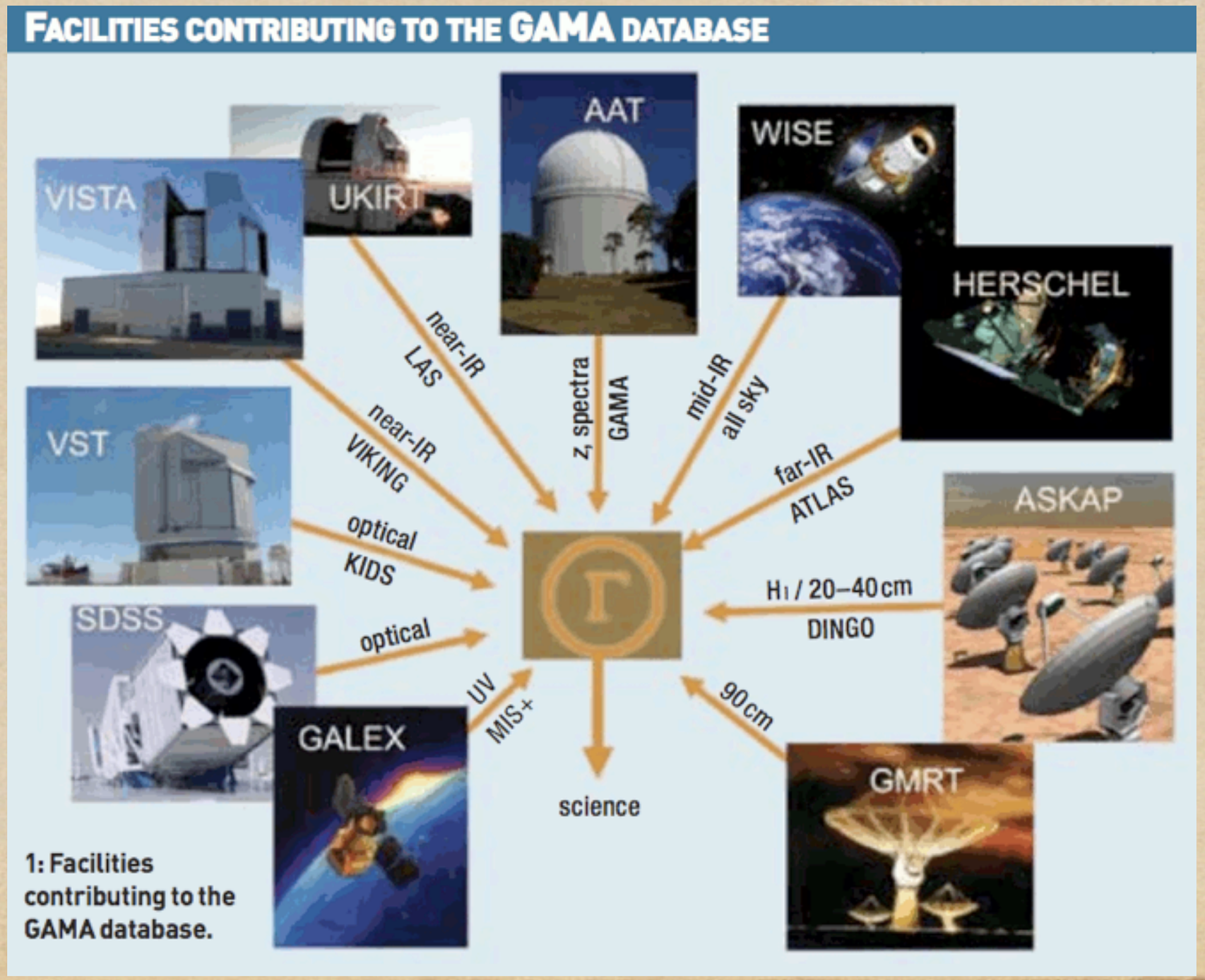
Galaxy And Mass Assembly

Andrew Hopkins

Anglo-Australian Observatory

GAMA



1: Facilities contributing to the GAMA database.

Driver et al 2009, A&G, 50, 5.12

GAMA team

Galaxy And Mass Assembly (GAMA)

I. Baldry, S. Bamford, J. Bland-Hawthorn, M. Brown, M. Drinkwater, S. Driver (European PI), A. Hopkins (Australian PI), J. Liske (Project Manager), J. Loveday, M. Meyer, P. Norberg, J. Peacock, A. Robotham (Science Coordinator), S. Brough (Science Coordinator), E. Cameron, J. Ching, C. Conselice, S. Croom, N. Cross, T. Davis, R. De Propris, J. Delhaize, E. Edmondson, S. Ellis, C. Foster, A. Graham, M. Grootes, M. Gunawardhana, D. Hill, H. Jones, E. van Kampen, L. Kelvin, C. Maraston, R. Nichol, H. Parkinson, S. Phillipps, K. Pimbblet, C. Popescu, M. Prescott, R. Proctor, I. Roseboom, E. Sadler, A. Sansom, R. Sharp, E. Simmat, L. Staveley-Smith, E. Taylor, D. Thomas, R. Tuffs, D. Wijesinghe

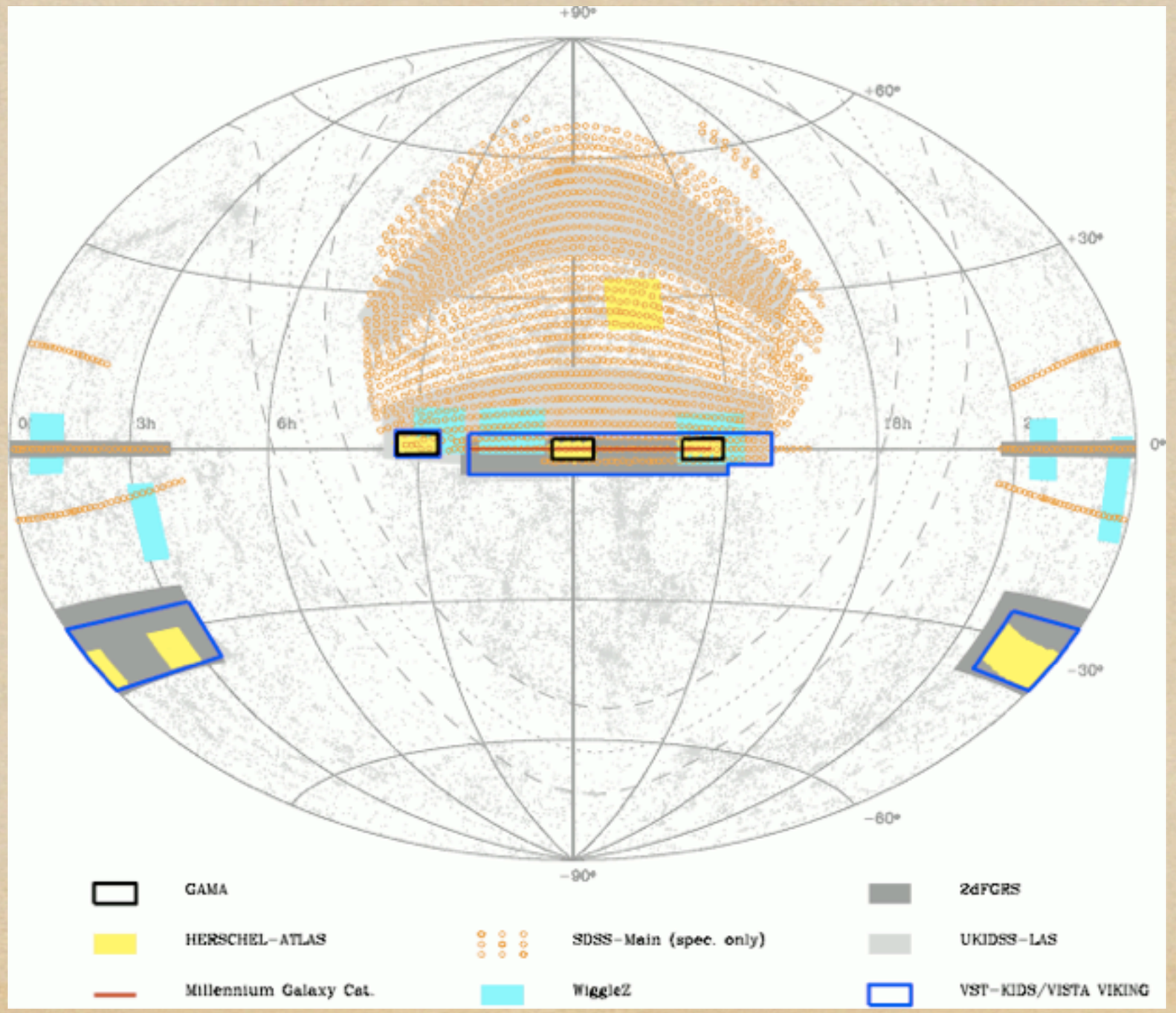
in collaboration with

ASKAP DINGO, HERSCHEL ATLAS, VISTA VIKING, VST KIDS, GALEX and the Durham ICC

GAMA Key Science

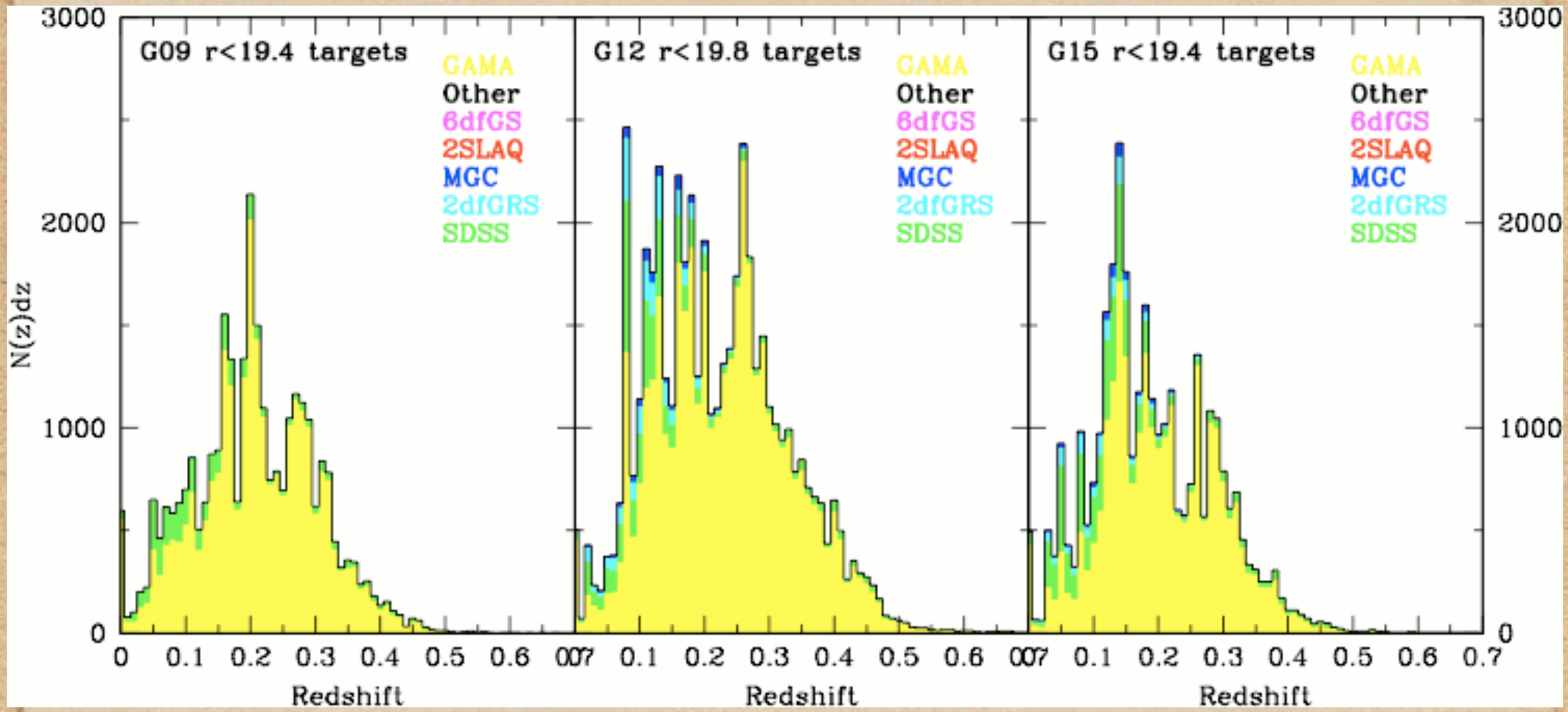
- A measurement of the dark matter halo mass function of groups and clusters using group velocity dispersion measurements.
- A comprehensive determination of the galaxy stellar mass function to Magellanic Cloud masses to constrain baryonic feedback processes.
- A direct measurement of the recent galaxy merger rates as a function of mass, mass ratio, local environment and galaxy type.

