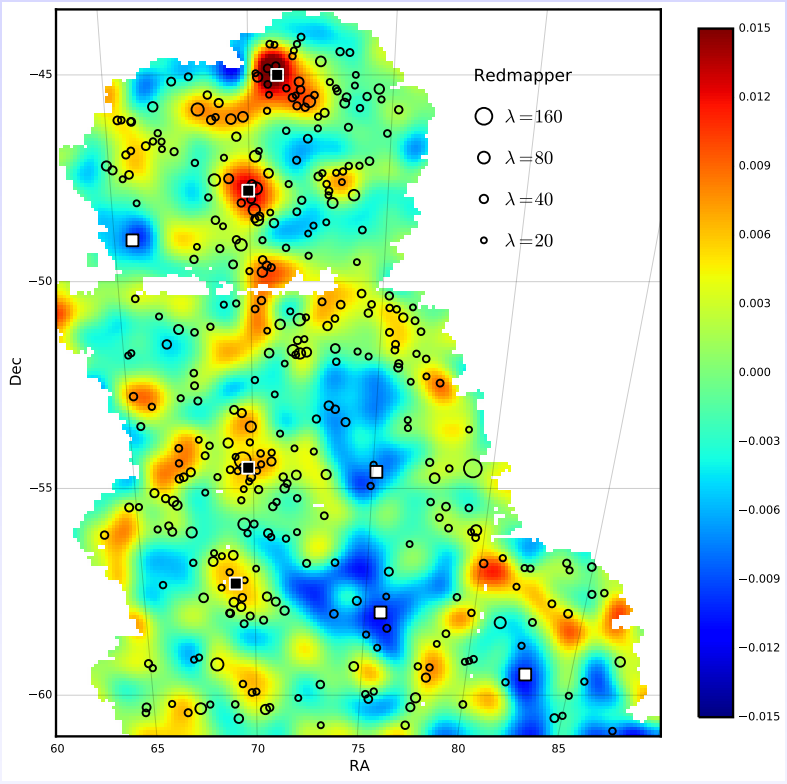
Dark Energy Survey (DES)

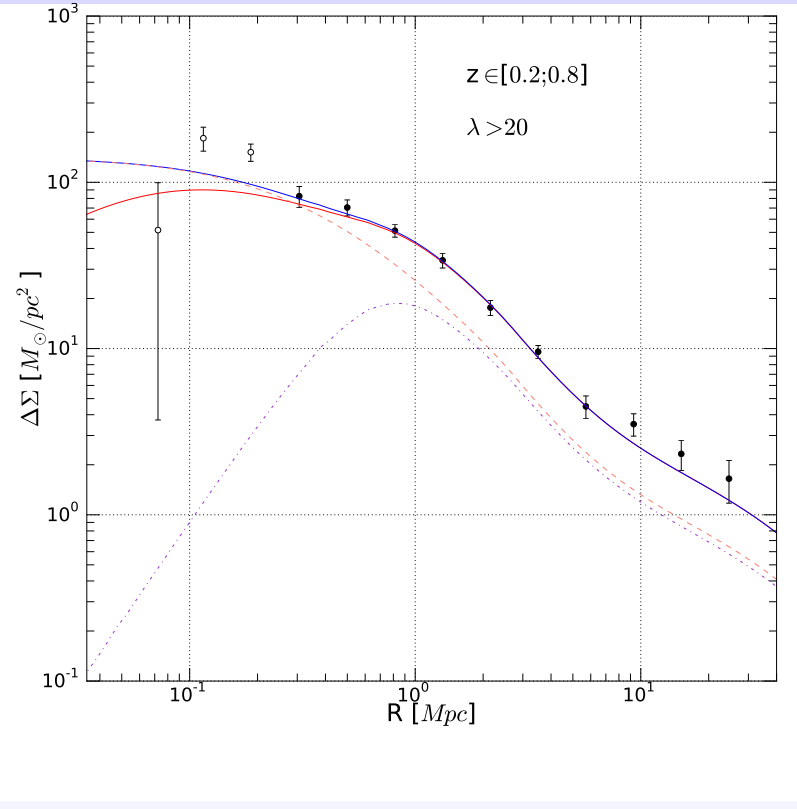
- 46 DES science papers published or submitted
- 14 DES weak lensing papers published or submitted
- Weak lensing papers are based on the shear catalogs produced by Erin Sheldon (BNL)



