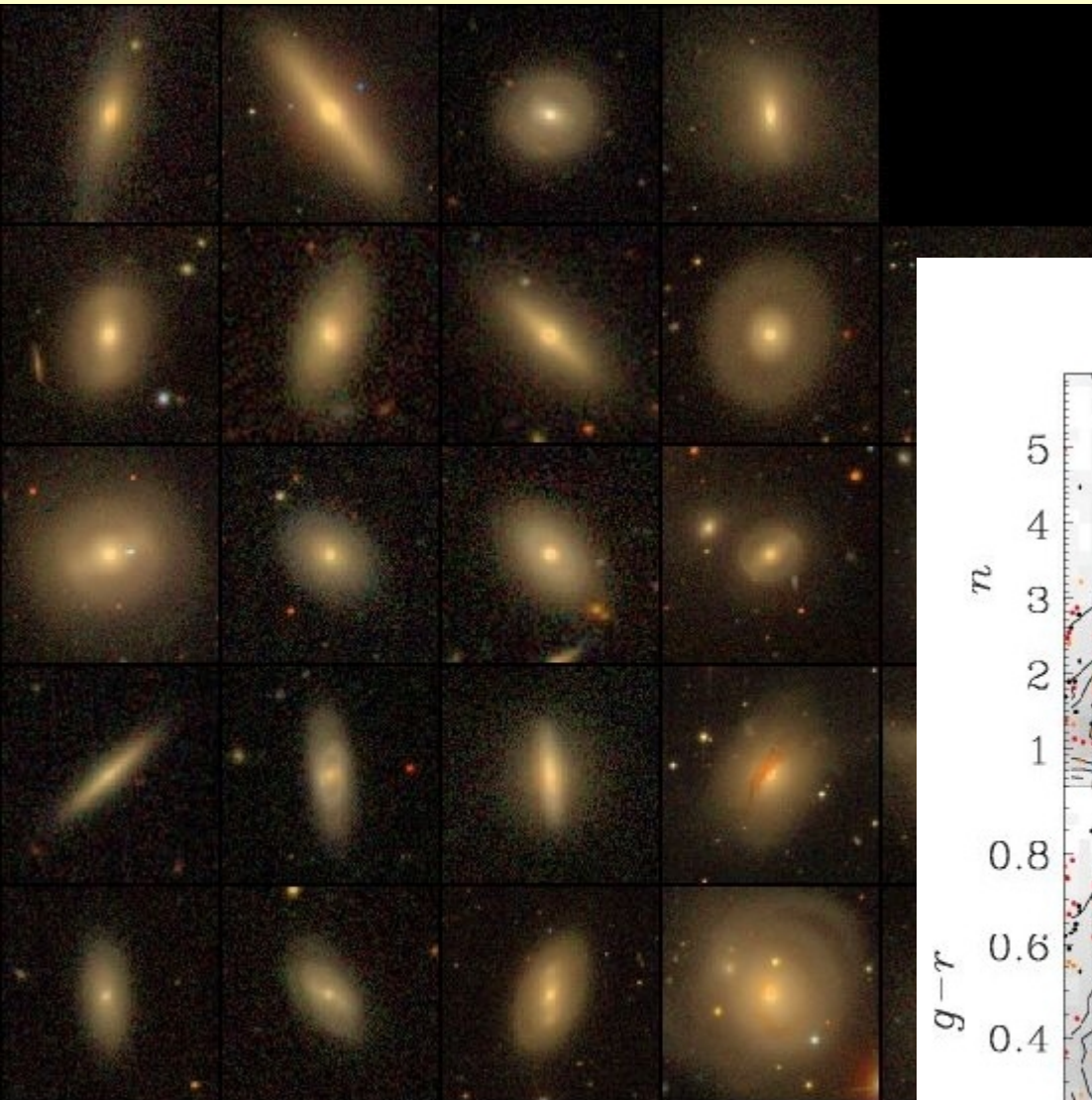


## Differences within the sequence

