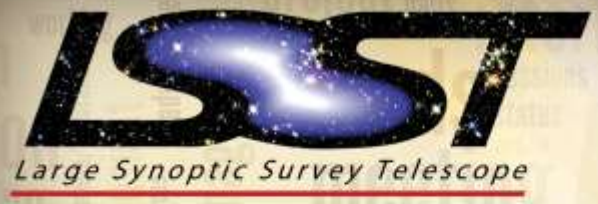

Summer2012 Extended Source Photometry

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LSST All Hands Meeting
August 13 - 17, 2012

ALL HANDS MEETING

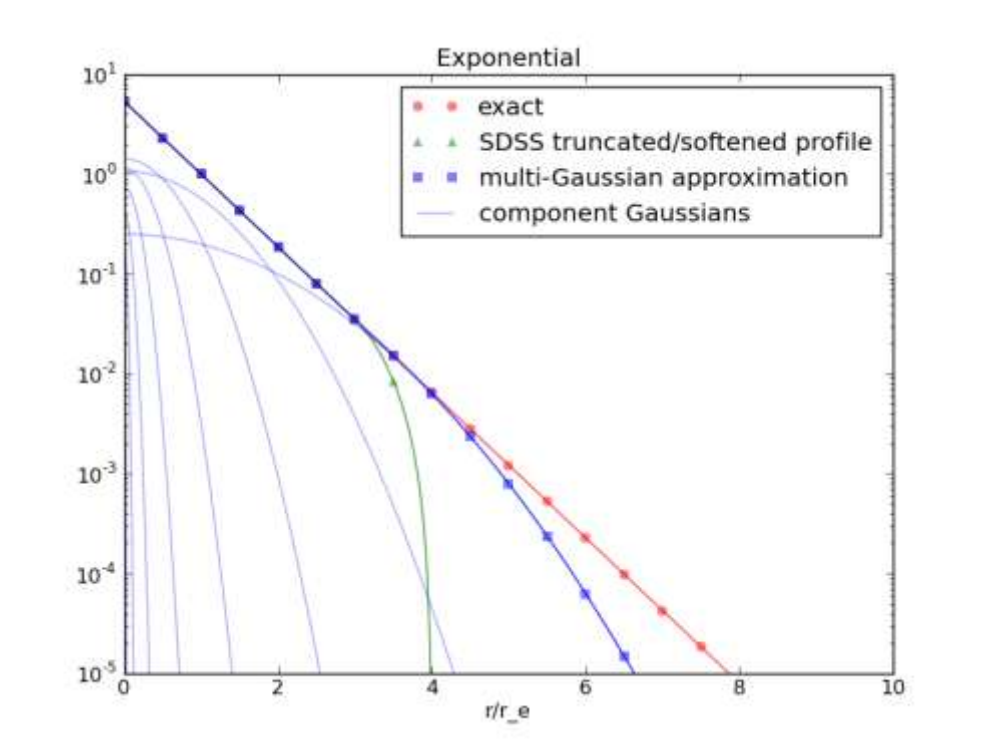
Extended Source Photometry

Algorithm

- Fit exponential (Sersic n=1) and de Vaucouleur (Sersic n=4) models, convolved with the PSF model, to the source images. The free parameters are radius, flux, and complex ellipticity; the position is held fixed at the value determined by a previous centroiding algorithms.
- Fit a linear combination of the exponential and de Vaucouleur models, holding all parameters but flux fixed. The flux for each component is constrained to be > 0.

These are the same as the “cmodel” magnitudes in SDSS, often referred to as “the Sloan Swindle” by Robert Lupton.

