PRIMUS: efficiently mapping the Universe out to z ~ 1

University of Arizona: Daniel Eisenstein Alison Coil Richard Cool (*) Ken Wong (*)

University of Michigan: Tim McKay Rebecca Bernstein New York University: Michael Blanton David Hogg Guang-tun Zhu (*) John Moustakas



Miscellaneous: Adam Bolton (Hawaii) Doug Finkbeiner (CfA) Scott Burles (MIT/Carnegie/???)



Outline

- Galaxy evolution to z ~ 1 is still cosmic variance limited: DEEP2, COMBO-17, COSMOS photo-z samples aren't enough
- 2. For many questions, 1% redshifts are "good enough": even clustering statistics are usually projected on similar scales
- 3. A low dispersion prism can get this accuracy: and allows you to multiplex in the dispersion direction
- 4. We've done a huge survey in this mode with LDP on IMACS: preliminary look at ~ 125,000 spectra to R ~ 22.5, lessons learned

Example: color-magnitude evolution



See also: Kauffmann (1998); Bell et al. (2005); Faber et al. (2005); Willmer et al. (2005); Brown et al. (2007); Scarlata (2007); etc., etc. etc.

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photo-z surveys are useful



e.g., COMBO-17 achieves 0.02 accuracy in redshift, COSMOS fields have 0.03 accuracy in redshift

but mask + prism can be more efficient



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we can achieve 0.01 redshifts with these IMACS low dispersion prism spectra from Magellan



Analyzing PRIMUS spectra



Training the templates



Summary

1. PRIMUS, a prism+mask survey on Magellan, works

~ 120,000 spectra to R ~ 23, ~ 240,000 spectra total we believe that we can get redshifts to 0.005 at best (0.02 at worst) this is a total of about 30 nights on IMACS (with darned good weather) in the end, we also get some spectral information to play with

2. General technique could be of use in other contexts need wide field of view, ADC helps we do wish we had SLIGHTLY higher resolution calibration is critical, and not easy