GAMA survey area



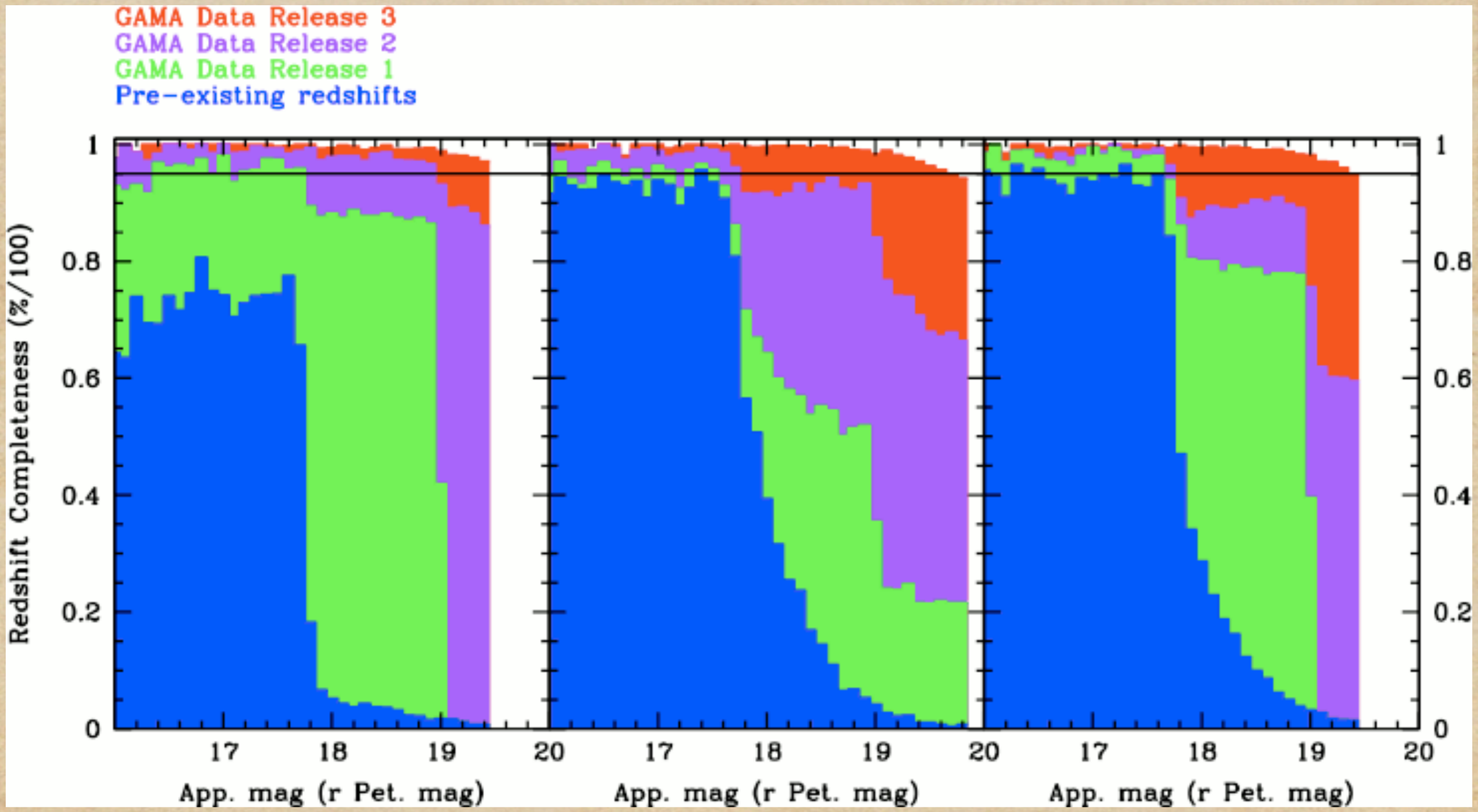
Driver et al 2010, in prep

Redshift distribution

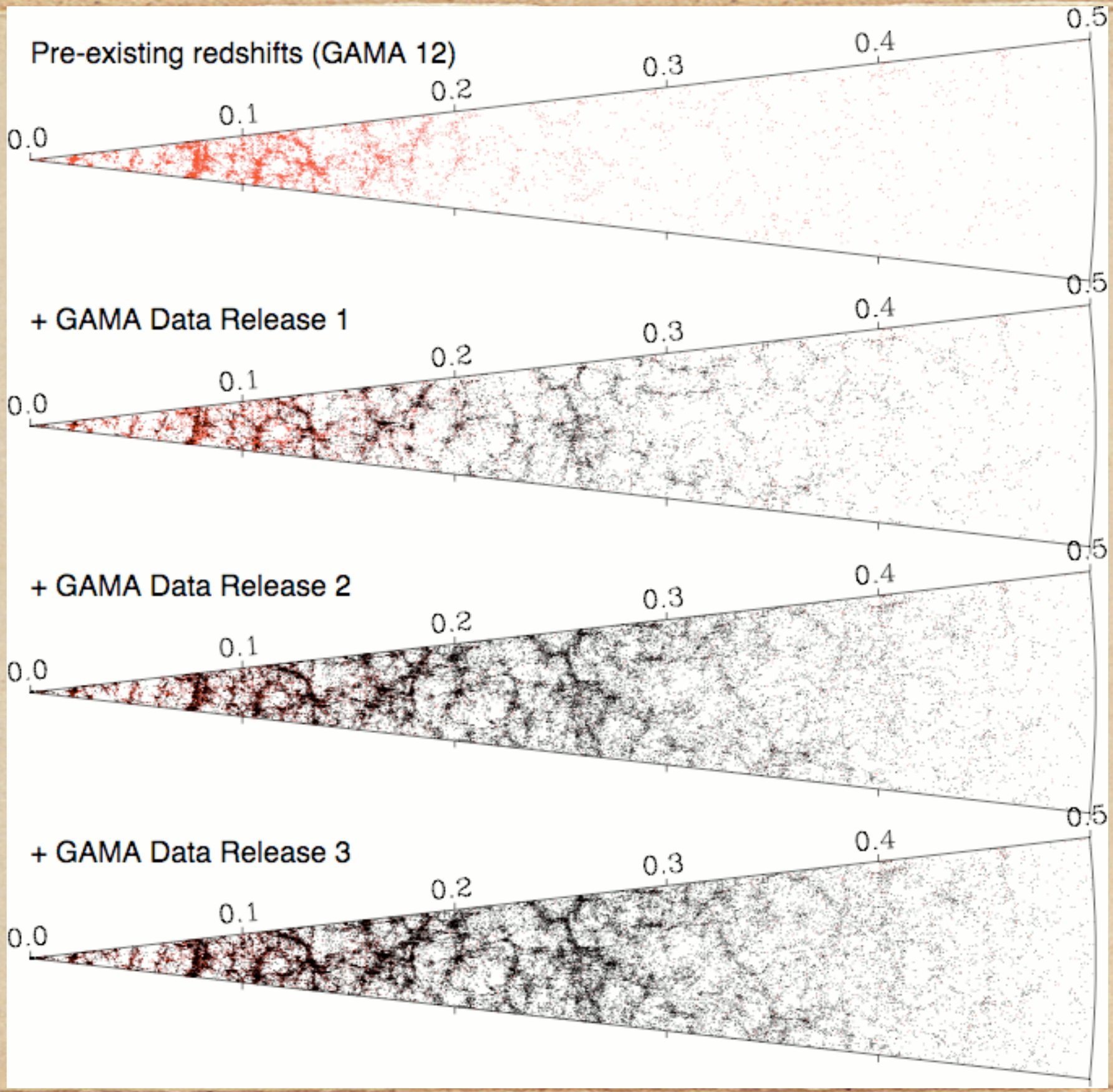


Driver et al 2010, in prep

Redshift completeness

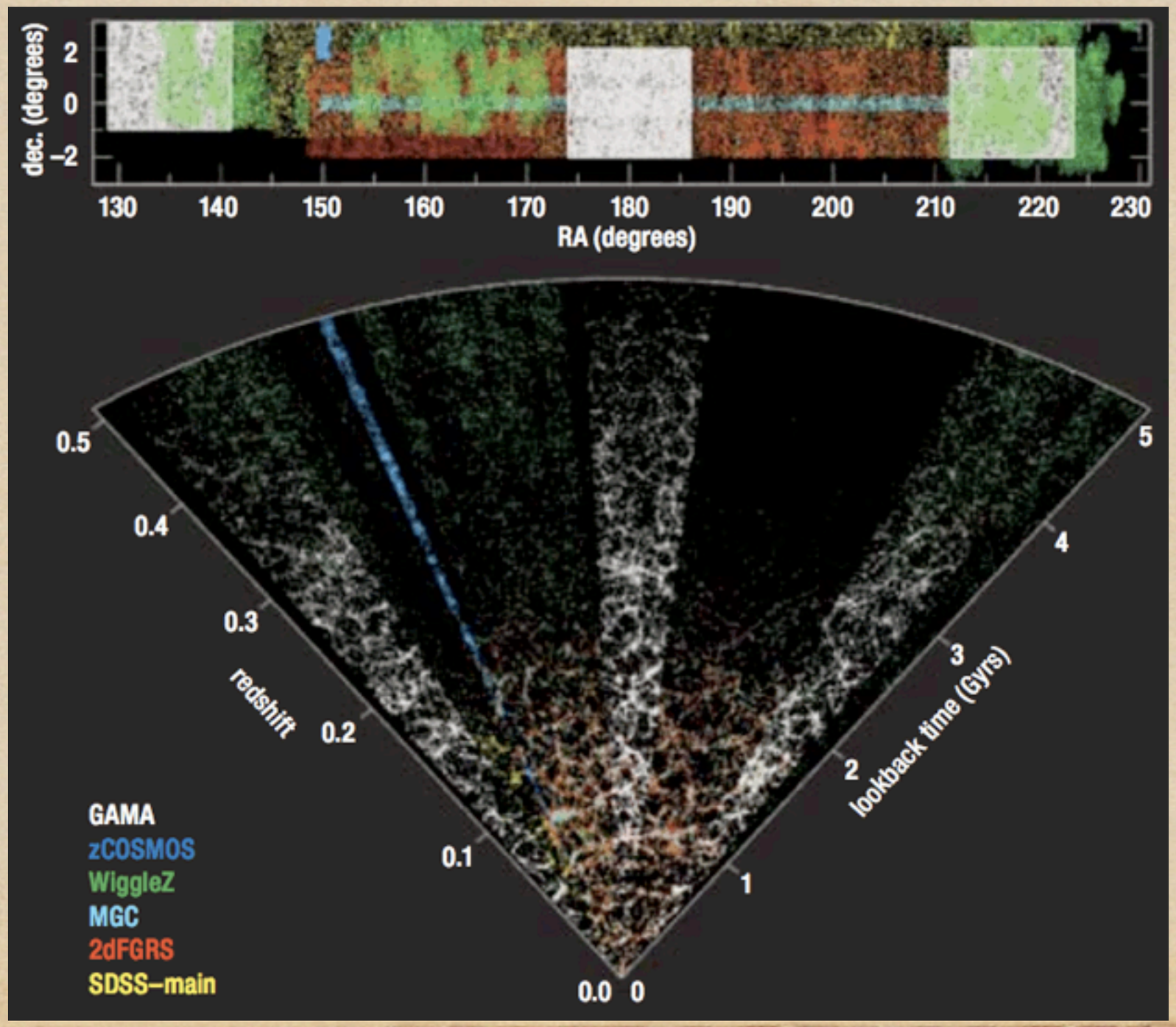


Driver et al 2010, in prep



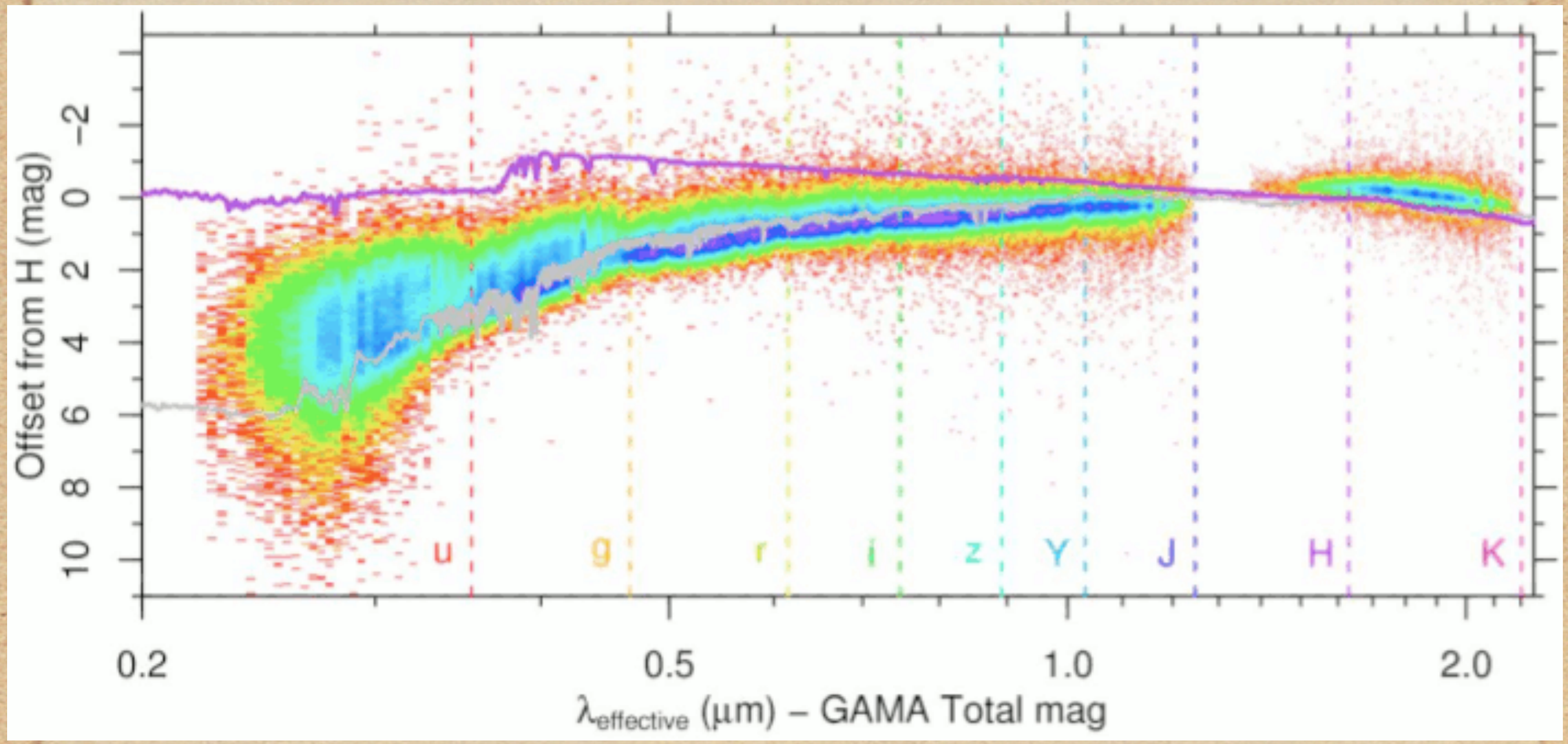