Extended Source Photometry



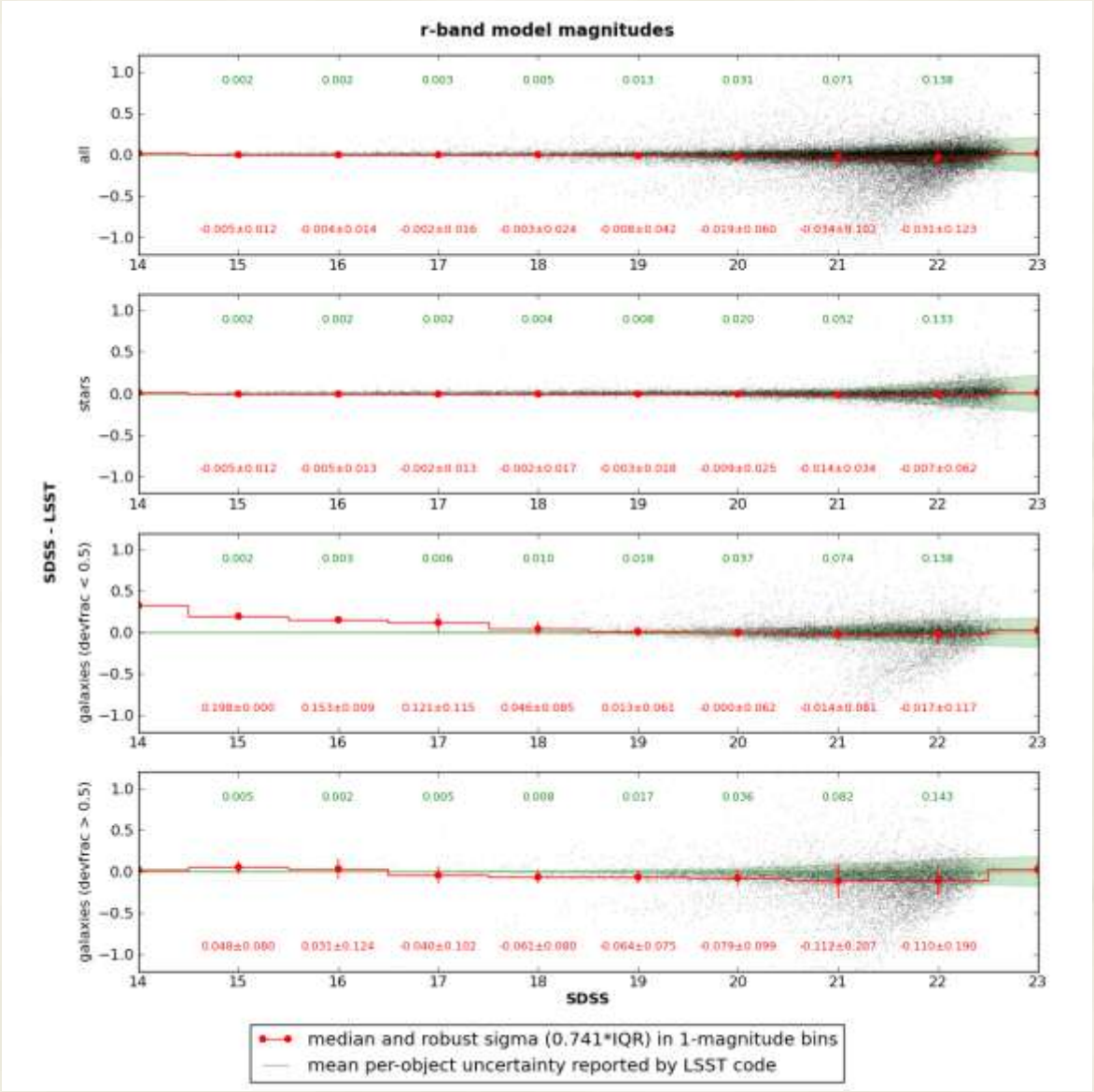
Sersic profiles are approximated by a sum of Gaussians (thanks to Dustin Lang and David Hogg for coefficients), and the PSF model realization is approximated as a pair of 2nd-order shapelet expansions, so we can convolve them analytically.

Extended Source Photometry

Extended Model Magnitudes in Summer2012 Release

- These models will only provide good galaxy colors when the the ellipticities and radii are held fixed when fitting data from different bands, but this has not yet been implemented; in the current release each band is fit entirely separately. For the same reason, we did not run any “forced” extended model photometry.
- Coadds in the current release were optimized for detection, and have extremely poor PSF models. While we did run the model mag code on the coadds, only results from SFM should be trusted (so the model mags in this release do not go deeper than the SDSS single-frame limit).

Extended Source Photometry



Preliminary Results: Comparison with SDSS