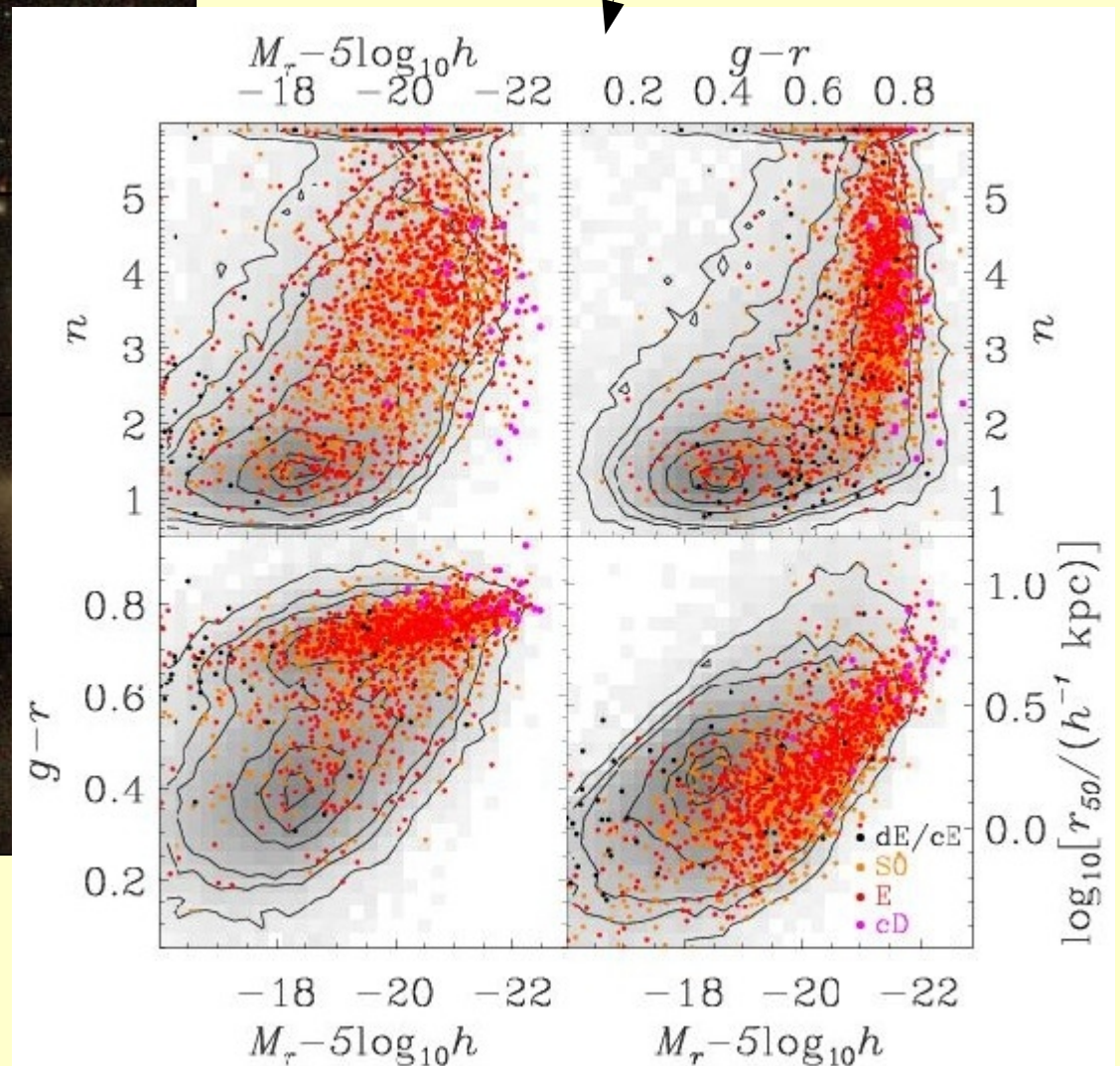


Bulges vs. pseudobulges, atomic gas, anemic galaxies, dust...