Driver et al 2010, in prep

GAMA

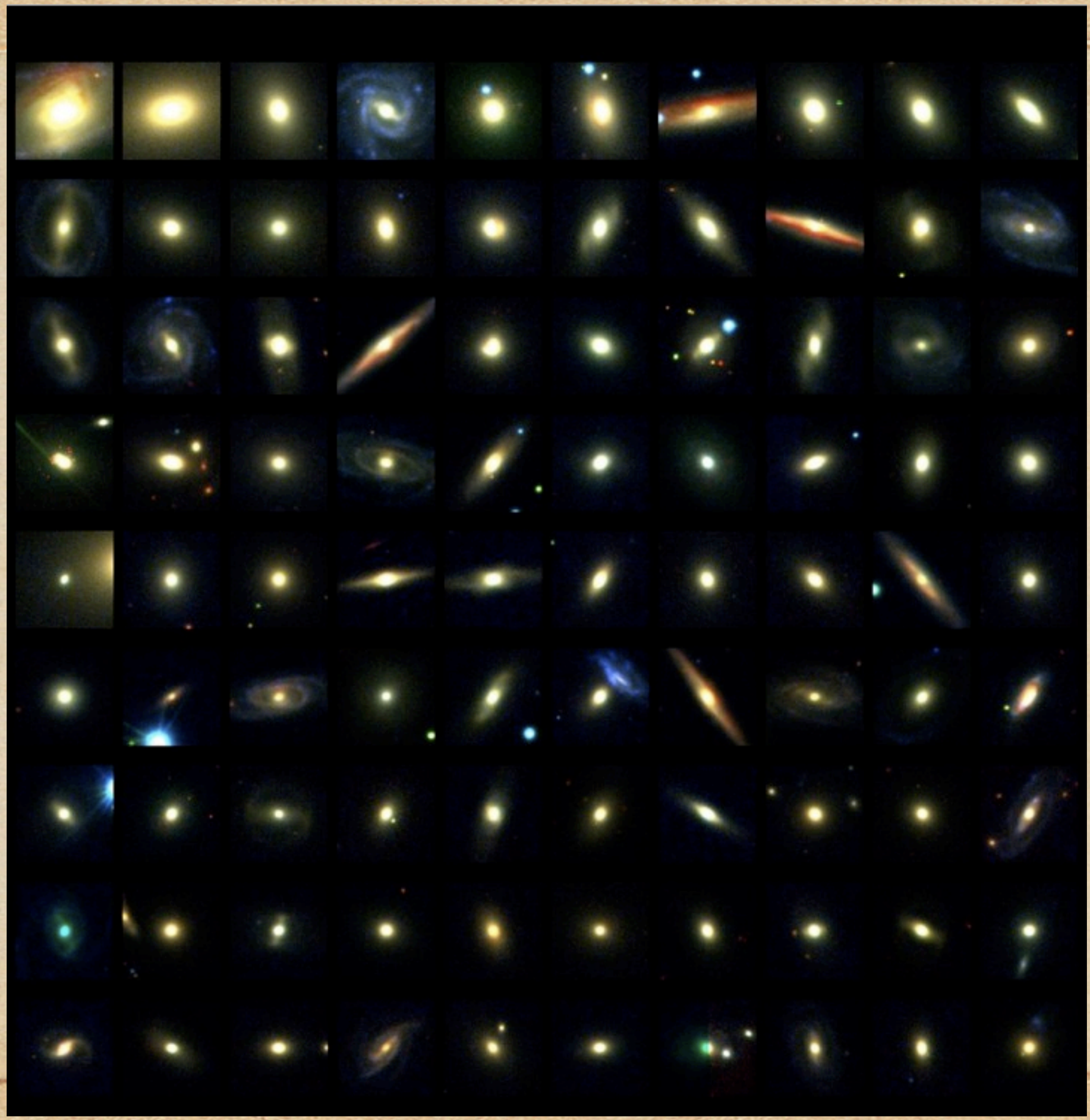


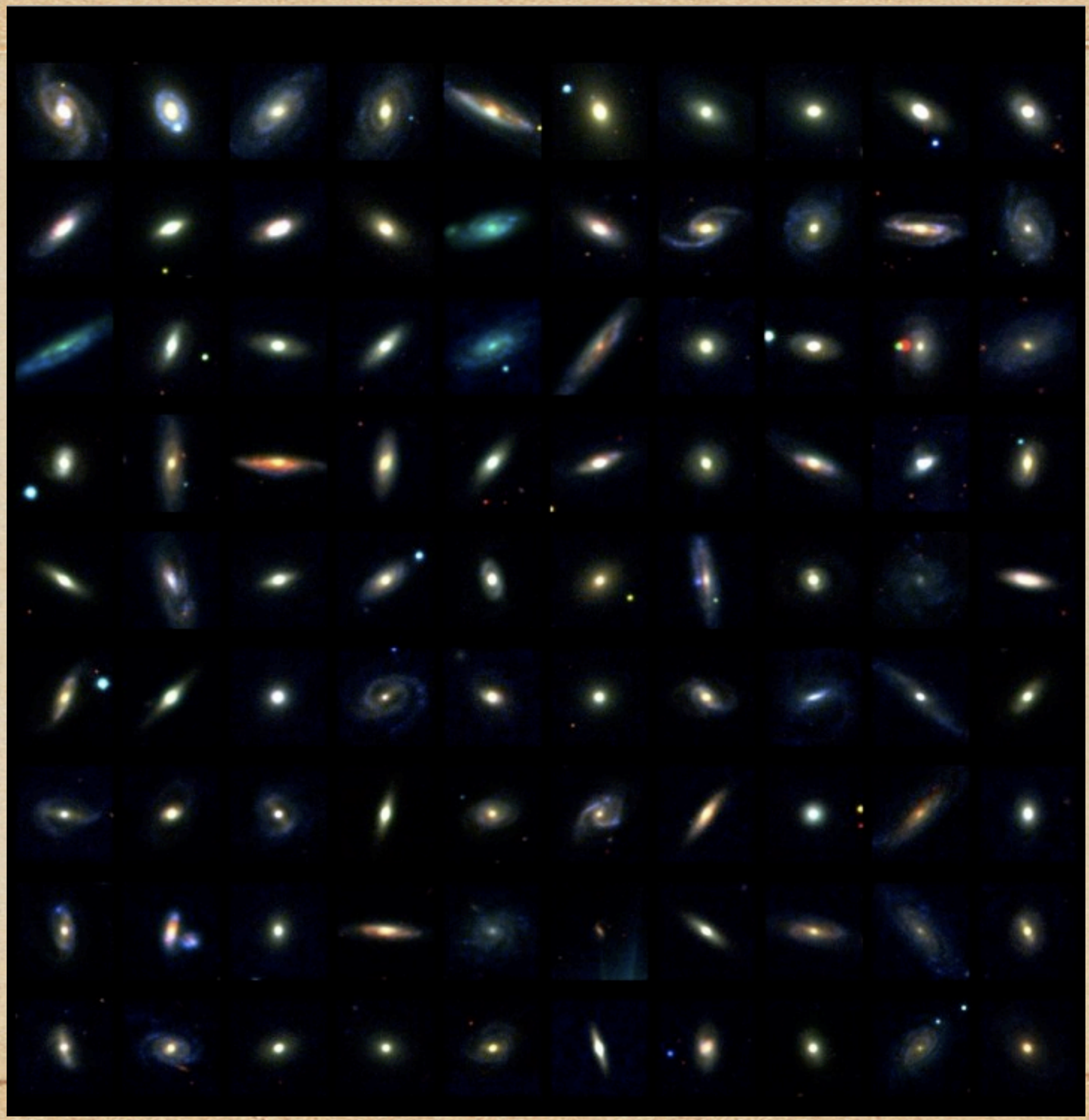
Driver et al 2009, A&G, 50, 5.12

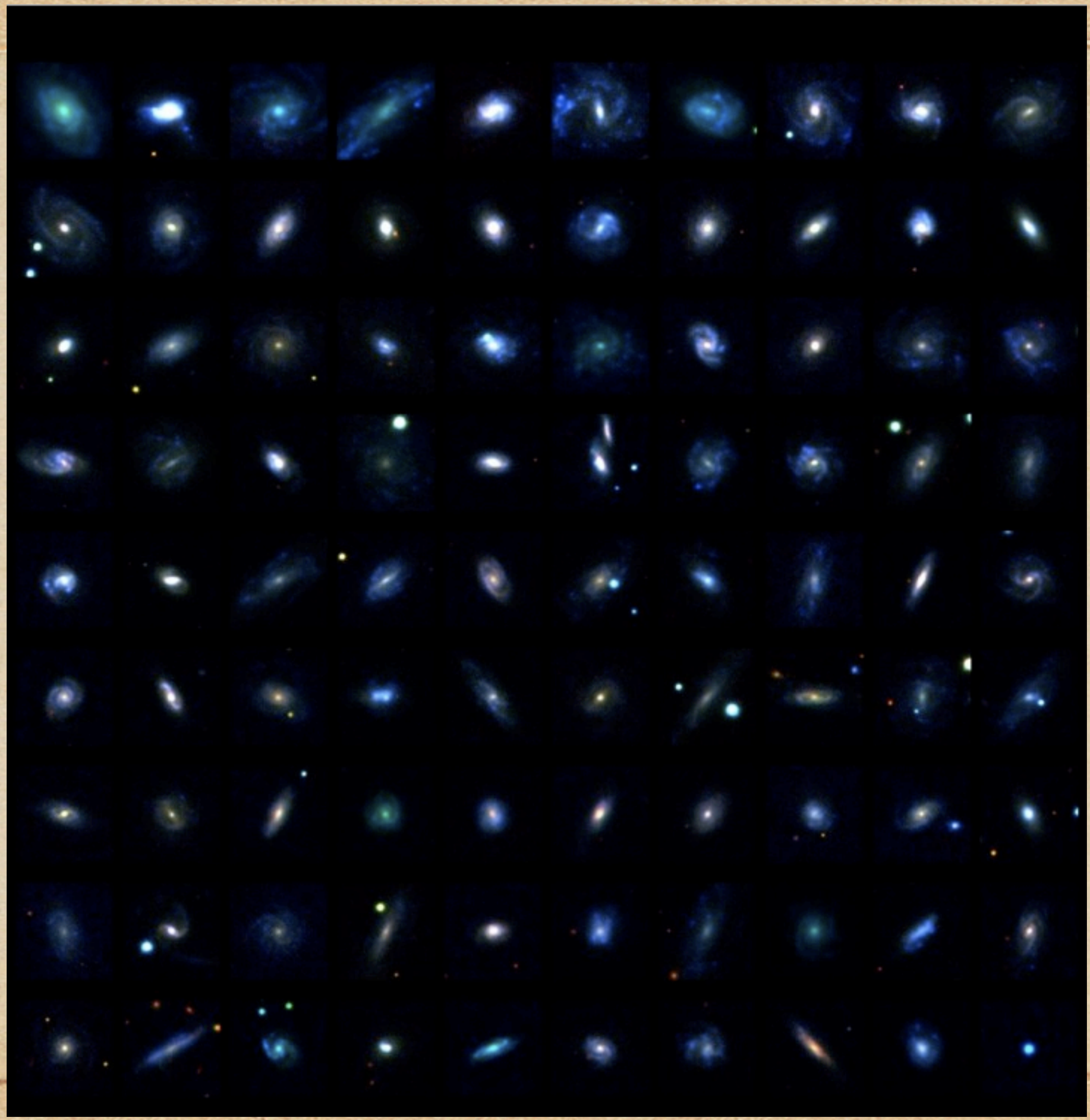
Photometry

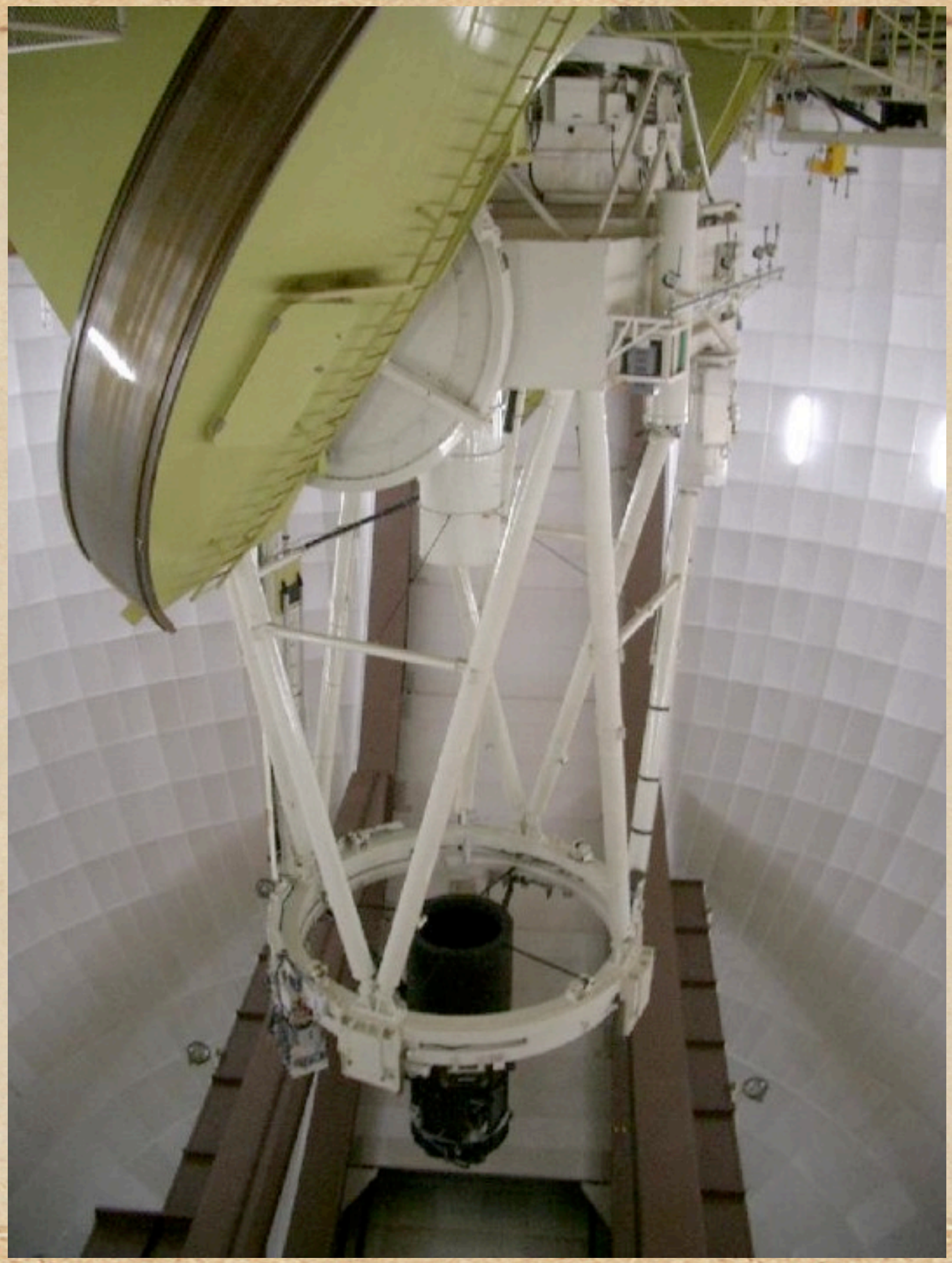


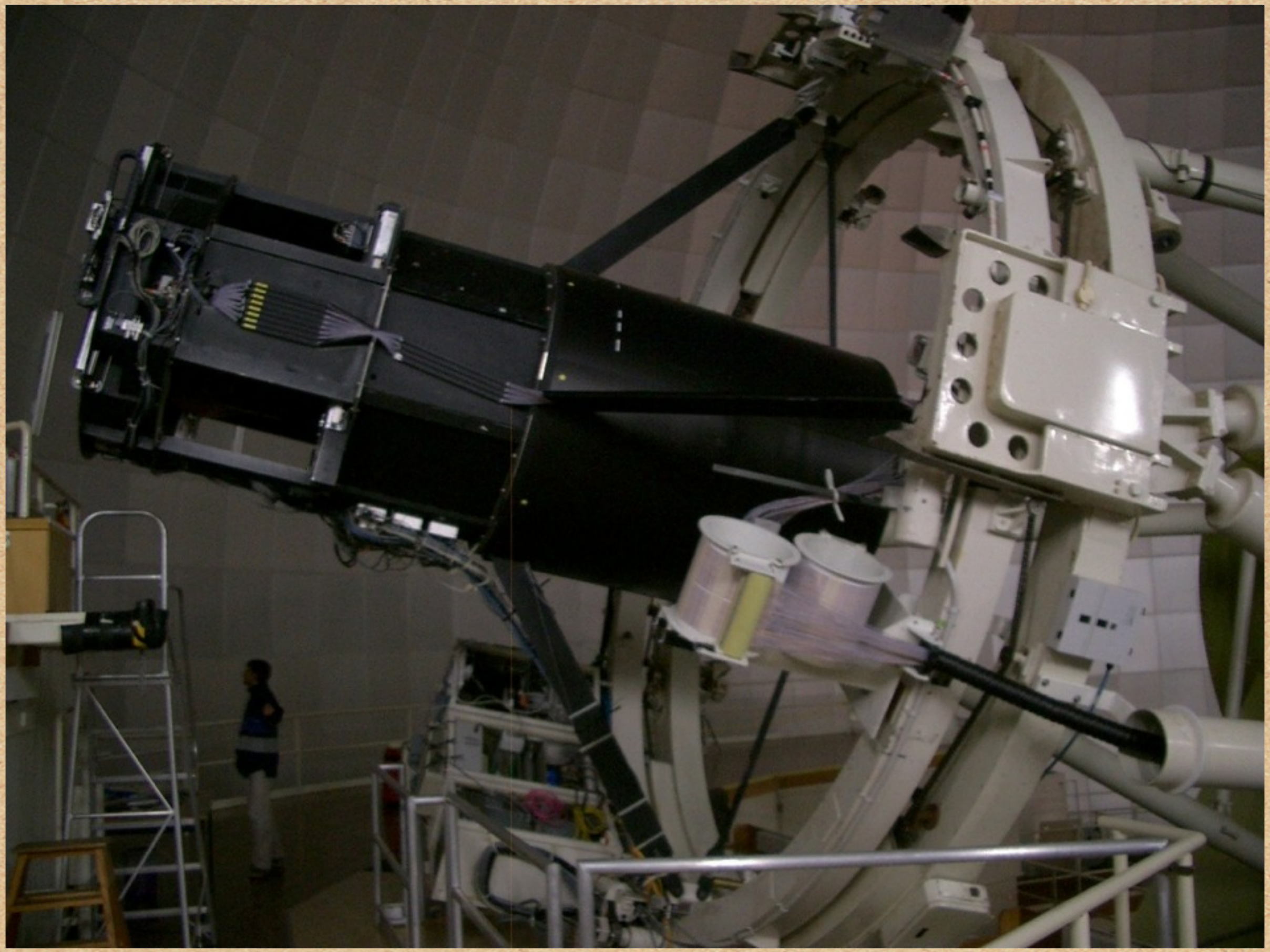
Hill et al 2010, in prep

