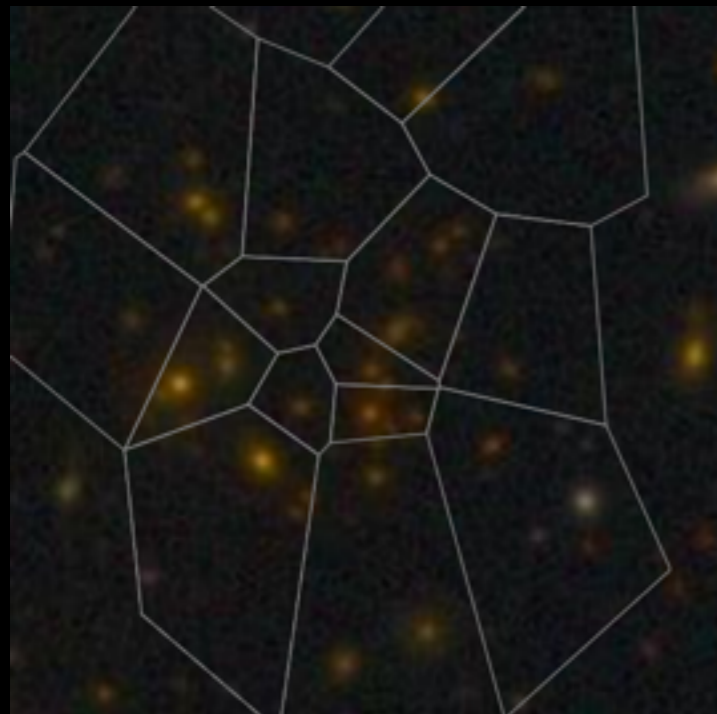# Galaxy groups and clusters in VST ATLAS

Sean McGee / David Murphy

Groups and clusters

- Three (near) ubiquitous features of groups/clusters:

  - Bright central galaxy (LRG)

  - Surface overdensity of galaxies (radial profile priors)

  - Large fraction of galaxies with similar colors (red sequence,..)
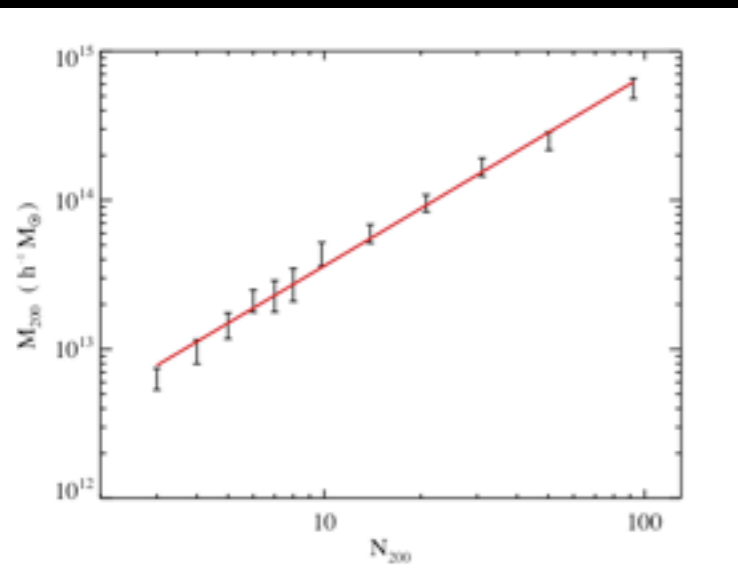

z= 0.360 sigma=14.000

Possible methods:

- Overdensities around LRG (MaxBCG)

- Voronoi Tessellations in color space (David Murphy)

- Photo-z friends of friends (pFoF; Li & Yee, etc)