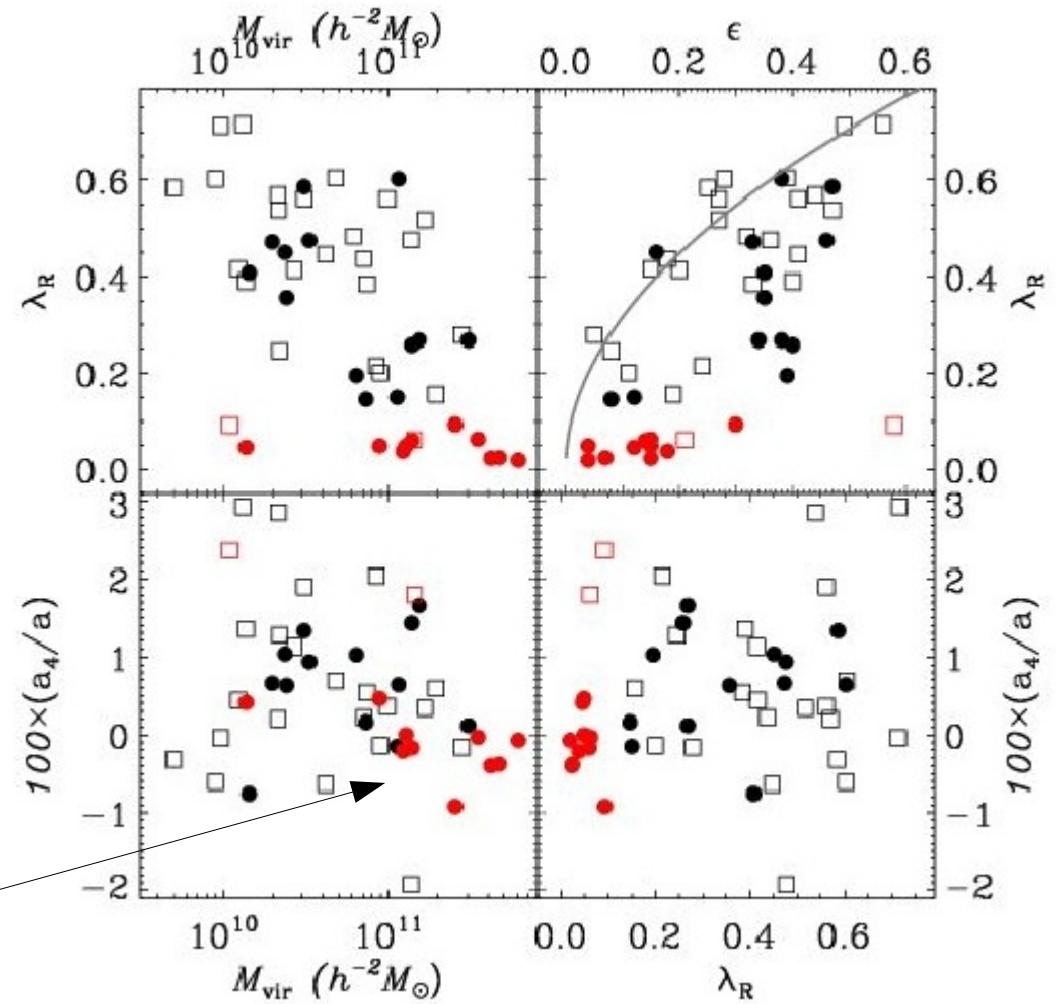