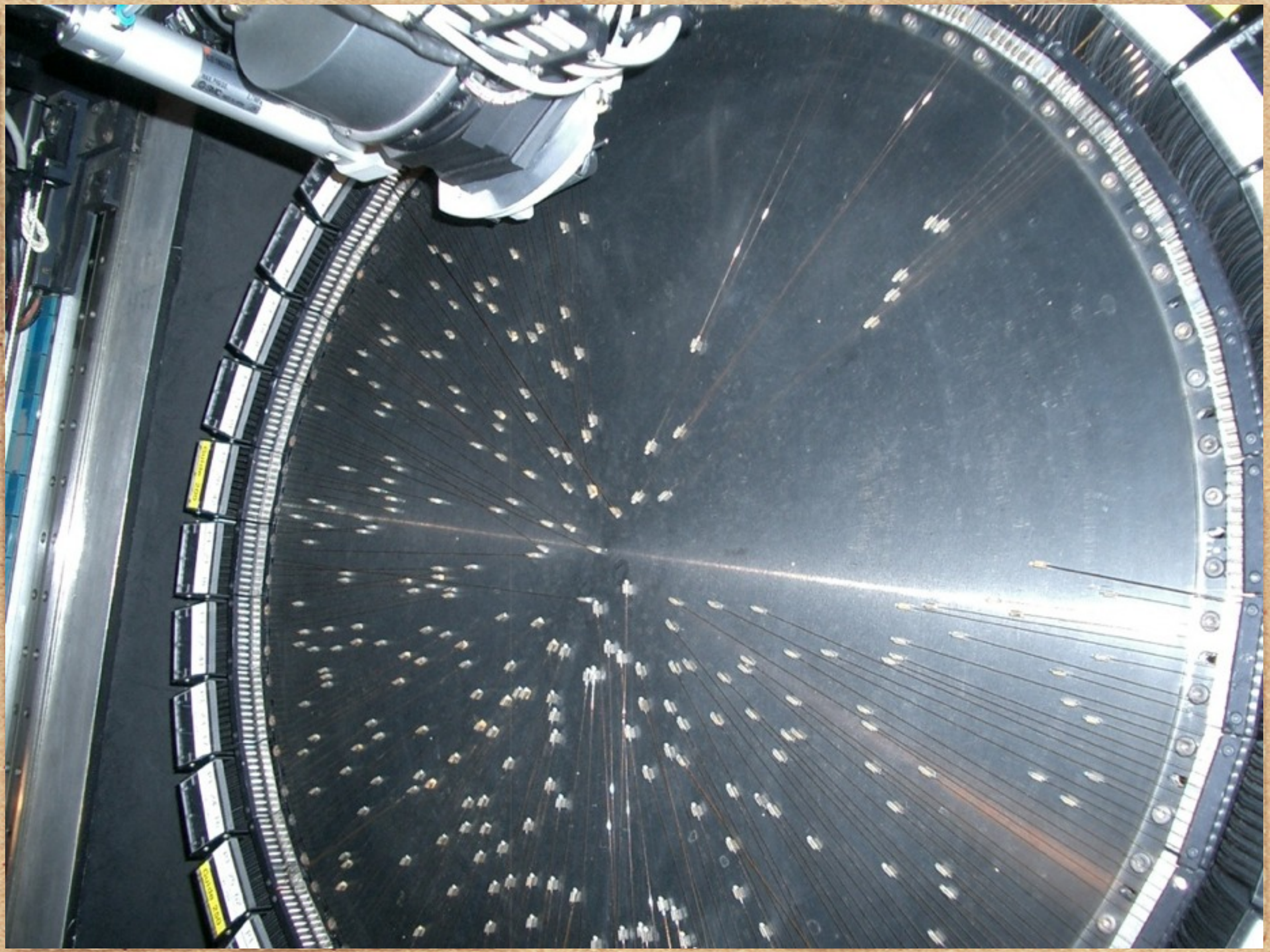


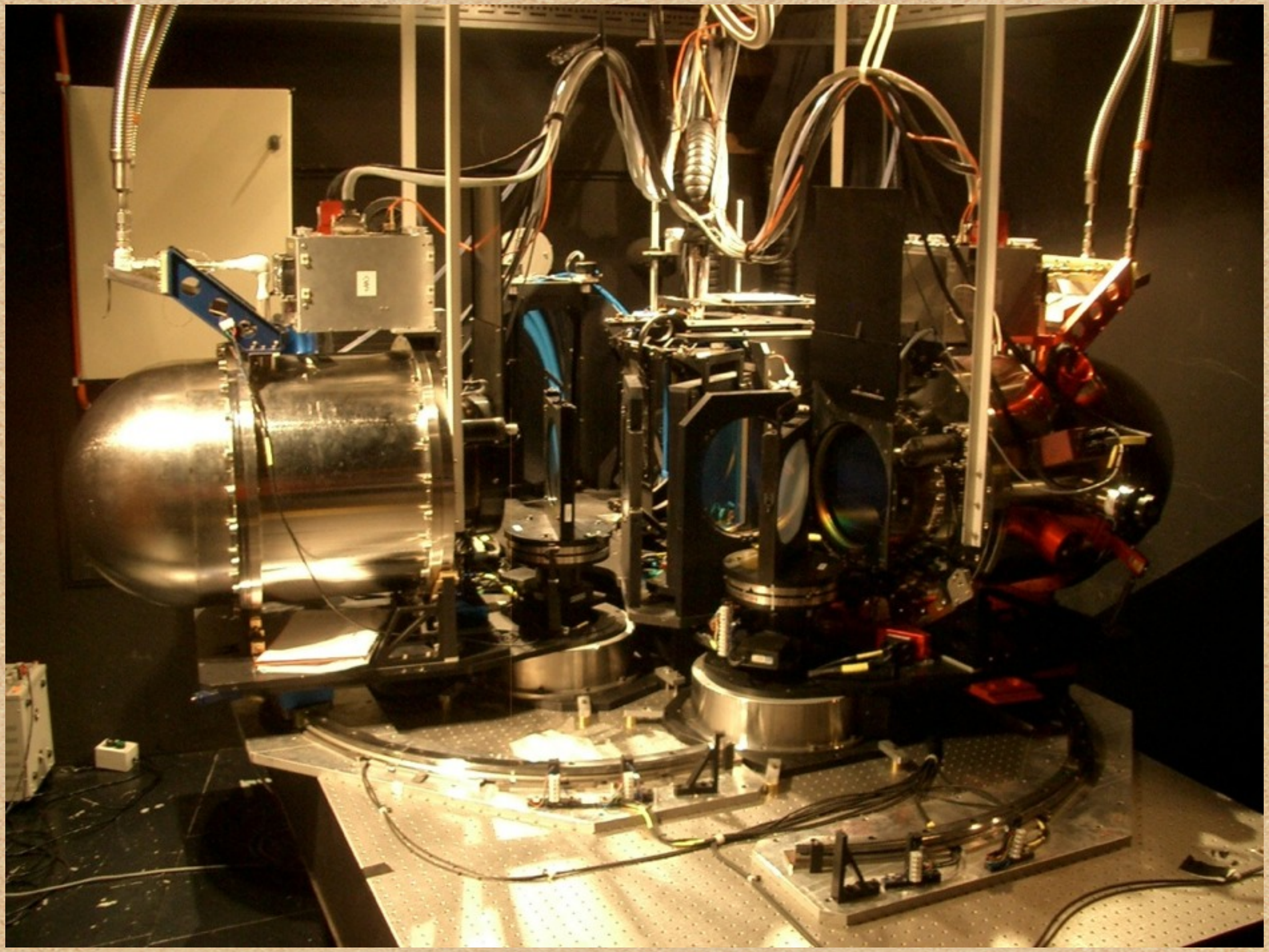




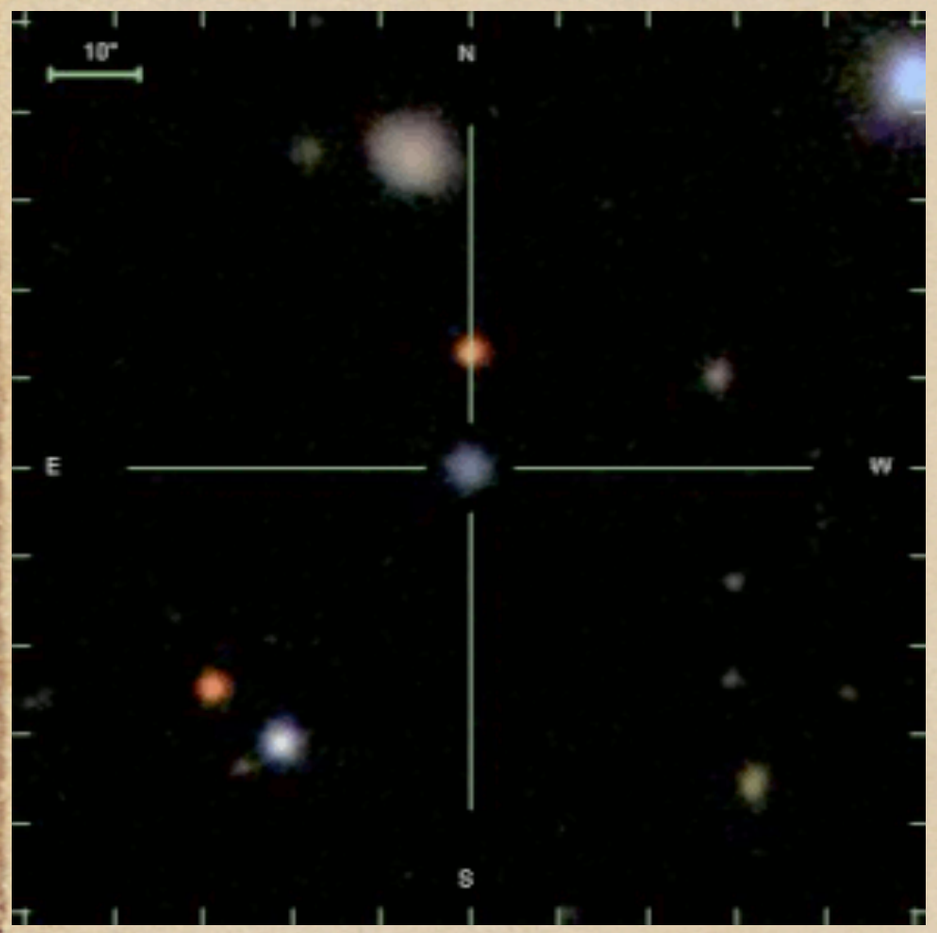


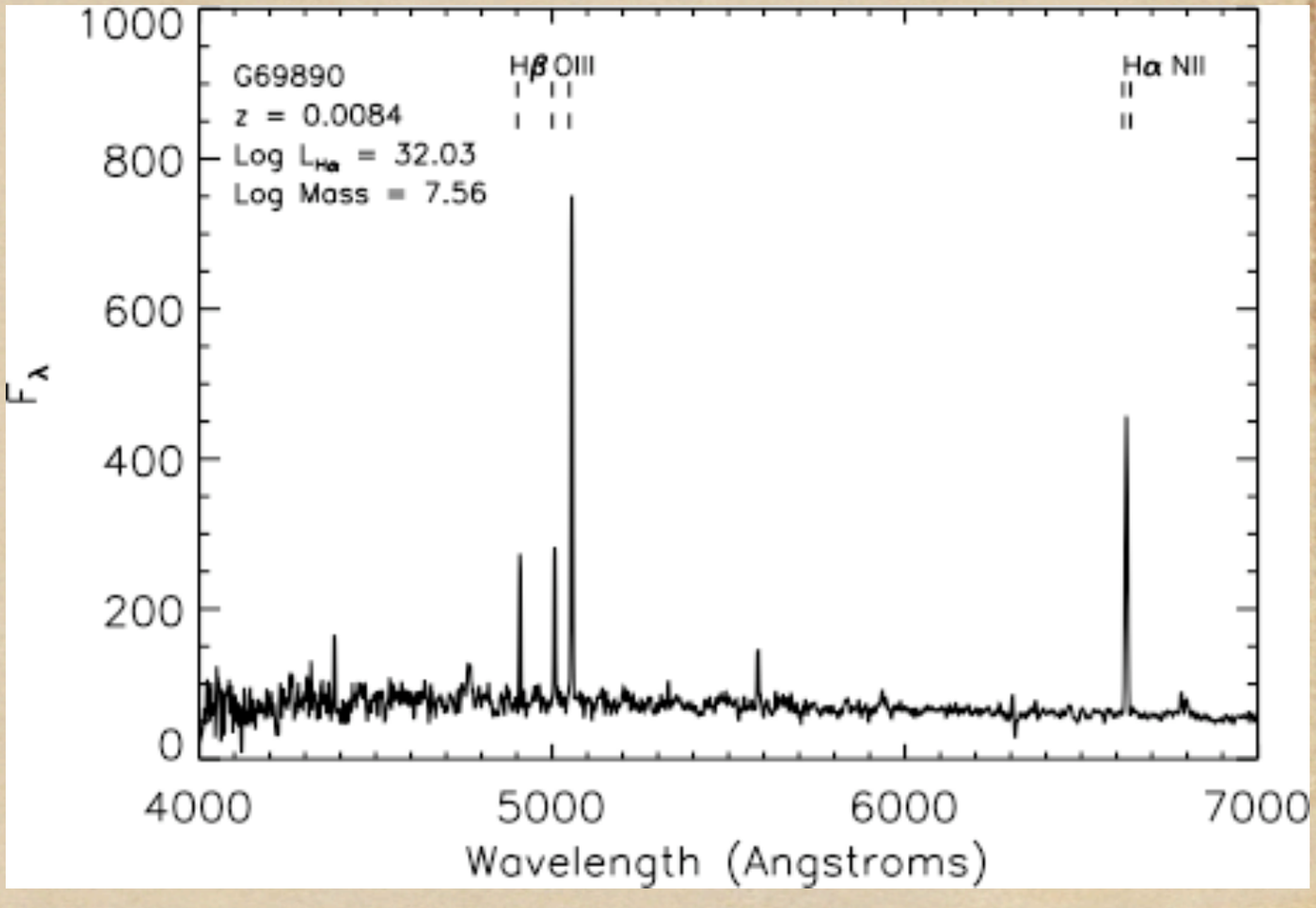






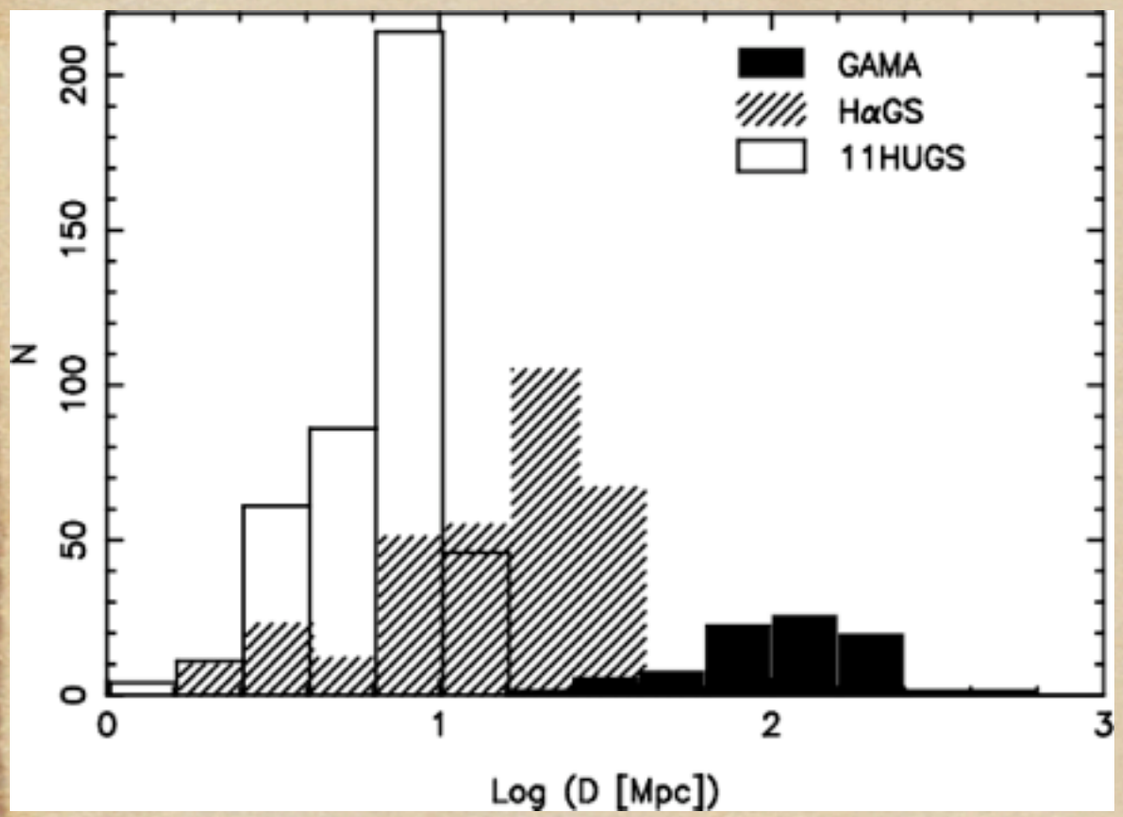
Little Blue Fuzzies

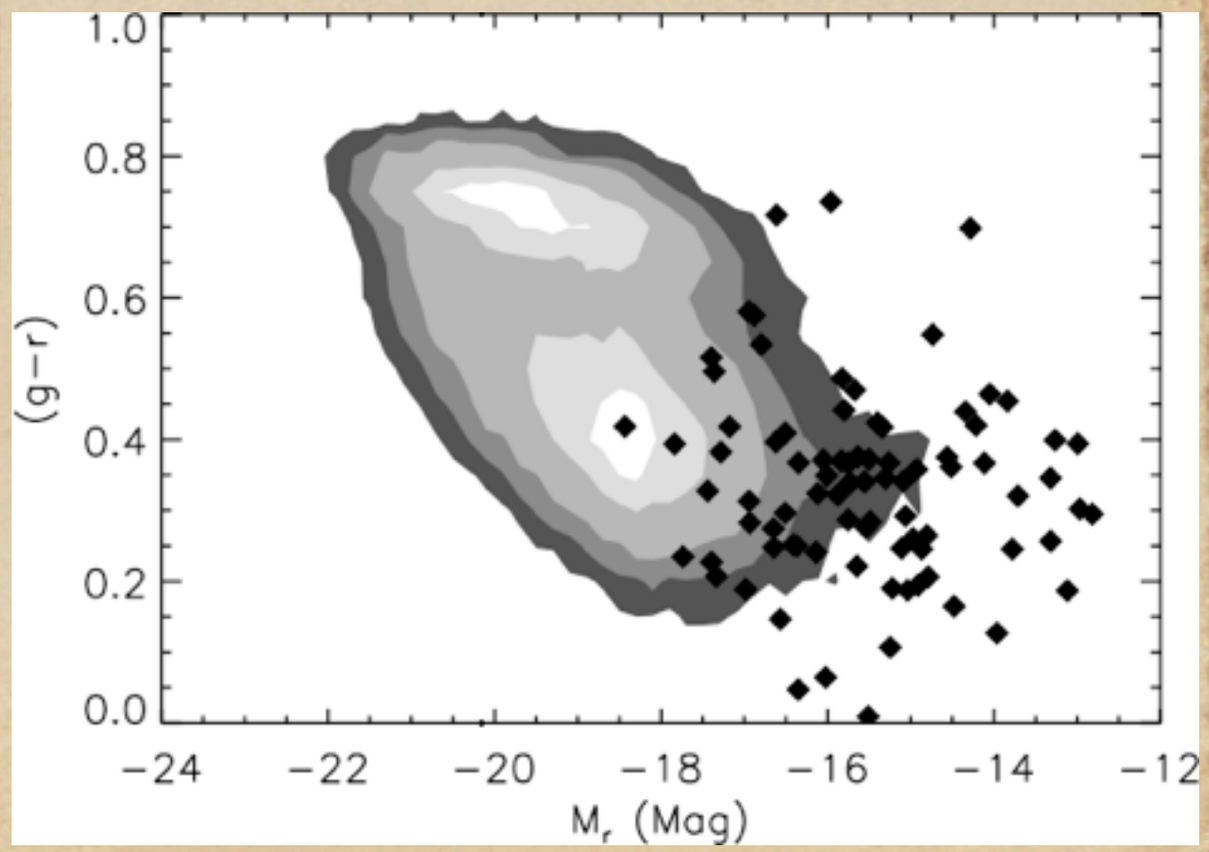




Brough et al., 2010, (in prep)