DES Mass Map, Vikram et al. 2015 PRD

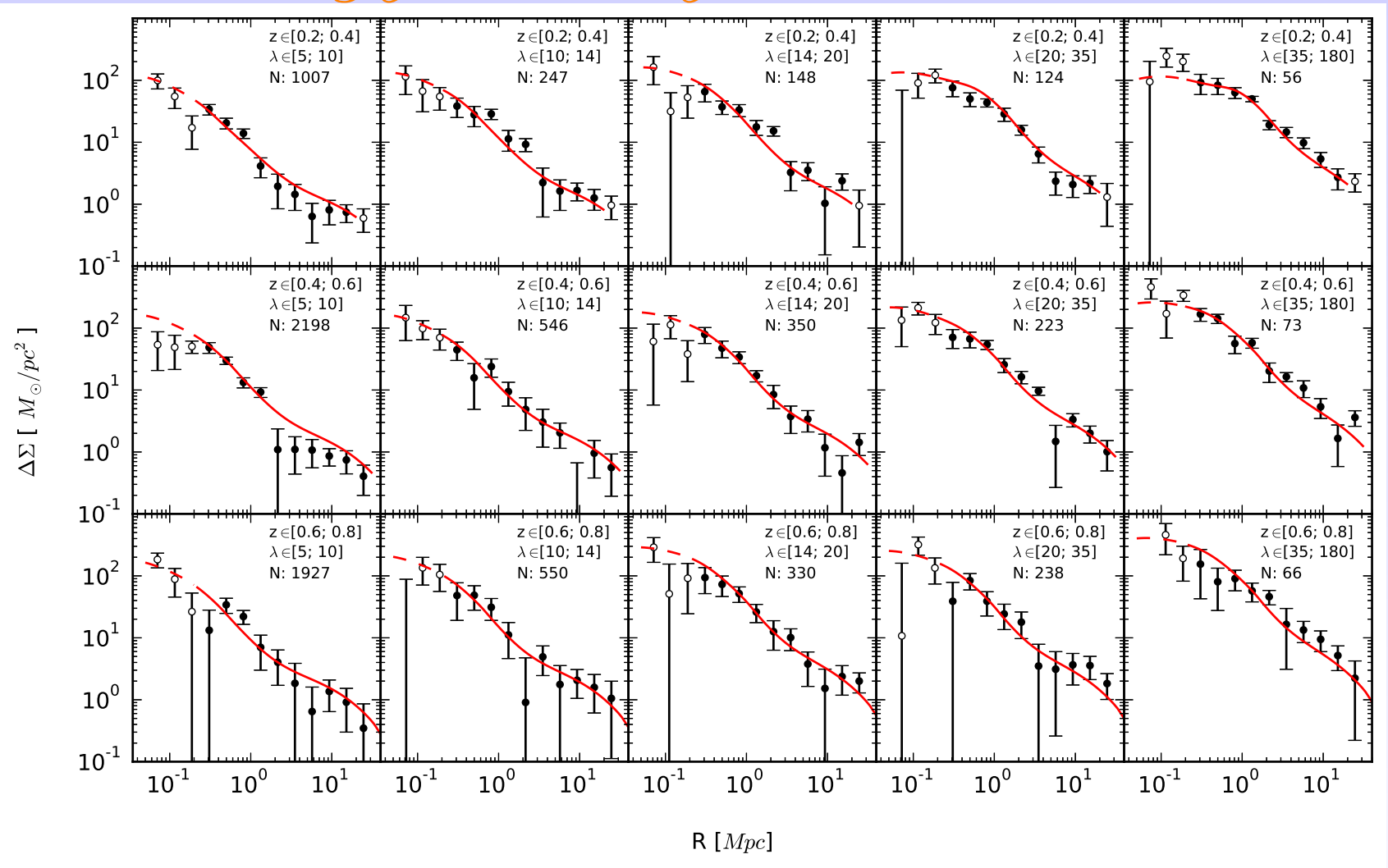
Dark Energy Survey

- Sheldon was co-lead author, with Mike Jarvis, of the DES shear catalog paper, as well as producing catalogs (Jarvis et al. 2016). All other lensing papers depend on this work.
- Paper on lensing by clusters of galaxies, led by E. Sheldon, now in final stages. Part of the DES key project to constrain cosmology from clusters and lensing.
- E. Sheldon published, with Peter Melchior, a paper on the crowd sourcing "DES Exposure Checker", used by DES scientists to view and verify survey images (Melchior, Sheldon et al. 2015).



Mass Density Constrast of DES Clusters.

Dark Energy Survey



Mass Density Constrast of DES Clusters as a function of richness and redshift. Best fit models in red. With more data, the redshift dependence will provide information about Dark Energy.

Dark Energy Survey: Ongoing and Future Work

- Sheldon finishing new shear pipeline. Based on image simulations, the new code appears to meet requirements for DES 5 year data.
- New multi-object fitting code (with Matt Becker) close to production-ready. This method, measuring flux for all blended objects simultaneously, is a paradigm-shift for measuring fluxes in a large survey.
- Papers on Dark Energy will begin to appear over the next couple of years. Progress has been slowed significantly due to bad weather.

Sheldon LSST Work

- Galaxy measurement code is interesting for LSST
  - An order of magnitude faster than standard codes.
  - Can fit muliple epochs and multiple bands simultaneously. Important for LSST with very large number of epochs, many bands.
  - Multi-object fitting nearing readiness.
- Initial work to integrate code into the LSST Data Management code stalled due to lack of manpower in DM.
- Have now begun work with new postdoc in LSST (Peter Melchior) and integration is progressing again.