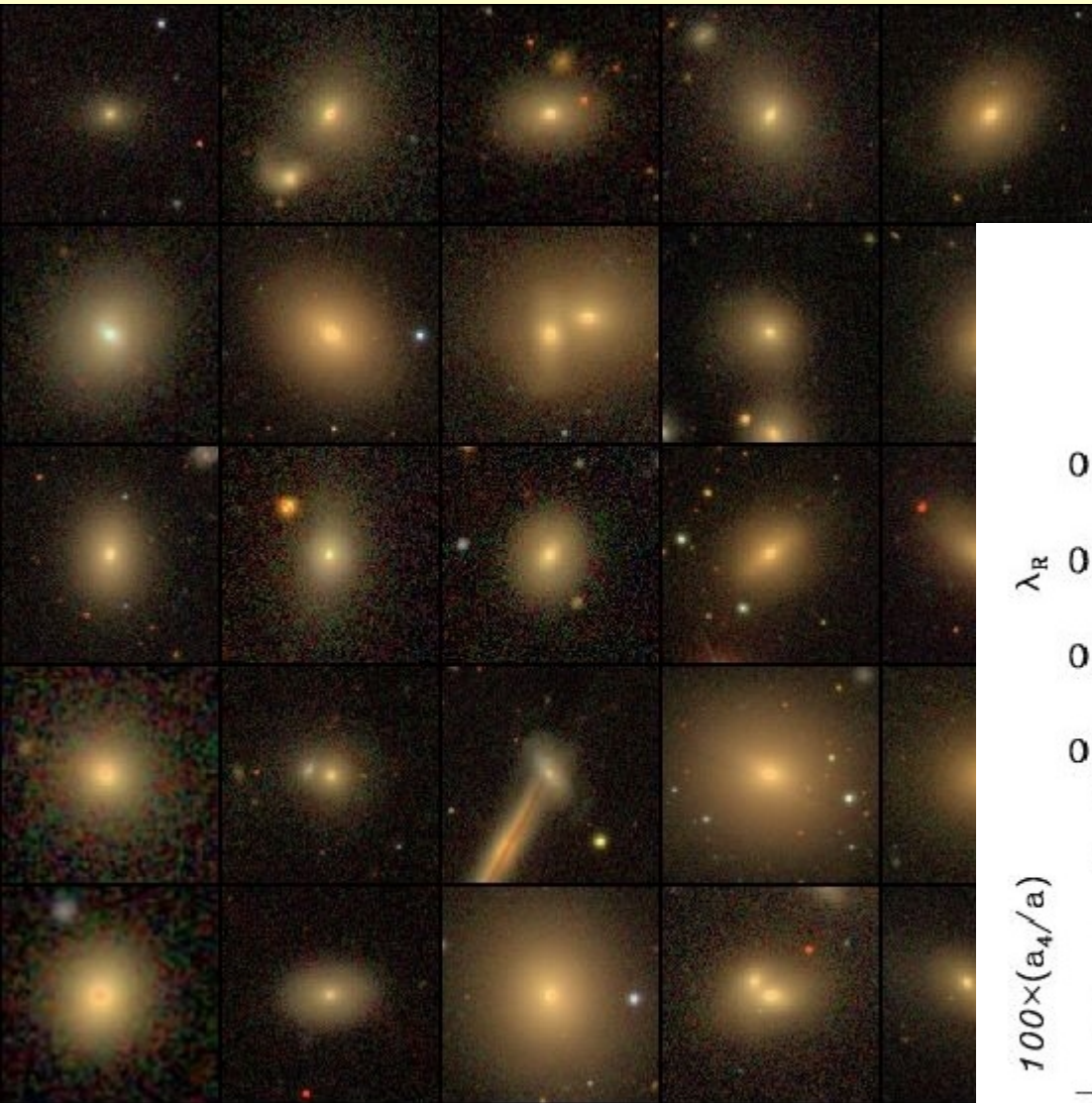
# Lenticulars