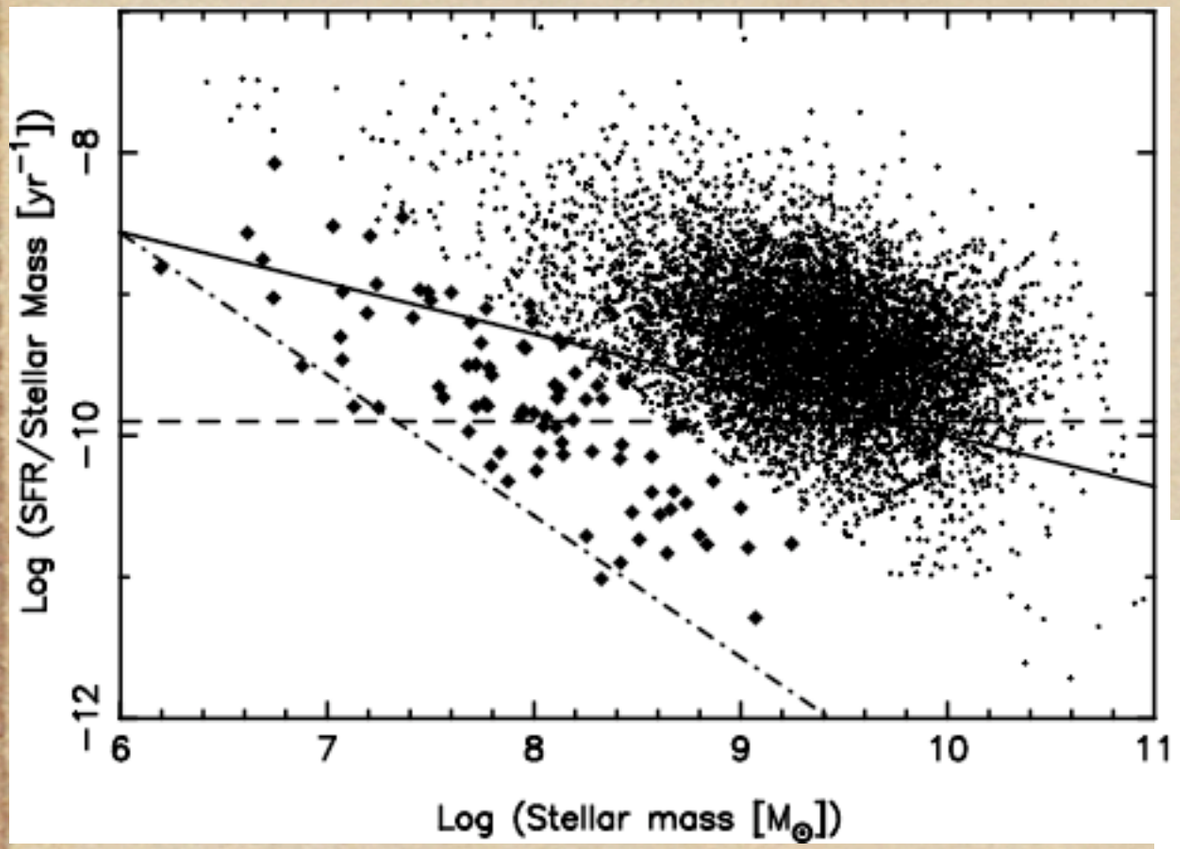
Slowest forming galaxies

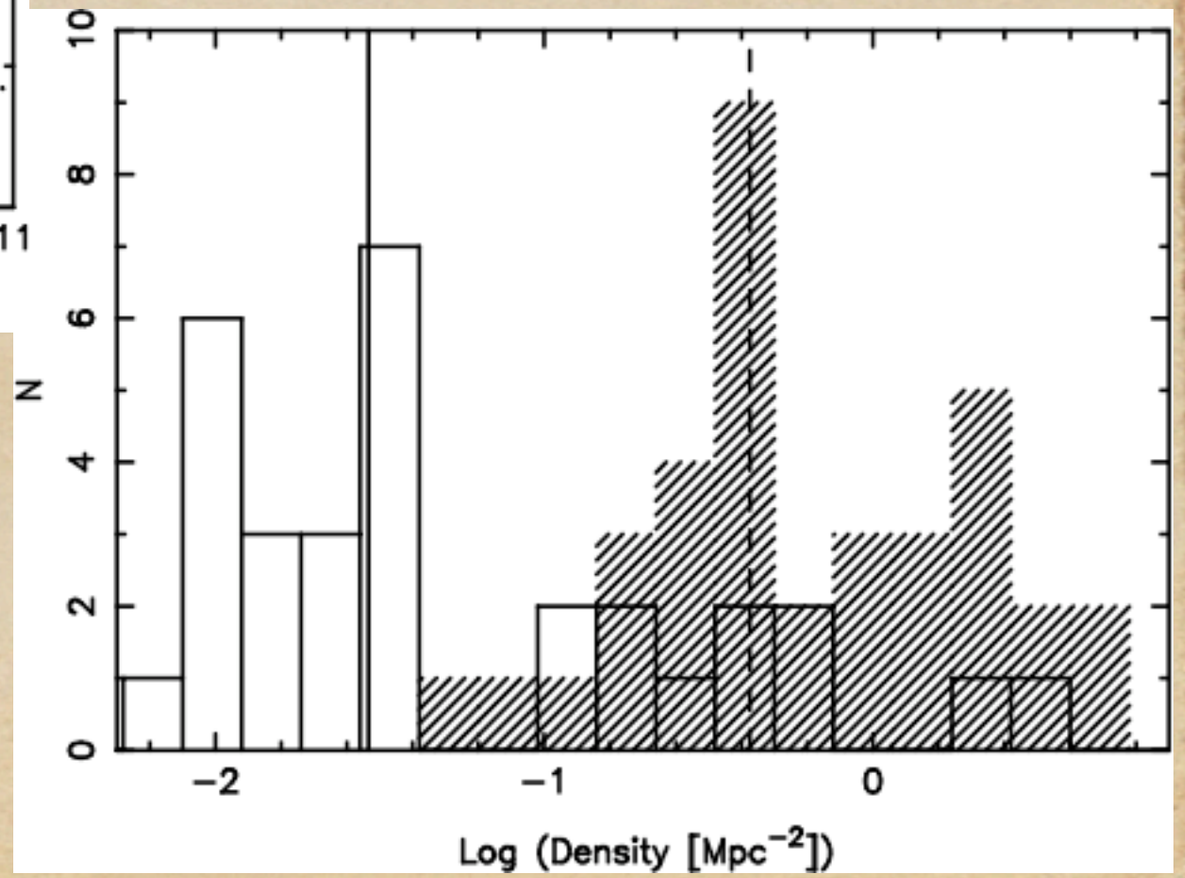




Brough et al., 2010, (in prep)

Specific SFR and environment

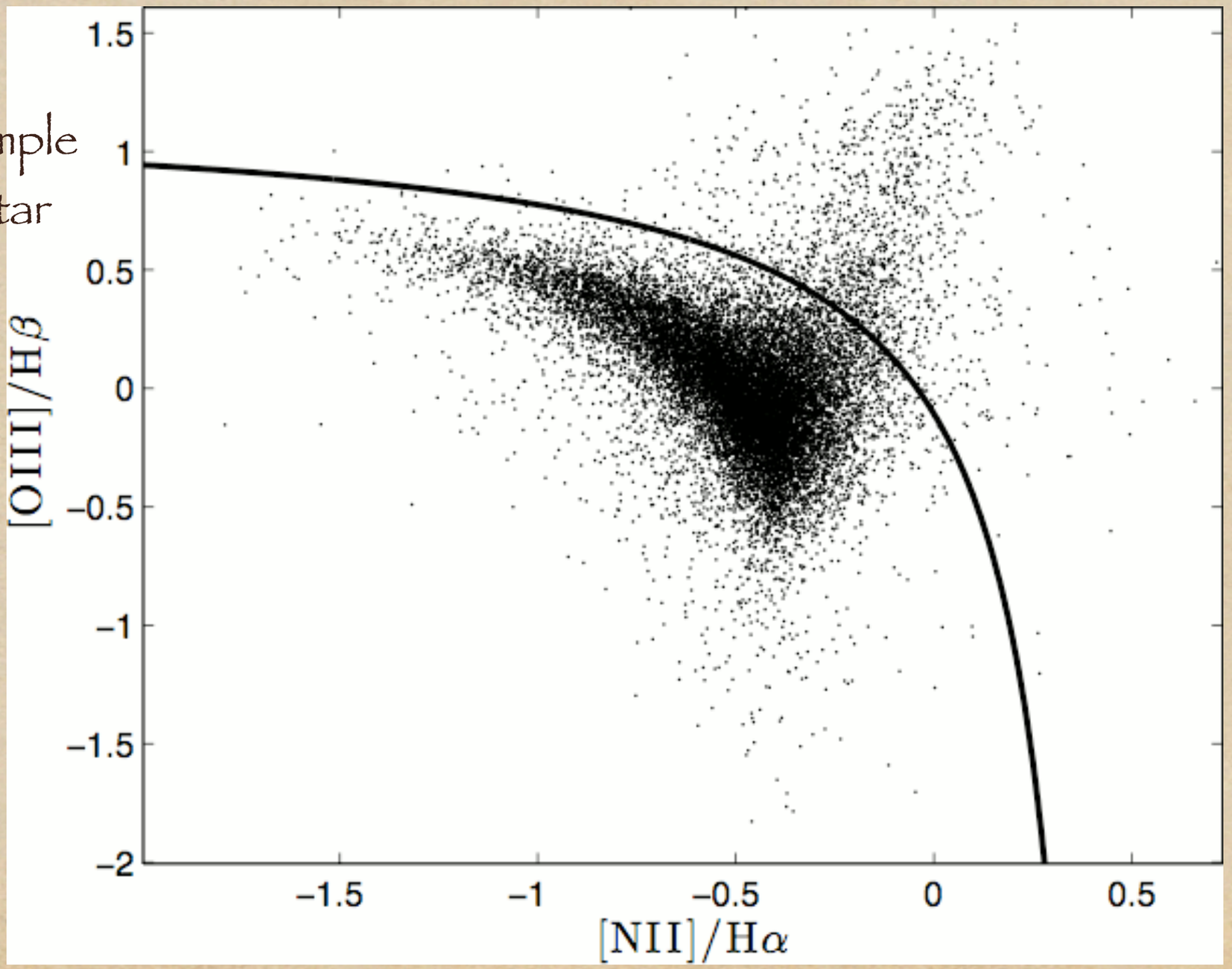




Brough et al., 2010, (in prep)