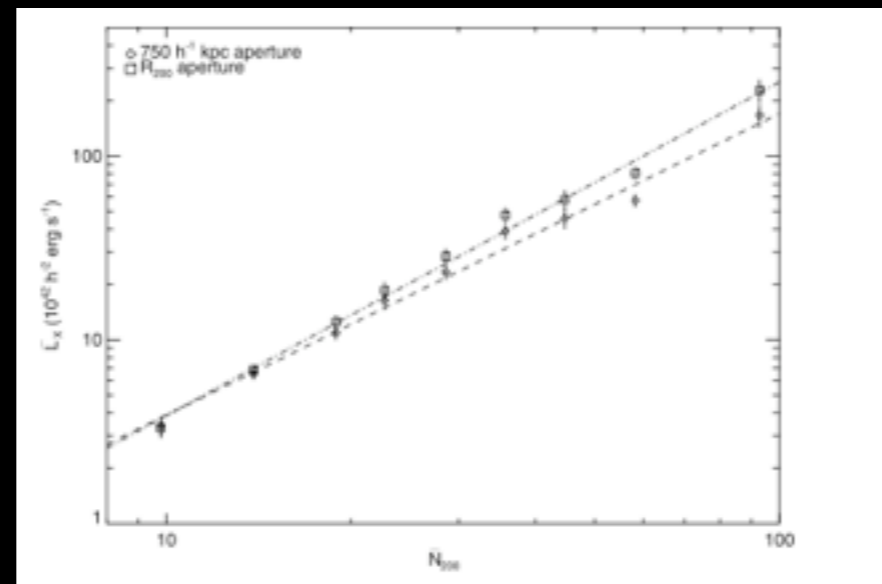- The more methods the better

Large, Mass calibrated sample
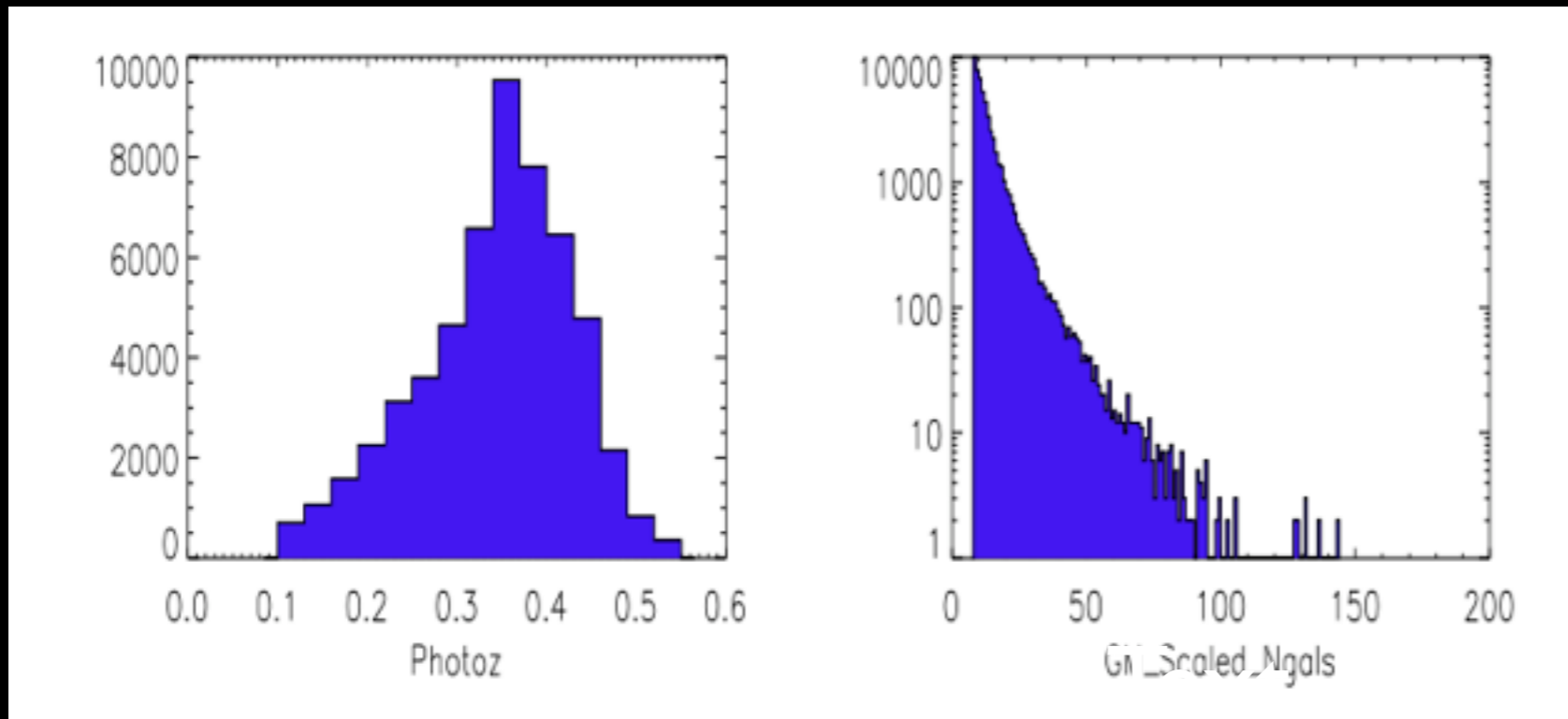
~55,000 clusters with
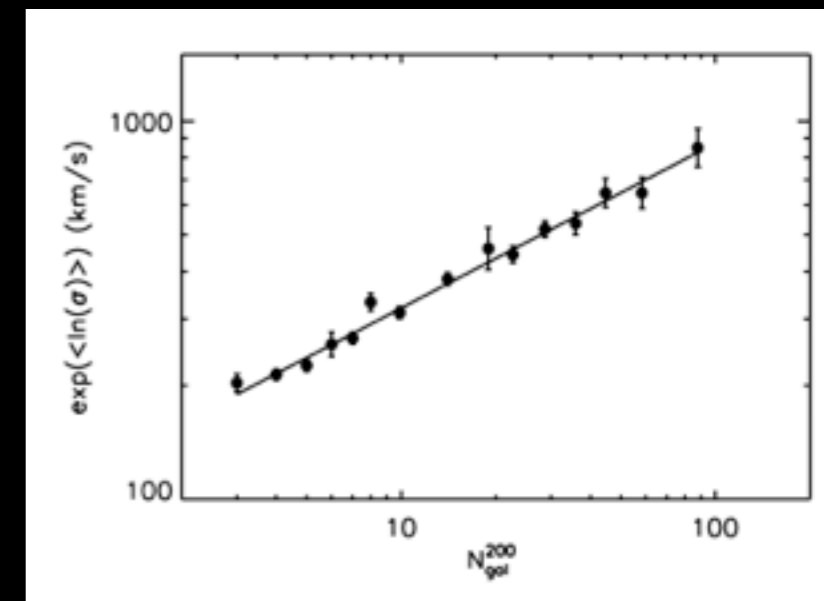0.1 < z < 0.55 in
8500 square degrees
of SDSS