Not different from Ell



# Ellipticals

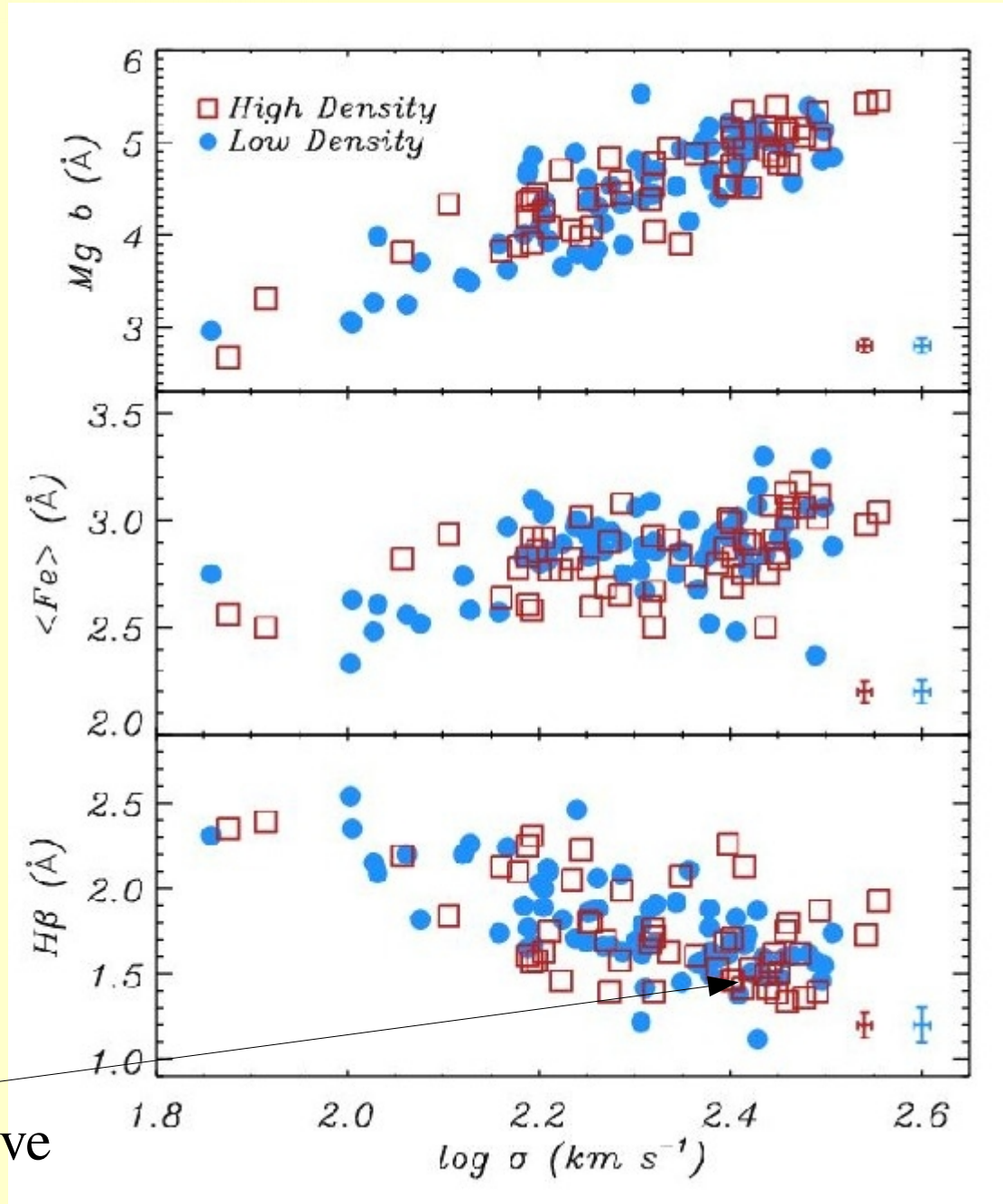


Boxies are slow/no rotators

+Fe  
+Metals

+old-Hbeta

Old & massive



Field Ell  
Are 2 Gyr  
Younger?



BCG (brightest cluster galaxies) or cD (central dominant)

Are really connected to the environment

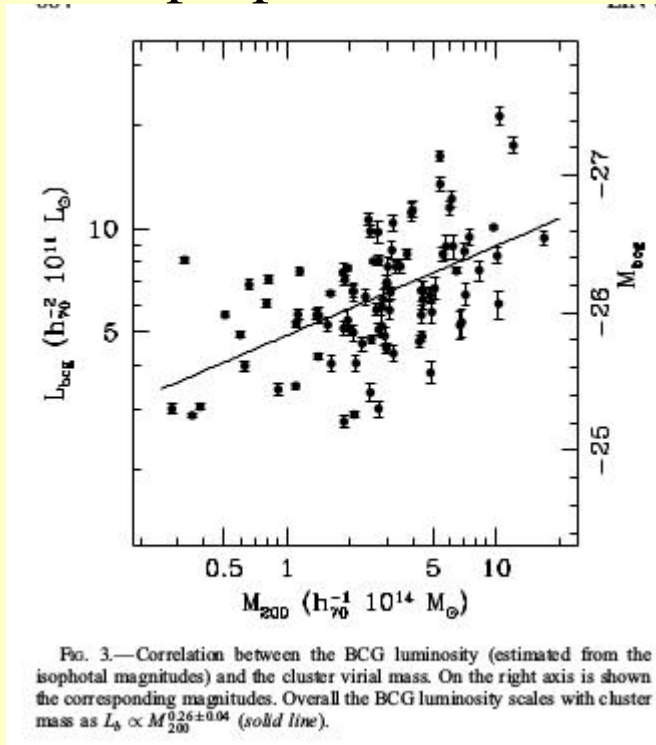
\*the gap magnitude between BCG1 and BCG2 is not expected in the LF