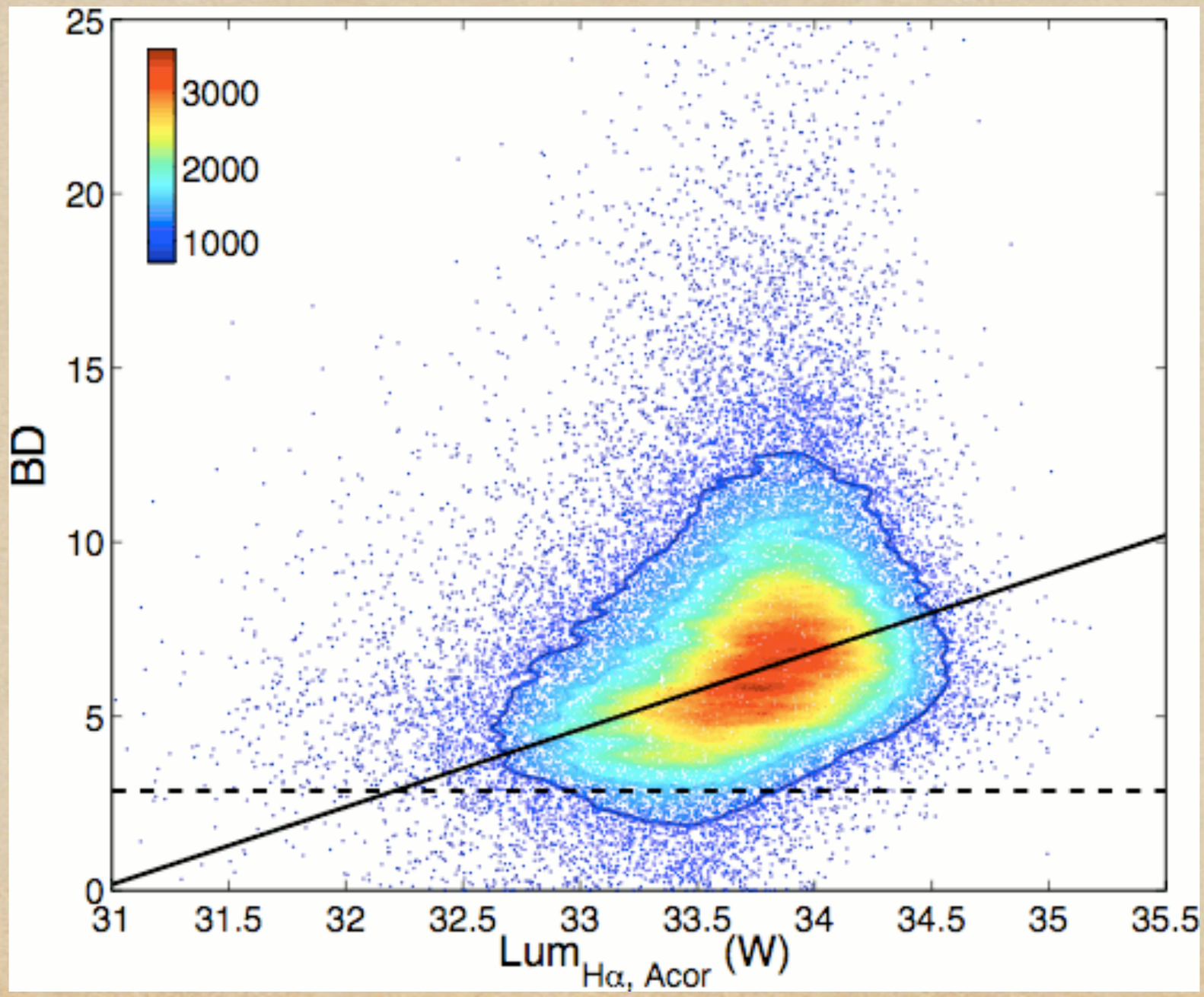
Spectral diagnostics

Current sample of 39000 star forming galaxies

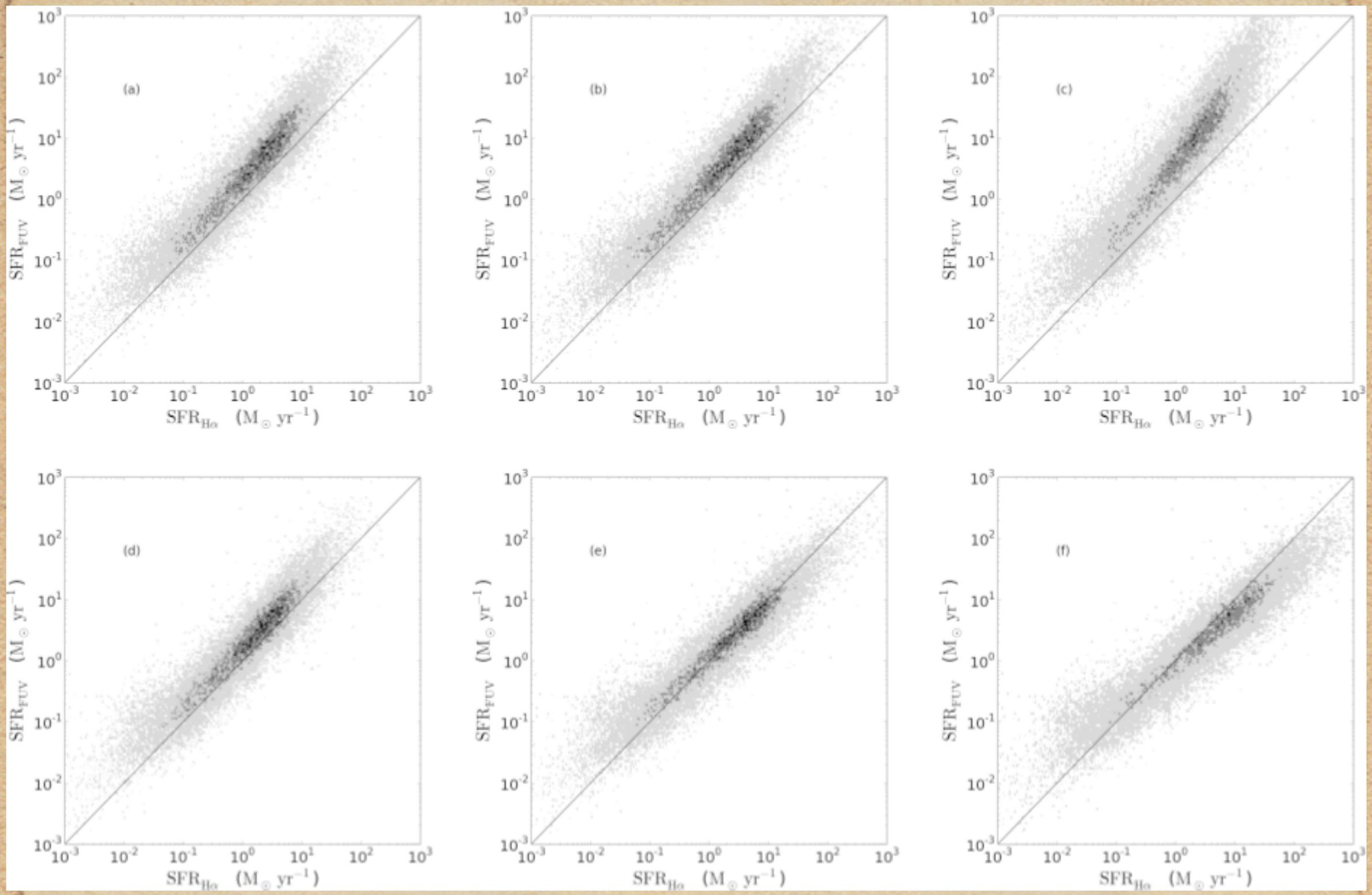


Gunawardhana 2009, Honours thesis, Macquarie University

Balmer decrements

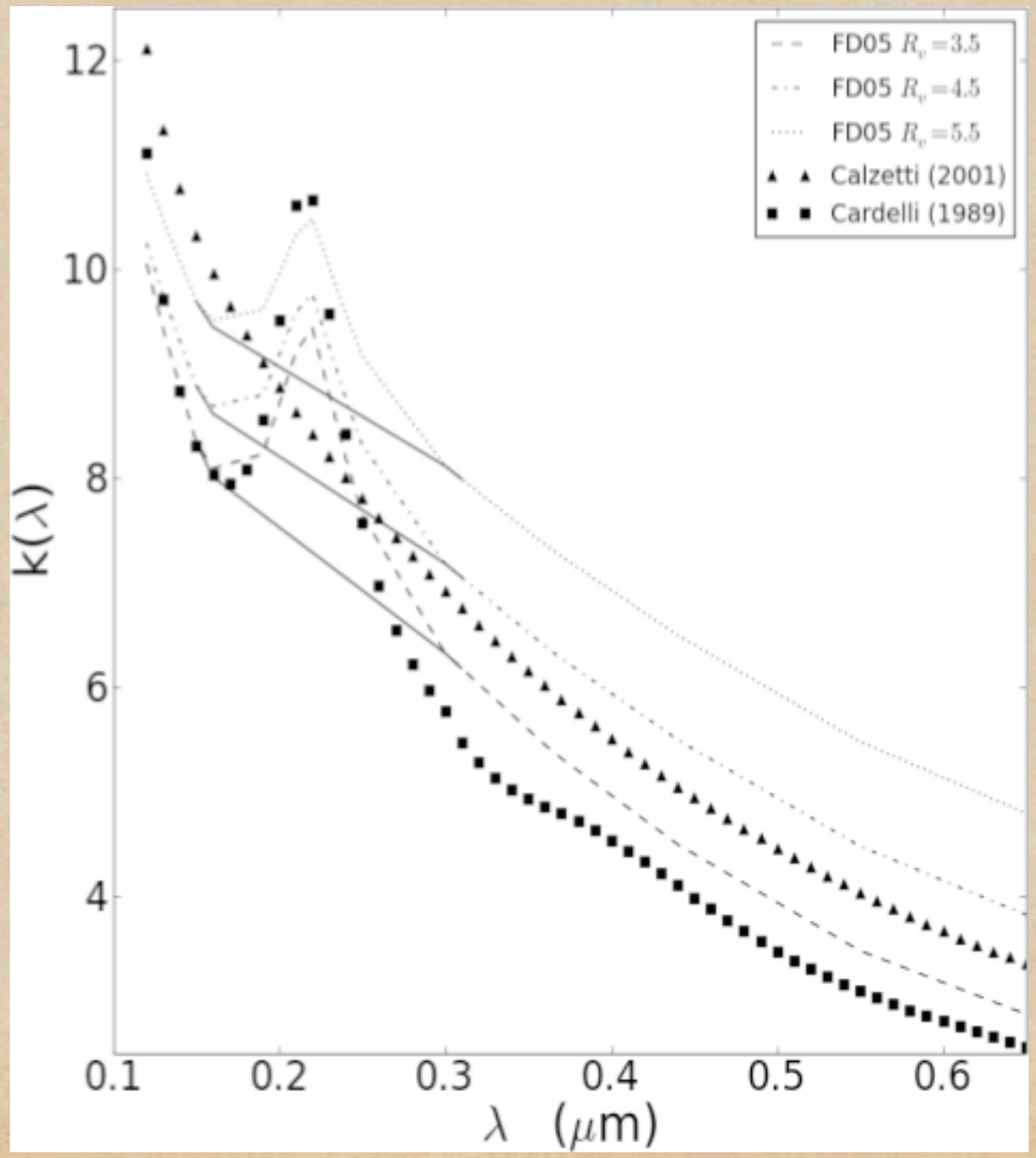


Gunawardhana 2010, in prep



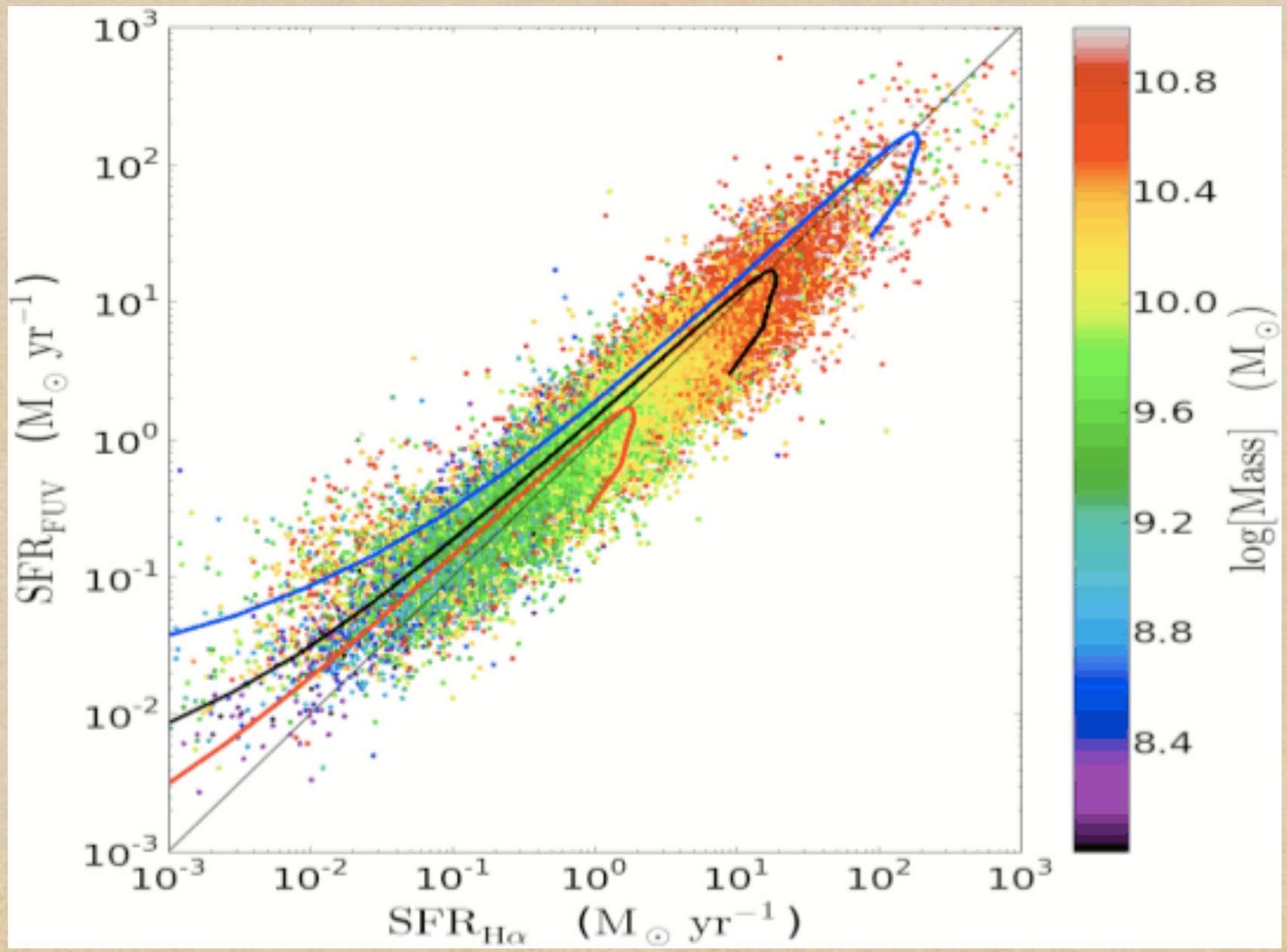
Wijesinghe et al., 2010, MNRAS (submitted)

Obscuration curves



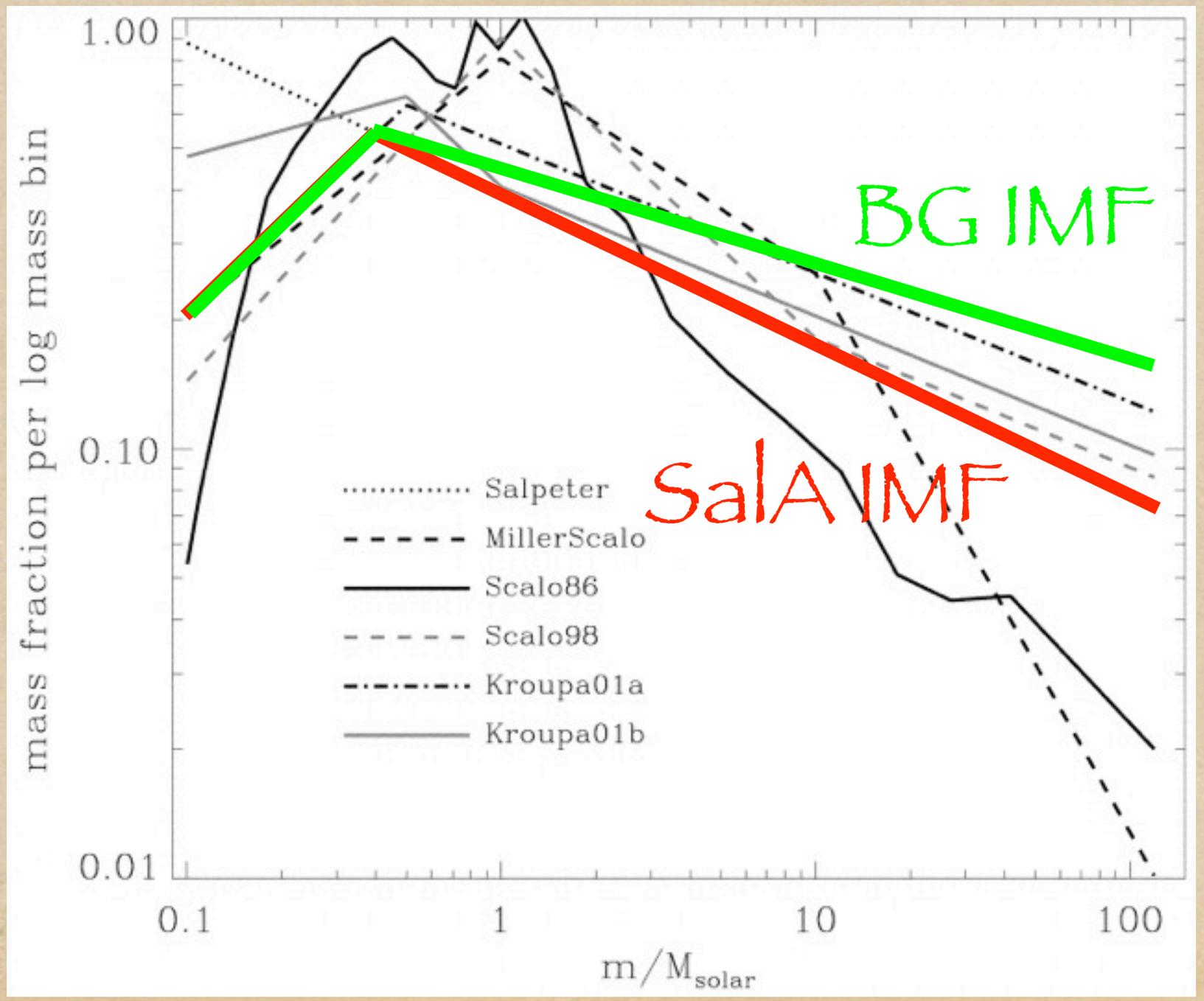
Wijesinghe et al., 2010, MNRAS (submitted)

FUV vs Hα SFRs



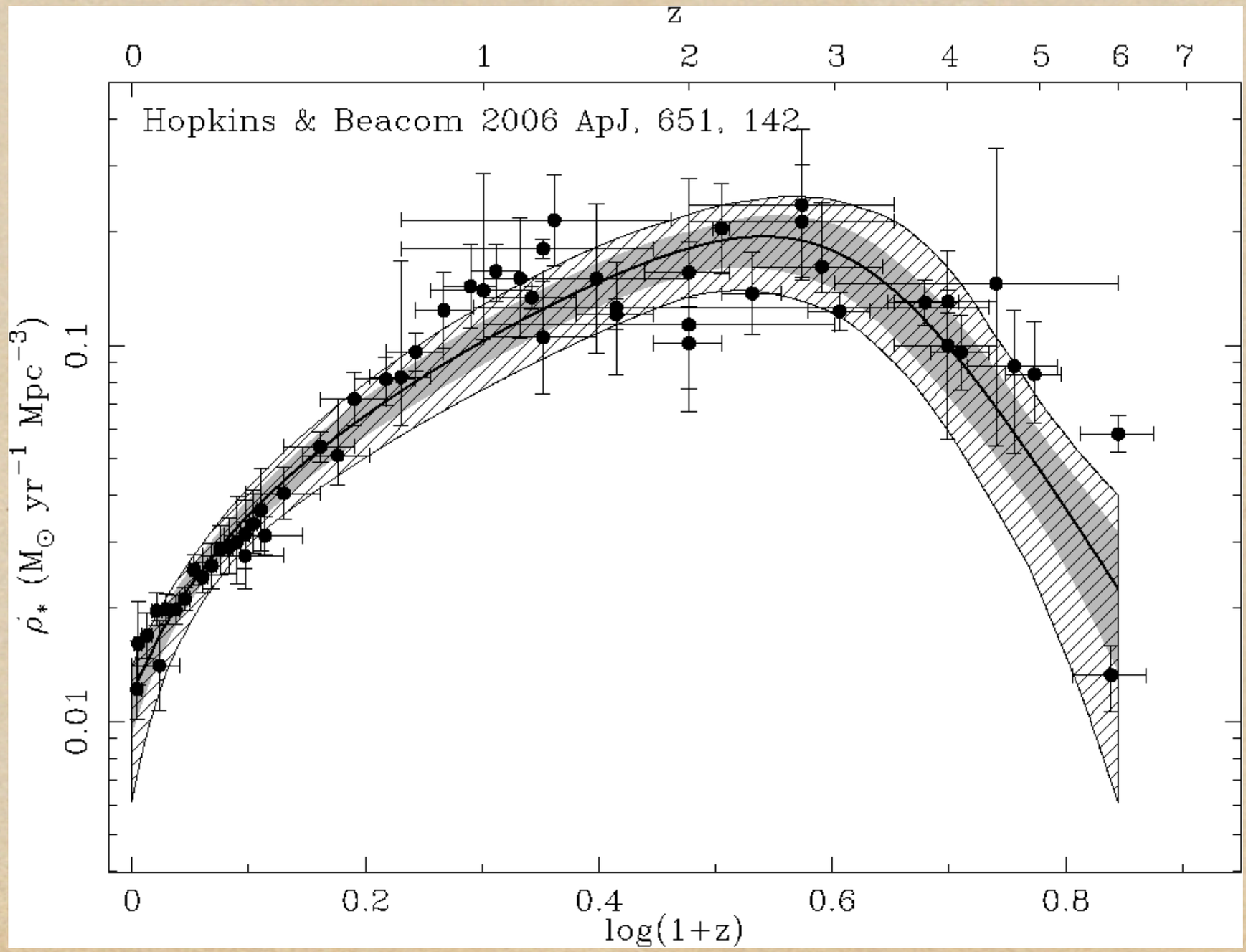
Wijesinghe et al., 2010, MNRAS (submitted)