GMBCG (Hao et al. 2010)

Weak Lensing
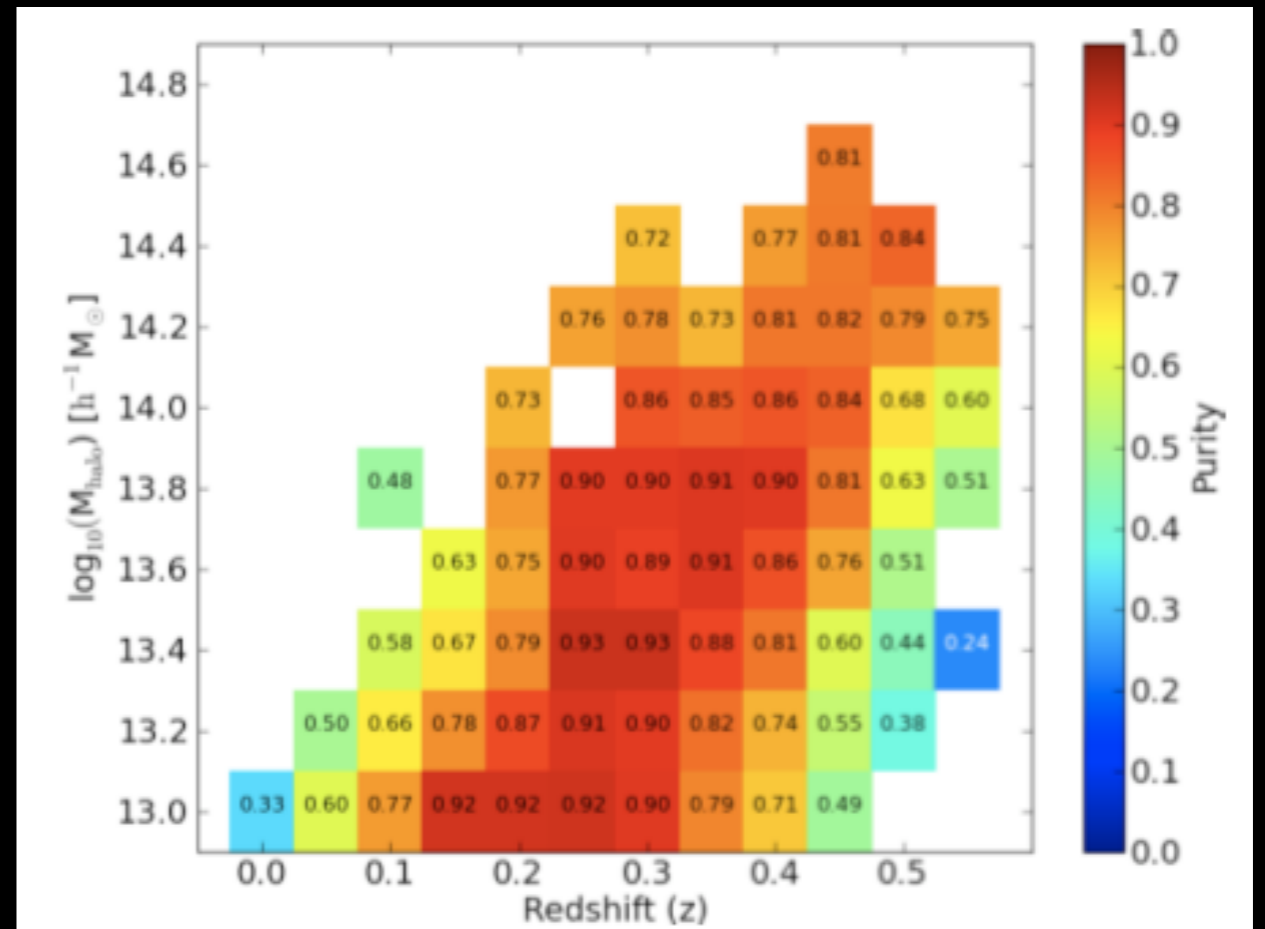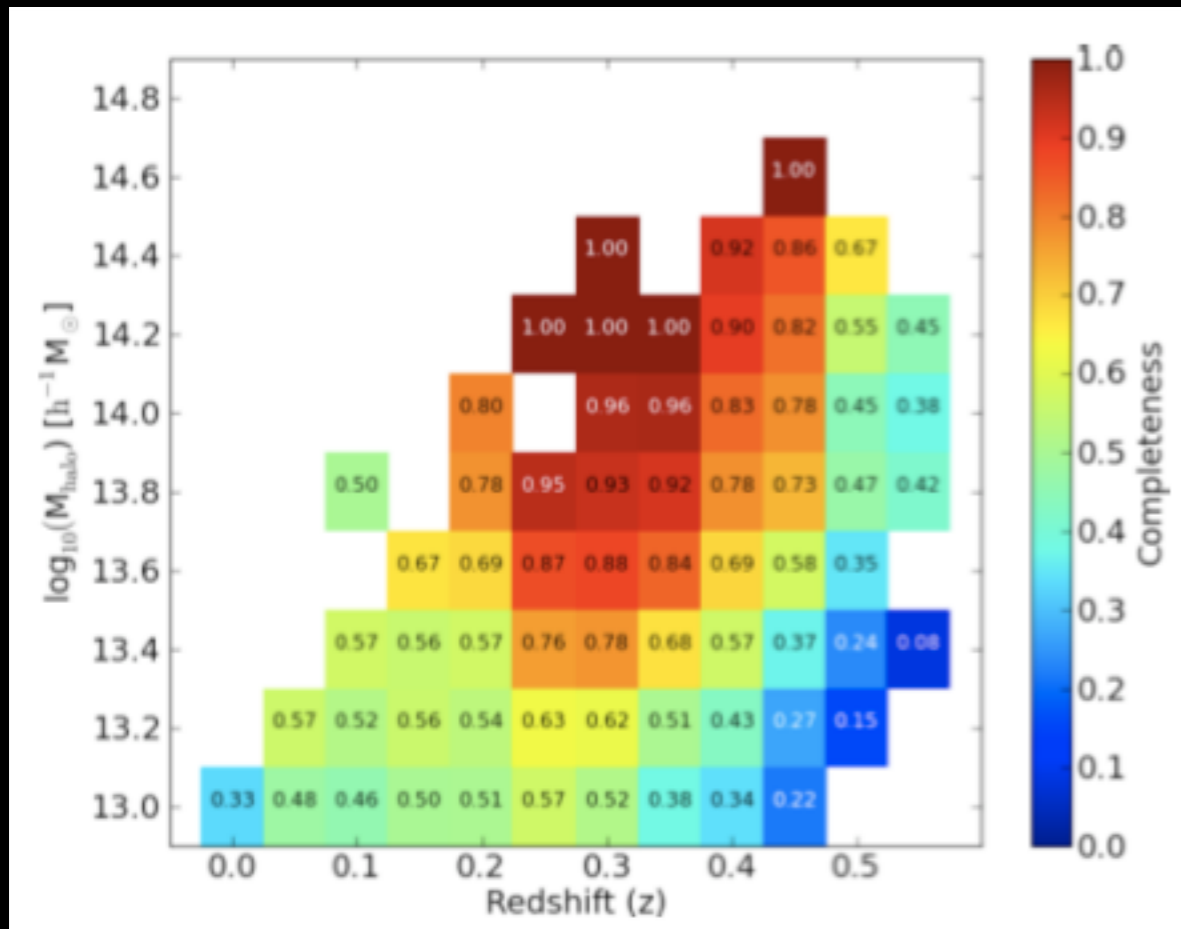(Johnston et al. 2008)

Xray luminosity
(Rykoff et al. 2008)

Velocity dispersion
(Becker et al. 2007)

Completeness and purity

Murphy et al. (2011) based on mocks

Science

- Correlations with other wavelengths (CMB, Radio, etc.)

- Properties of satellite galaxies + BCG/BGG

- Mass profiles (Magnification of background galaxies, weak lensing)

- Strong Gravitational lensing

- Stacked Intracluster light

- "Super" Clusters

- Abundances (Cosmology)