\*Halo (ICL?)

\* BCG/cD luminosity is correlated with mass of the host cluster (lin+Mohr04)

(merger between clusters and merger between BCGs?)

but  $L_{\text{propto}} M_{\text{halo}}^{0.2-0.3}$ , i.e. halo grows more than its BCG...



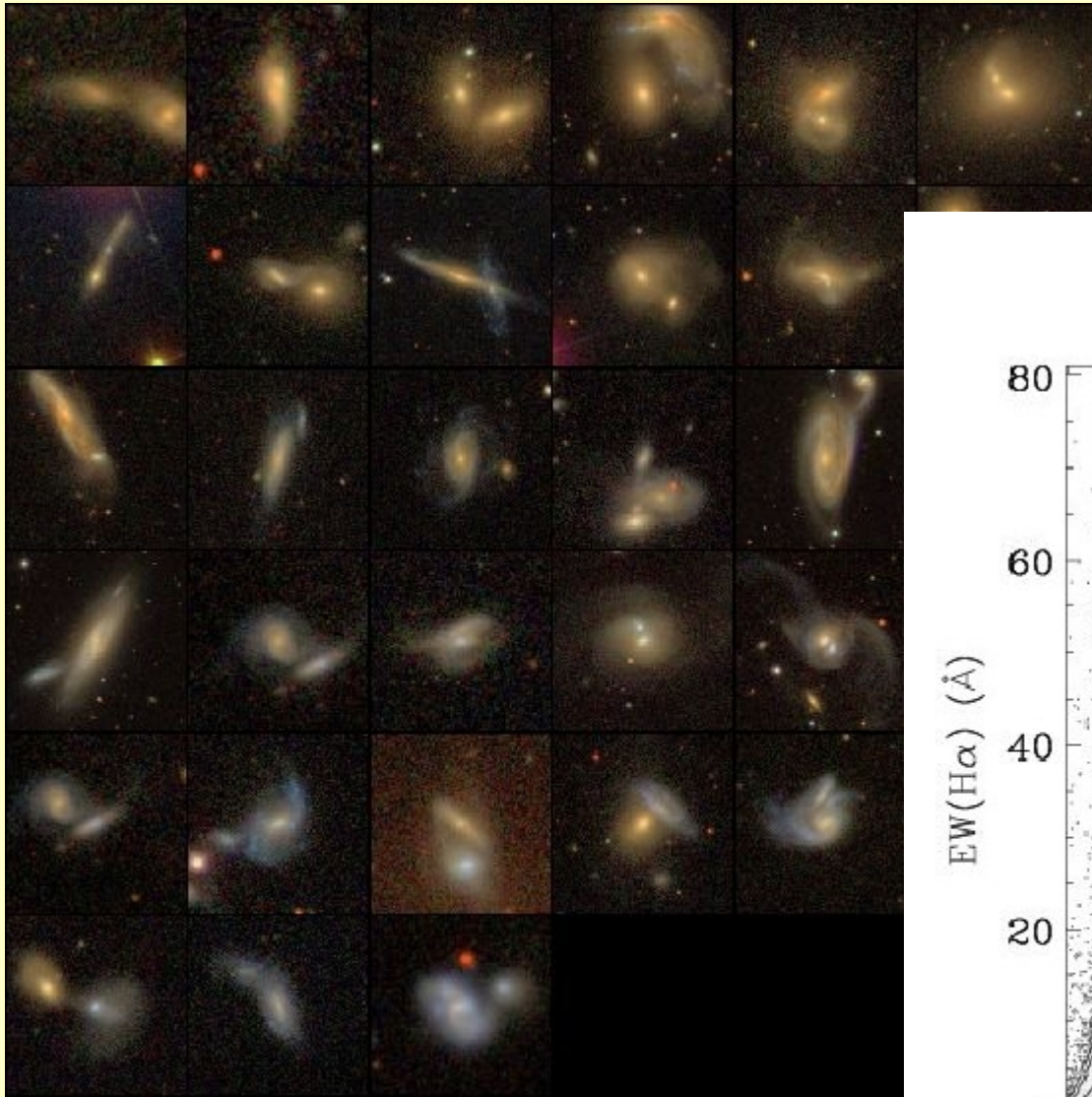
Possible scenarios for cD

\*merger/cannibalism(dry mergers? multicores?)

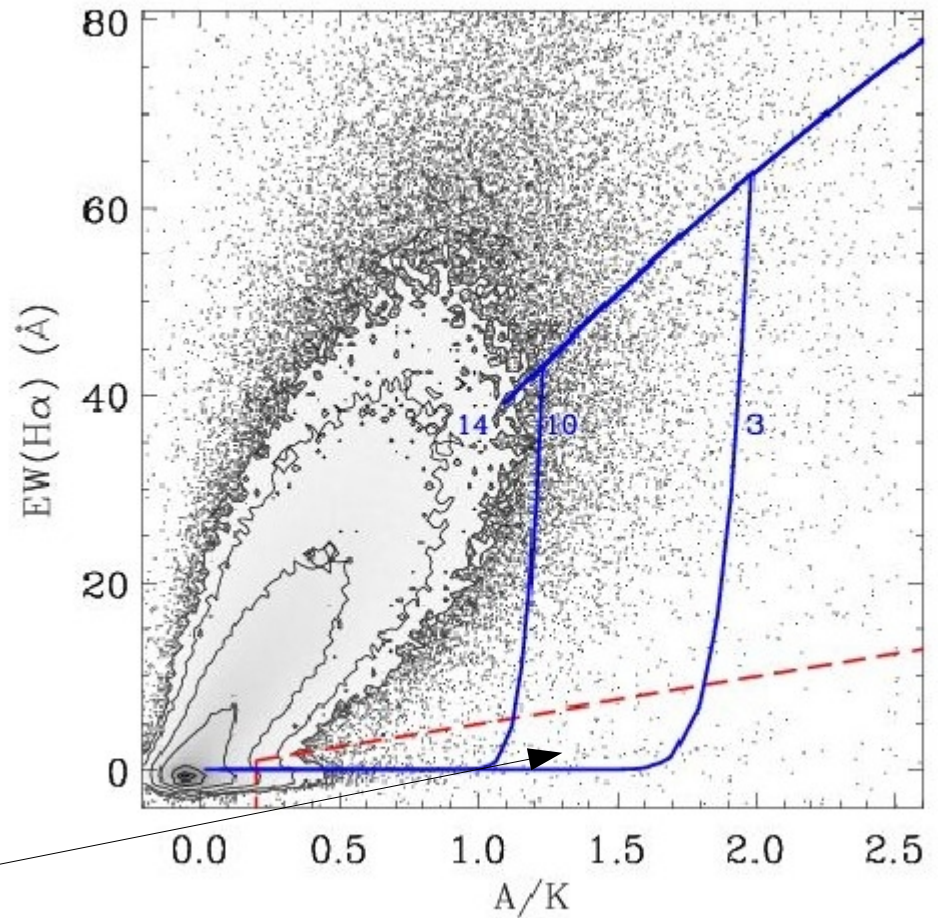
\*cooling flow and accretion of new stars (bluer but not enough...)

\*being in central position, tidal radius is not limited

# Peculiar galaxies: interactions, mergers, starbursts, and poststarbursts



Star forming galaxies: points



E+A/k+A/poststarbursts

H $\delta$ , but not emission lines, under the red dashed line

BCG

Lin

BCG

Lin

Optical  
broad band  
Properties.