The stellar IMF

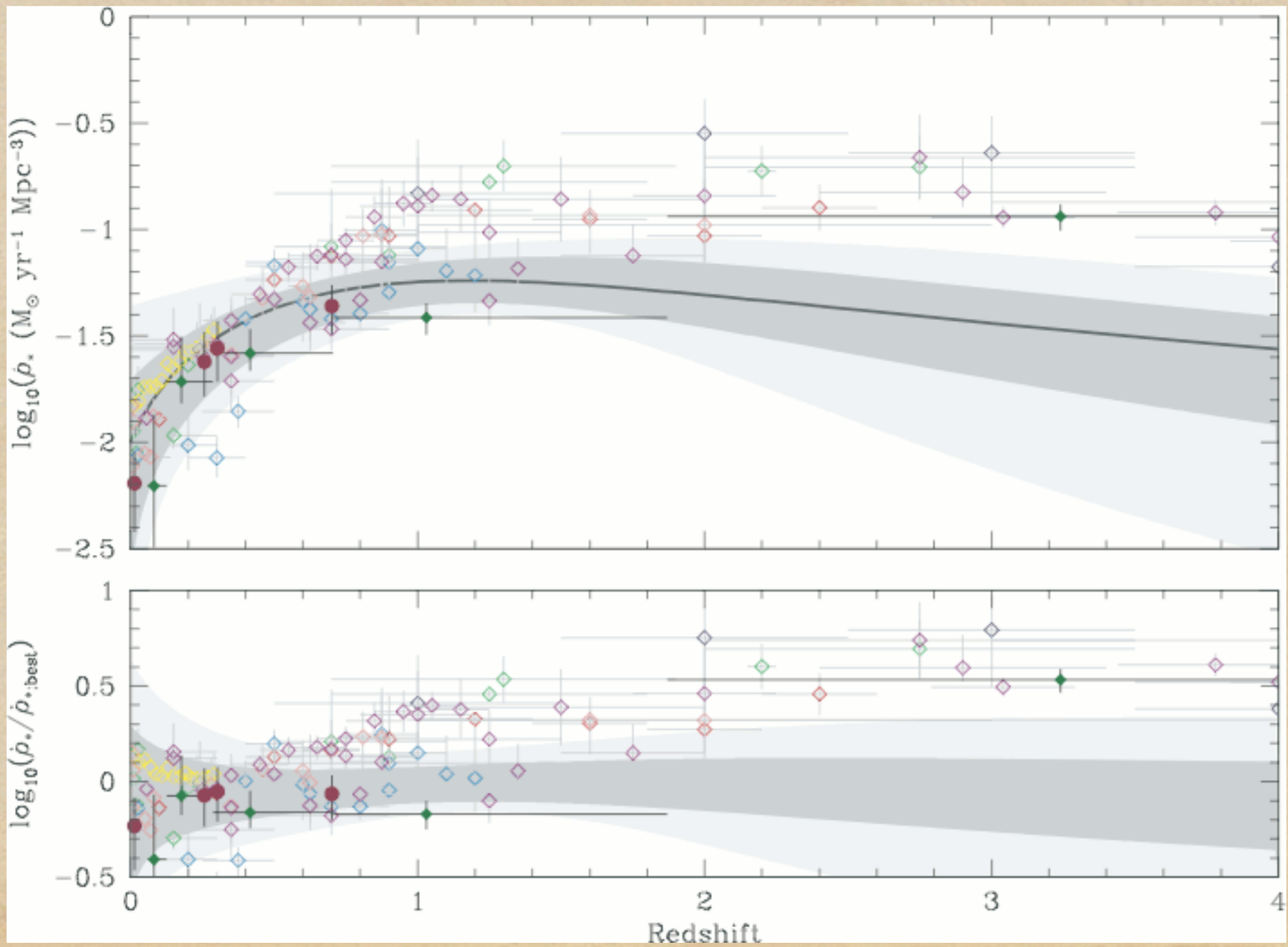


Baldry and Glazebrook 2003, ApJ, 593, 258

Cosmic star formation history

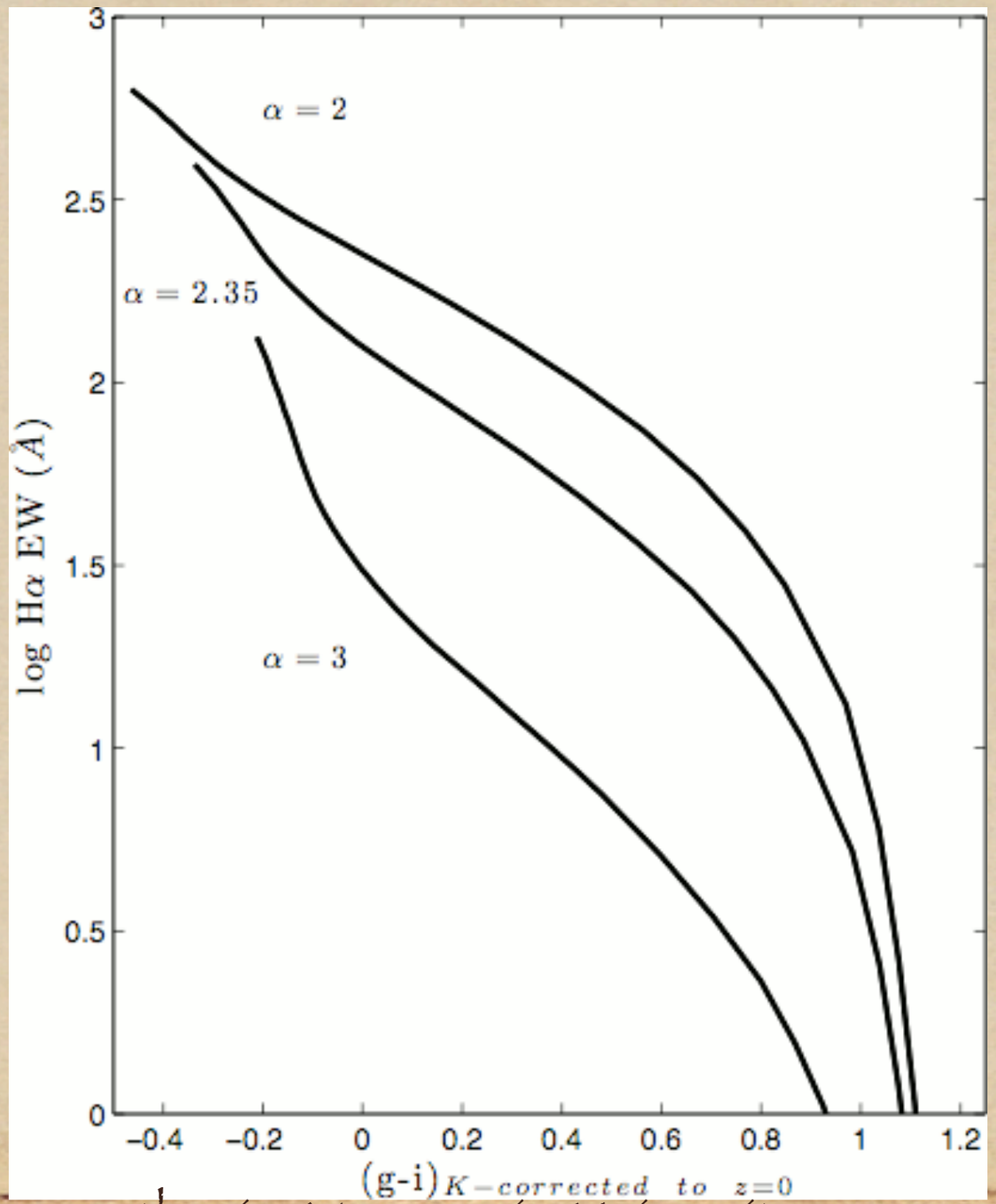


SFH-SMH discrepancies



Wilkins et al 2008, MNRAS, 385, 687

Hα EW vs g-i colour



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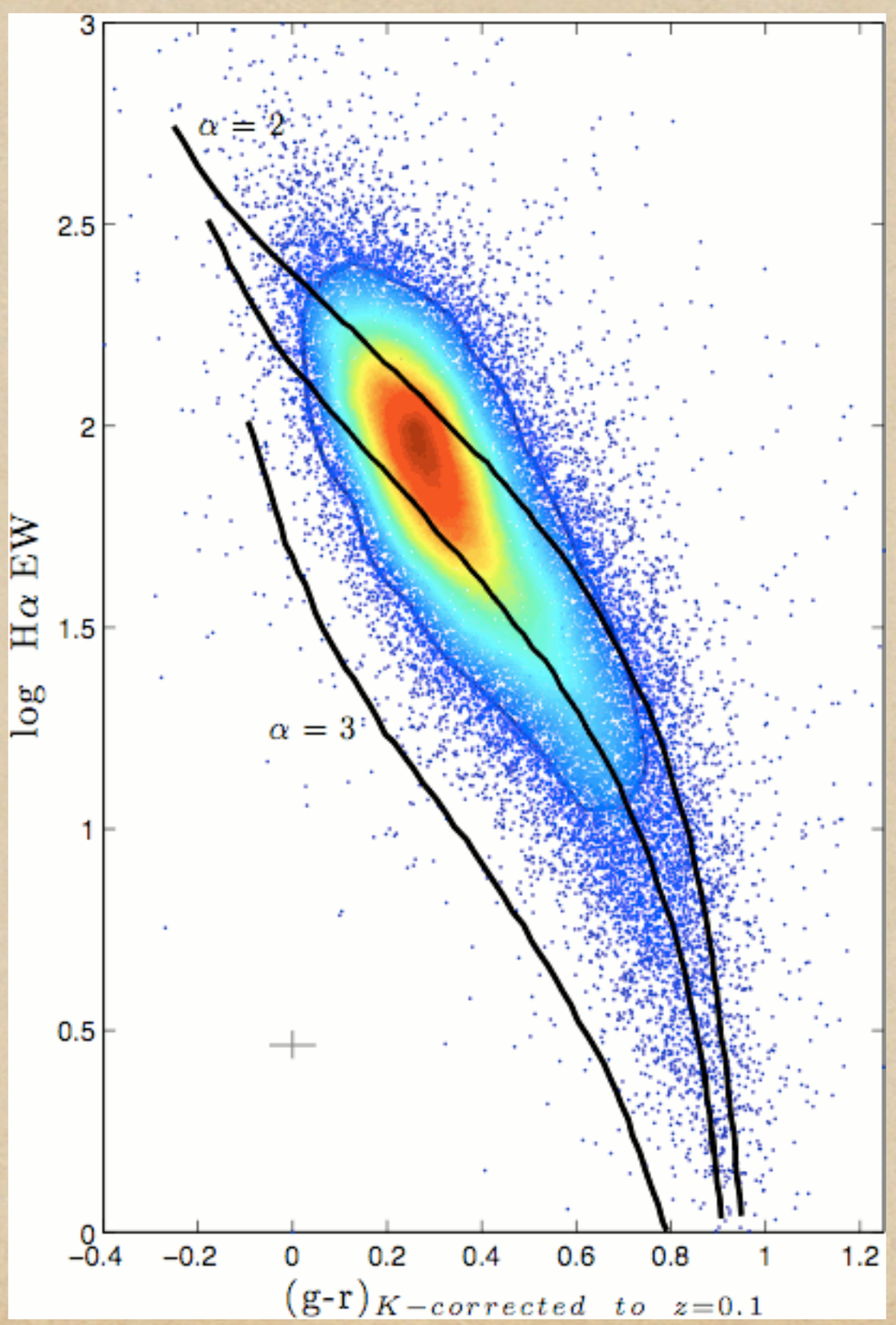
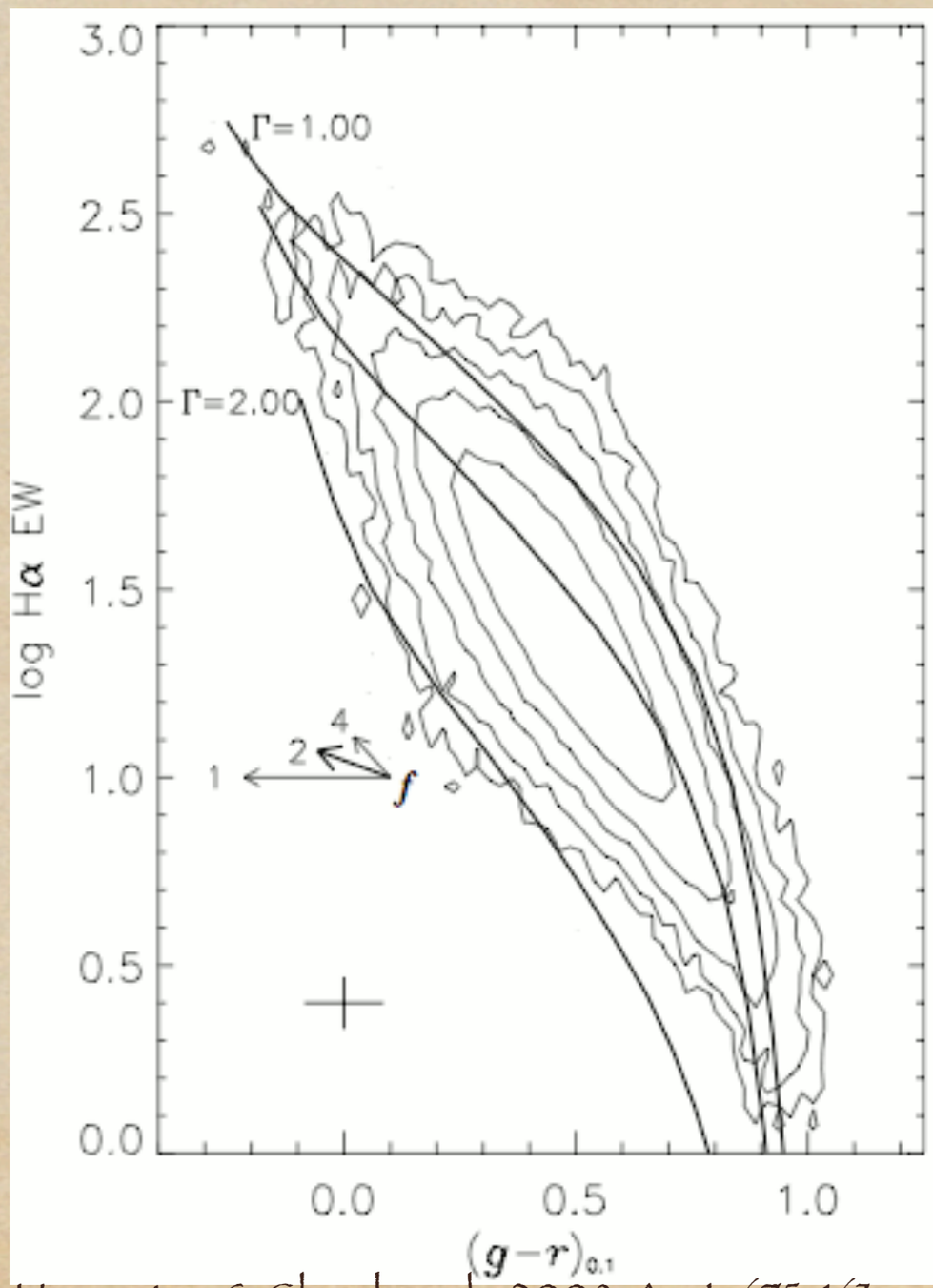
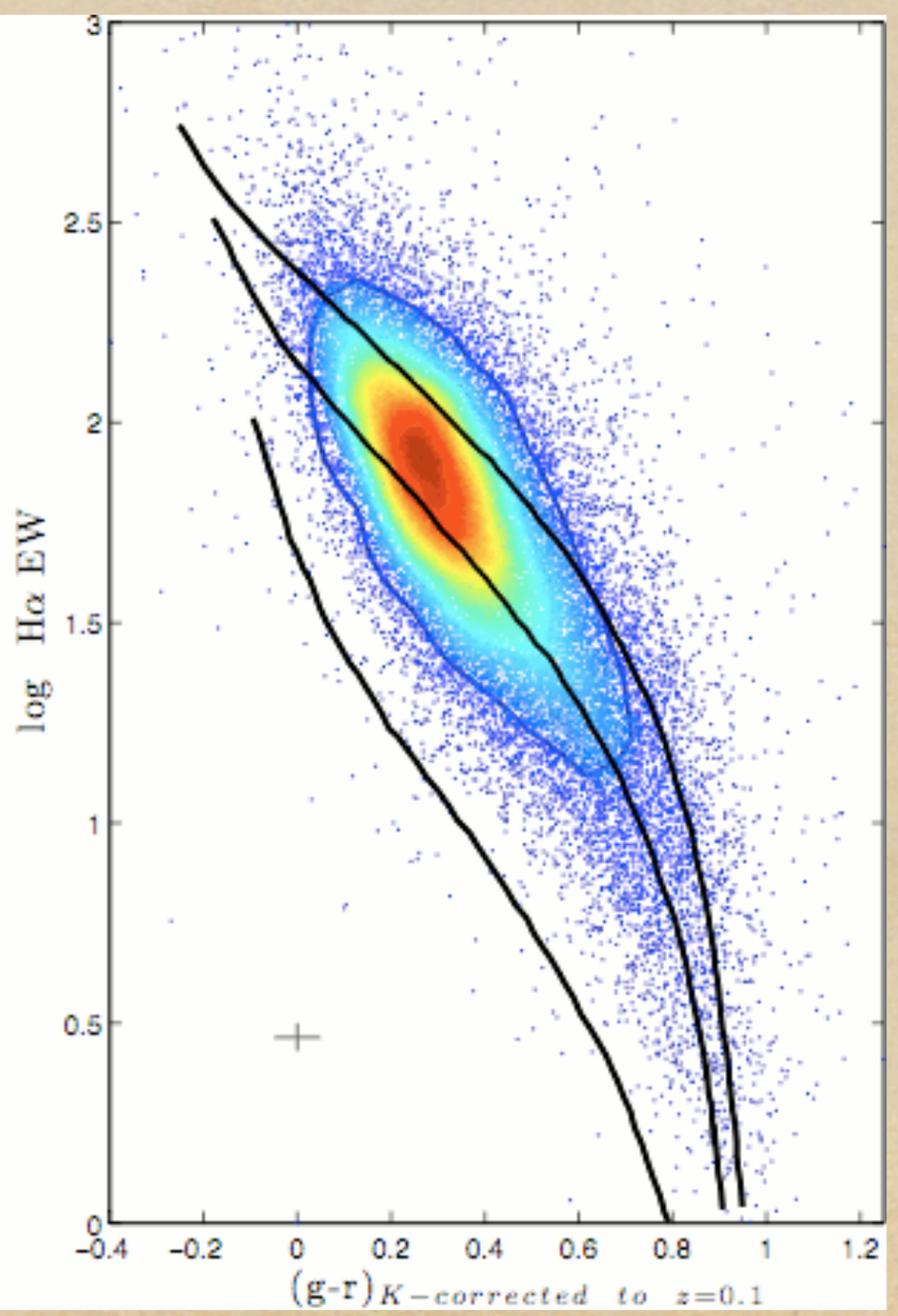


Gunawardhana 2009, Honours thesis, Macquarie University

SDSS vs GAMA

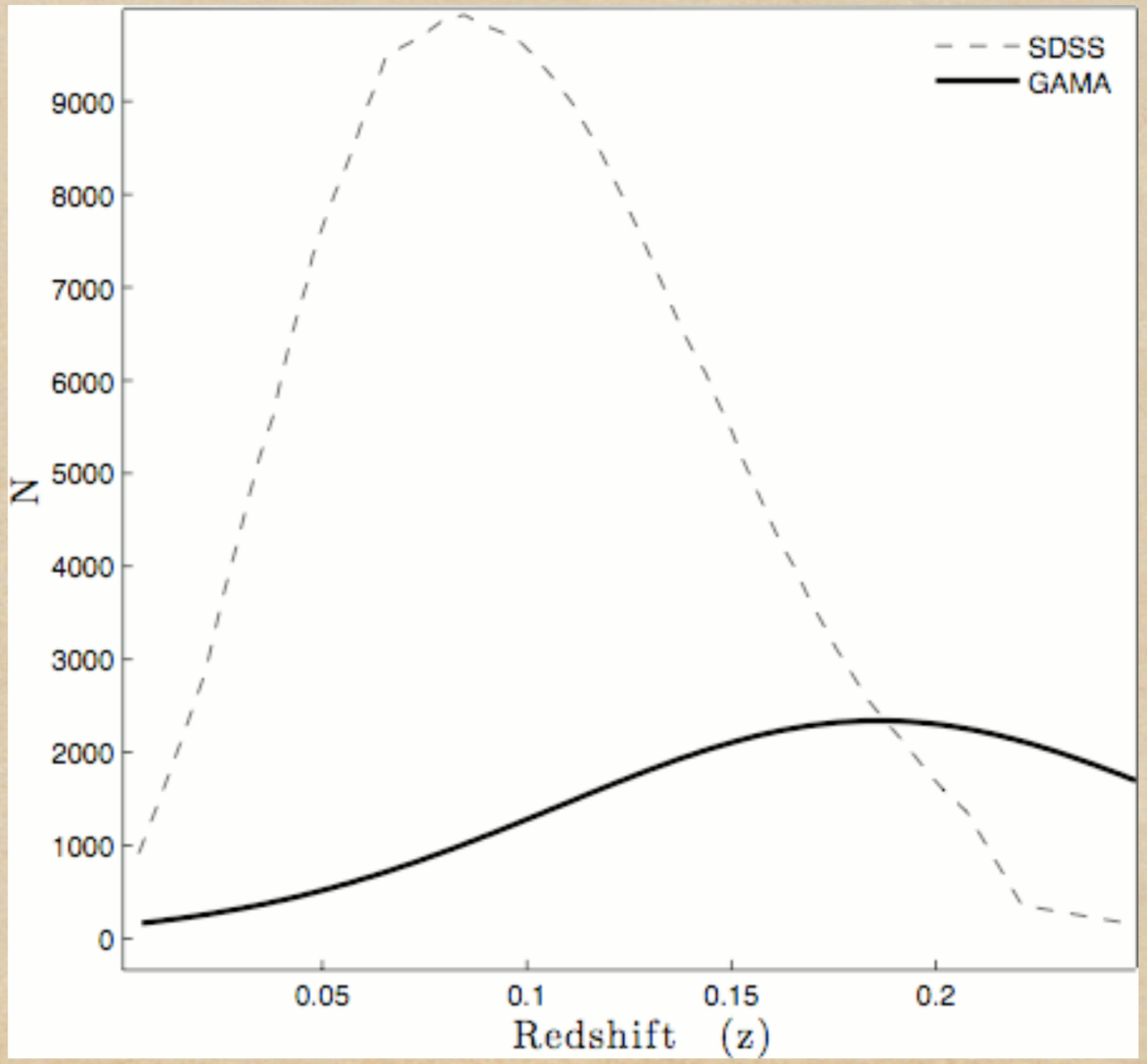




Hoversten & Glazebrook, 2008, ApJ, *675*, 163

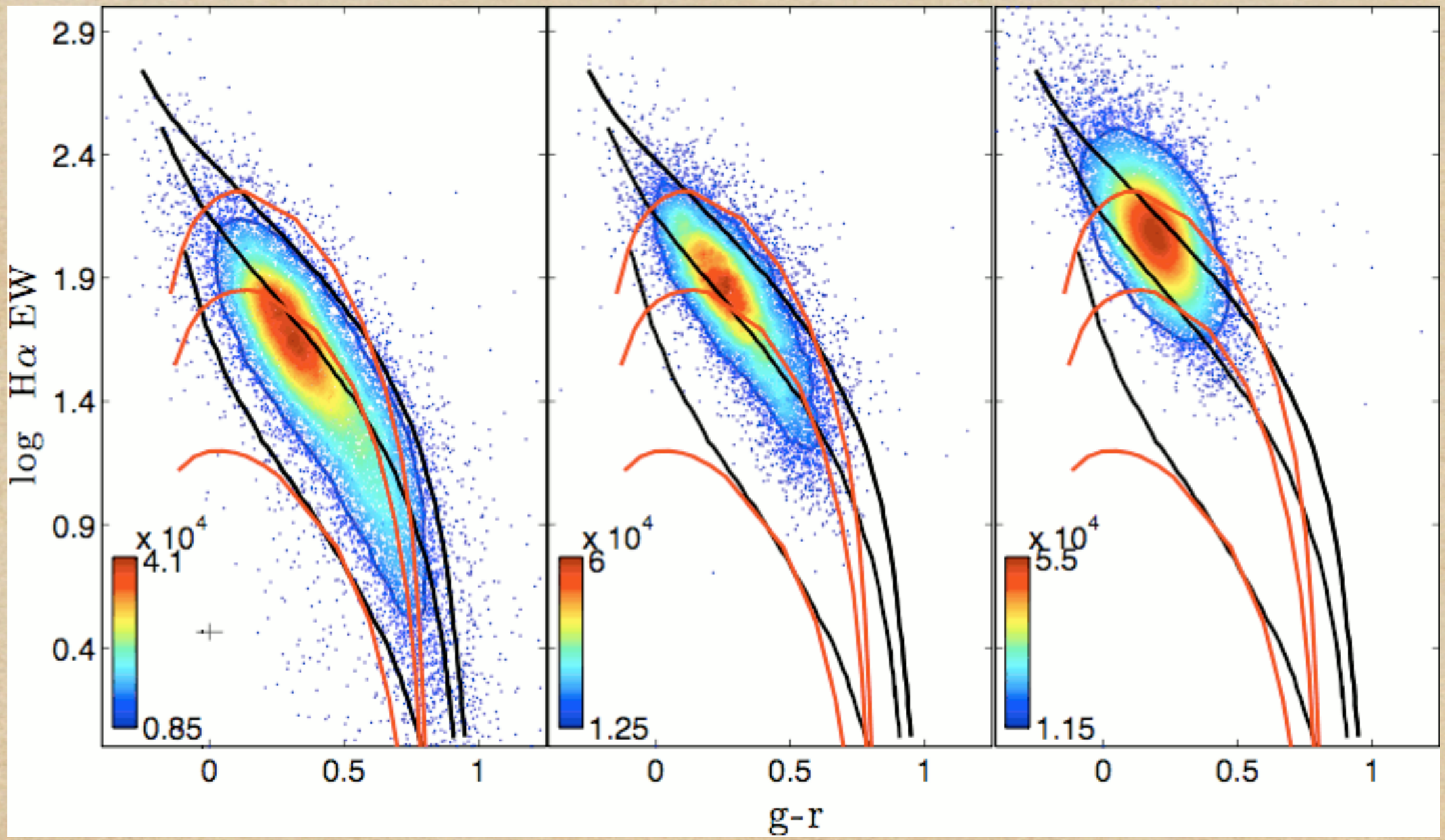
Gunawardhana 2009, Honours thesis, Macquarie University

Redshift distributions



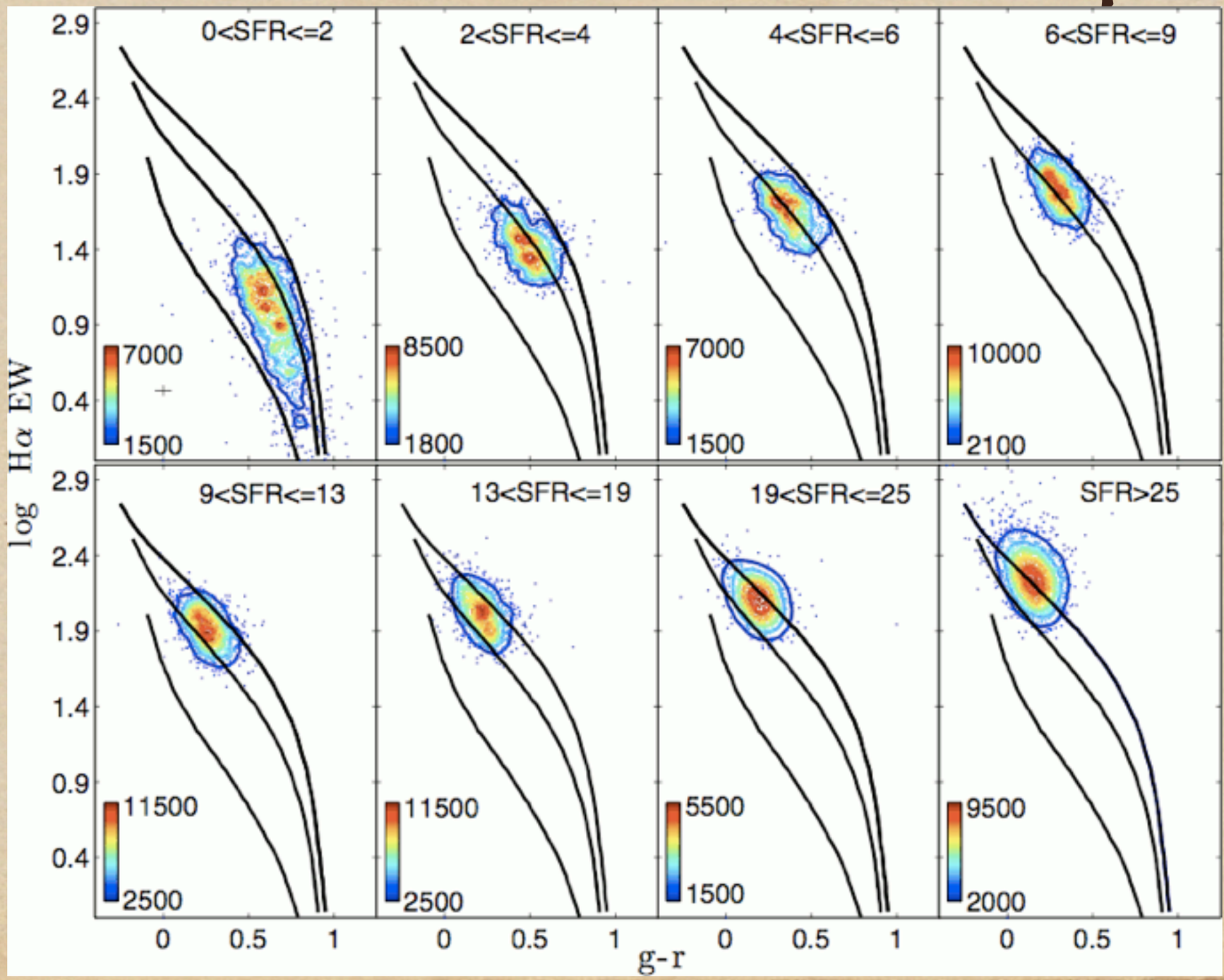
Gunawardhana 2009, Honours thesis, Macquarie University

SFR dependence



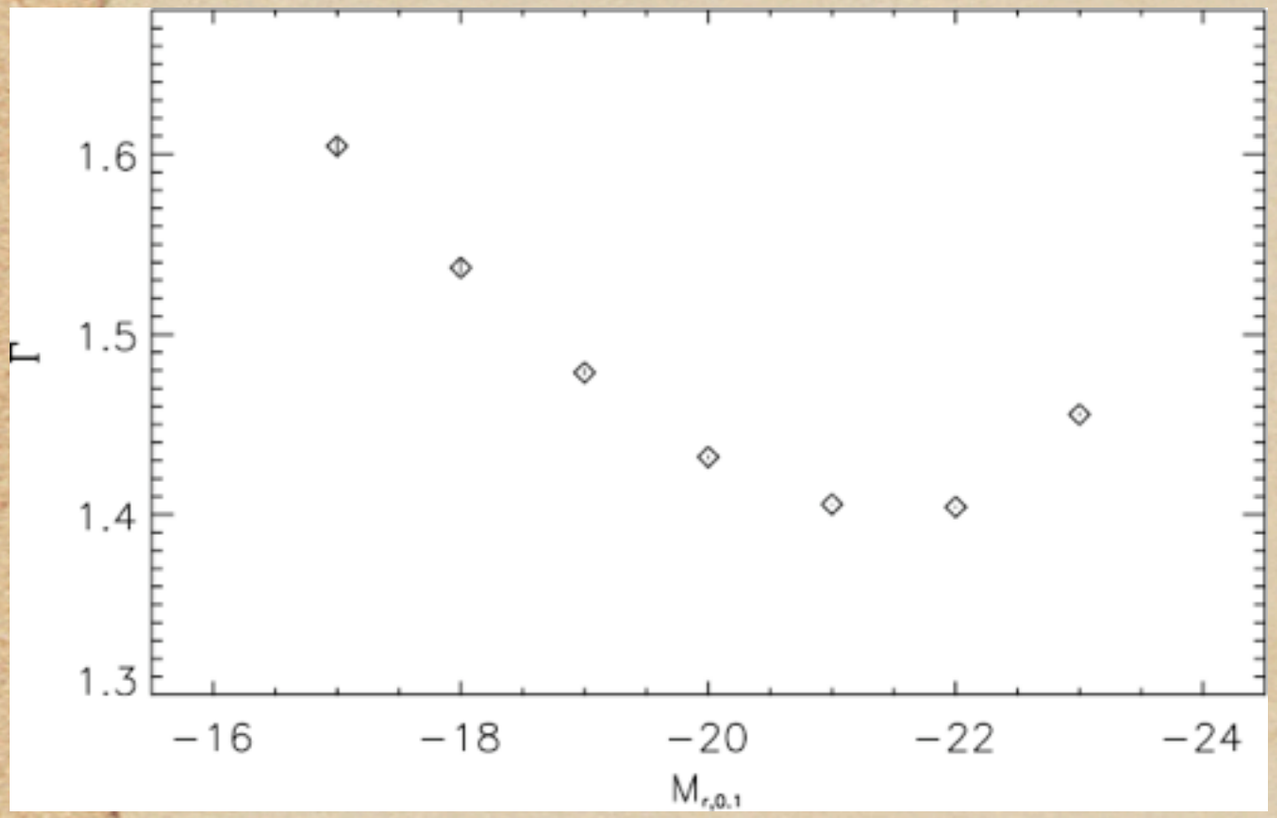
Gunawardhana 2010, in prep

Volume-limited sample

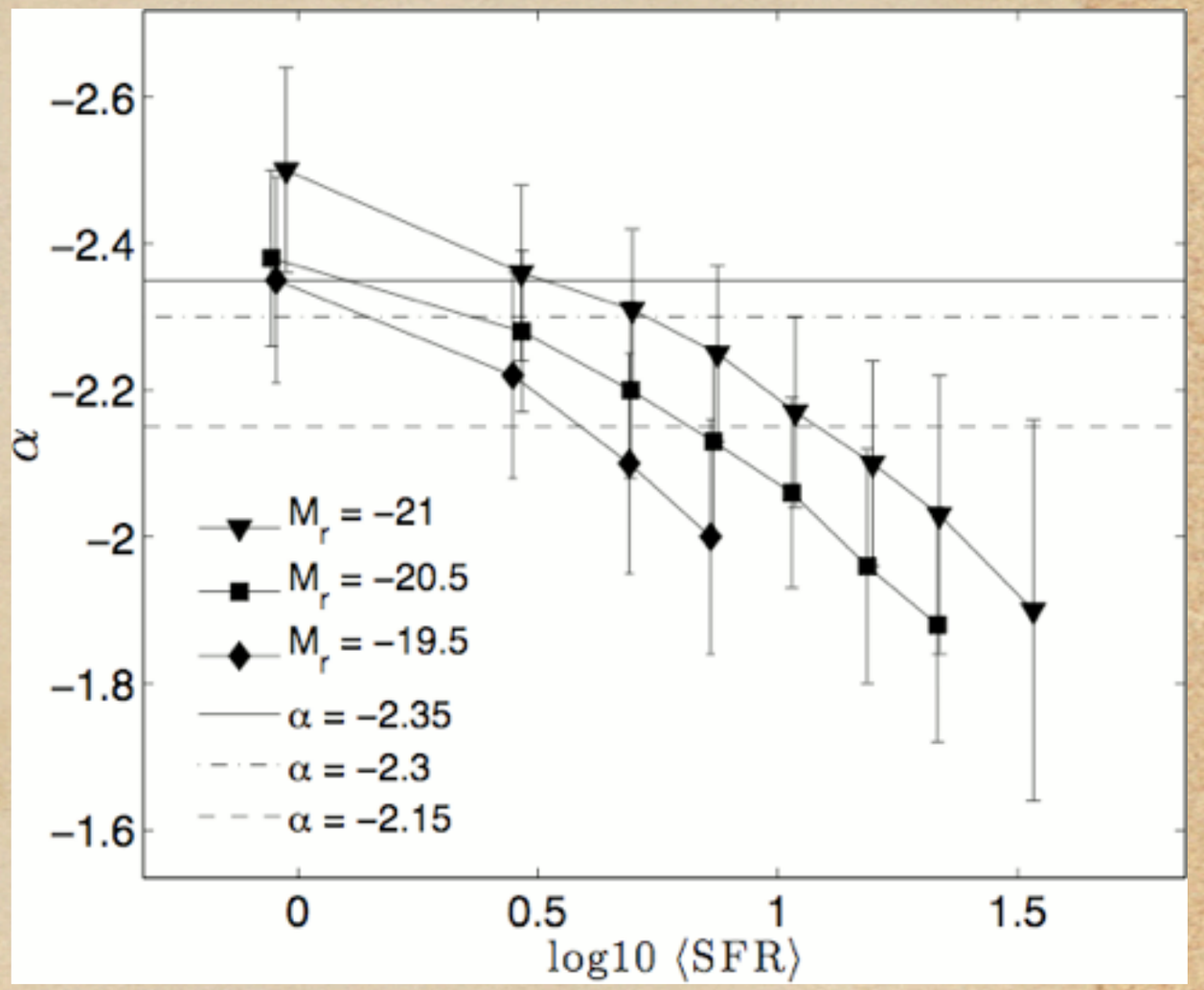


Gunawardhana 2010, in prep

IMF dependence on SFR



Hoversten & Glazebrook, 2008, ApJ, 675, 163



Gunawardhana 2010, in prep

Conclusions

- GAMA has been remarkably successful to date, with lots of exciting science being produced:
- Some of the most distant dwarf star-forming galaxies yet measured
- Uniform and self-consistent obscuration corrections
- Evidence for a SFR-dependence in the IMF slope
- Lots more to come!