

Star/Galaxy Separator derived from synthetic images

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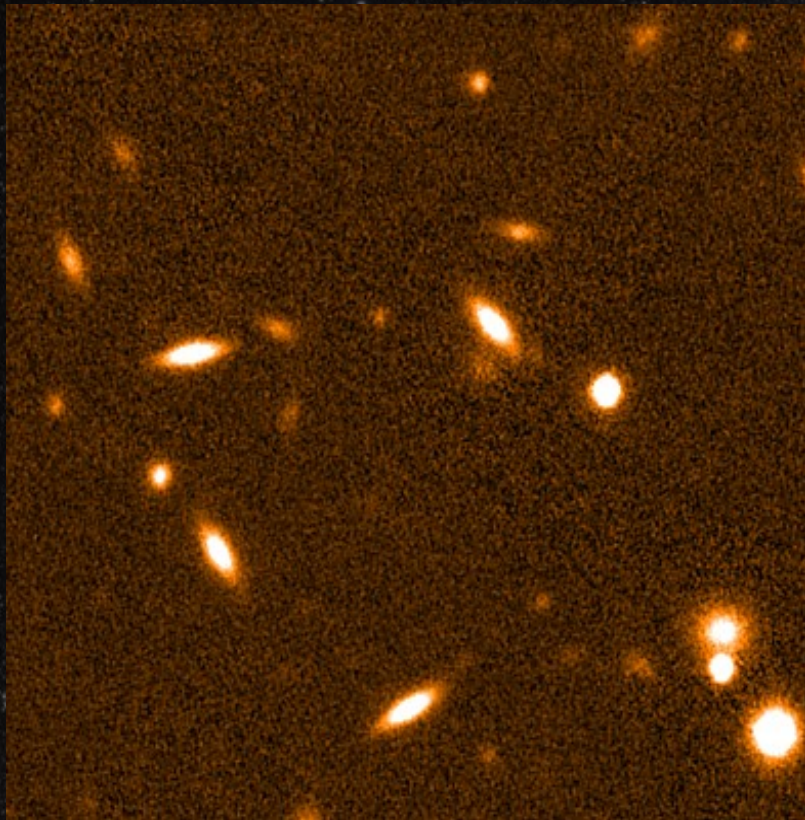
*With Shaun Cole, Nigel Metcalfe,
Peter Draper, Peder Norberg &
the PS1 team*



Introduction

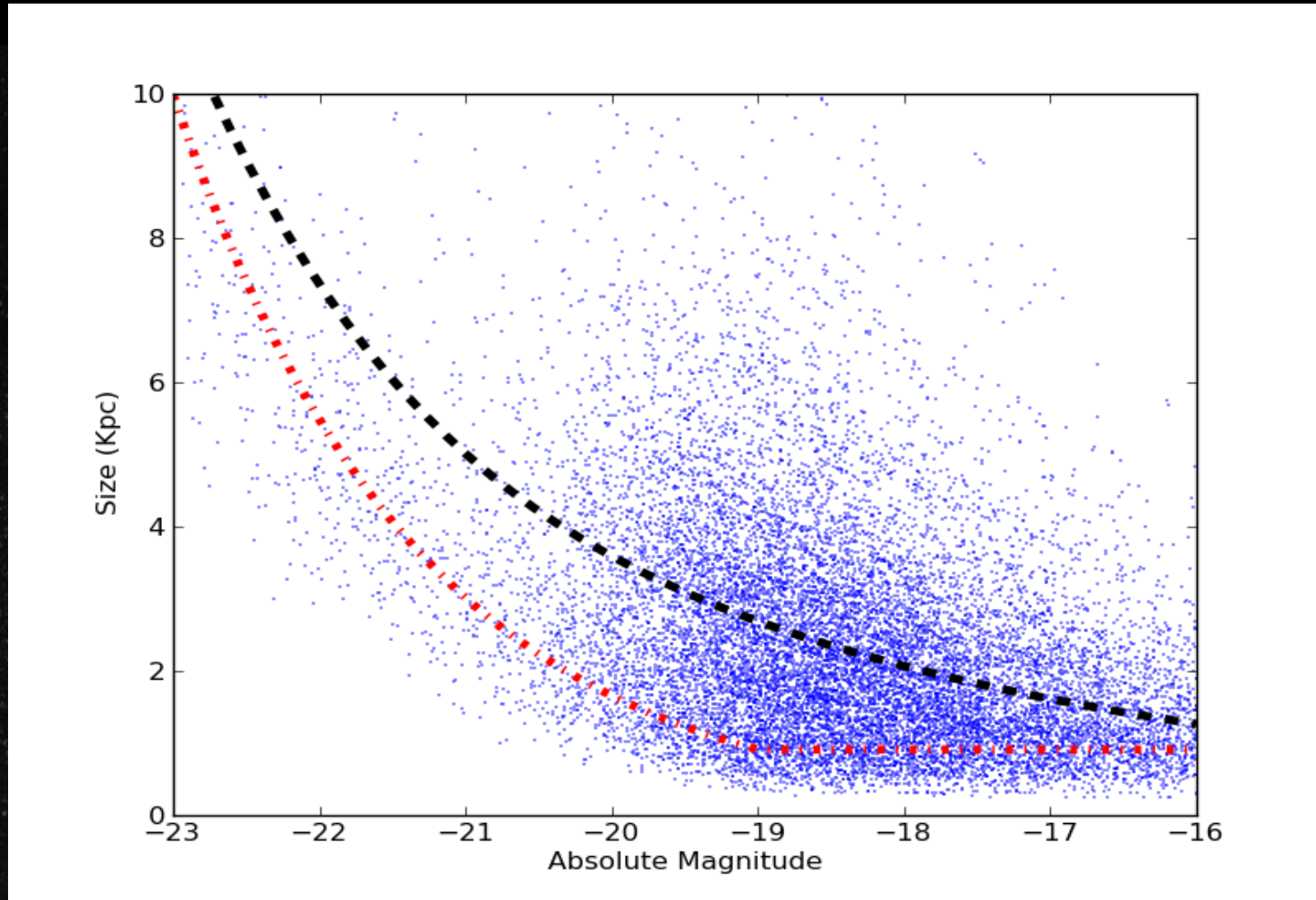
- Need a star galaxy separator to define a galaxy catalogue
- Use psphot measurements
- Use synthetic objects to derive a separator
- Use SAS2 area to test this

Synthetic Objects



- IPP PSF model
- Sersic profiles
- Bulges and ellipticals -> $n=4$, Disks -> $n=1$
- Magnitudes, bulge to total ratios and redshifts from GALFORM (See Merson et al, submitted)
- Need sizes and shapes too

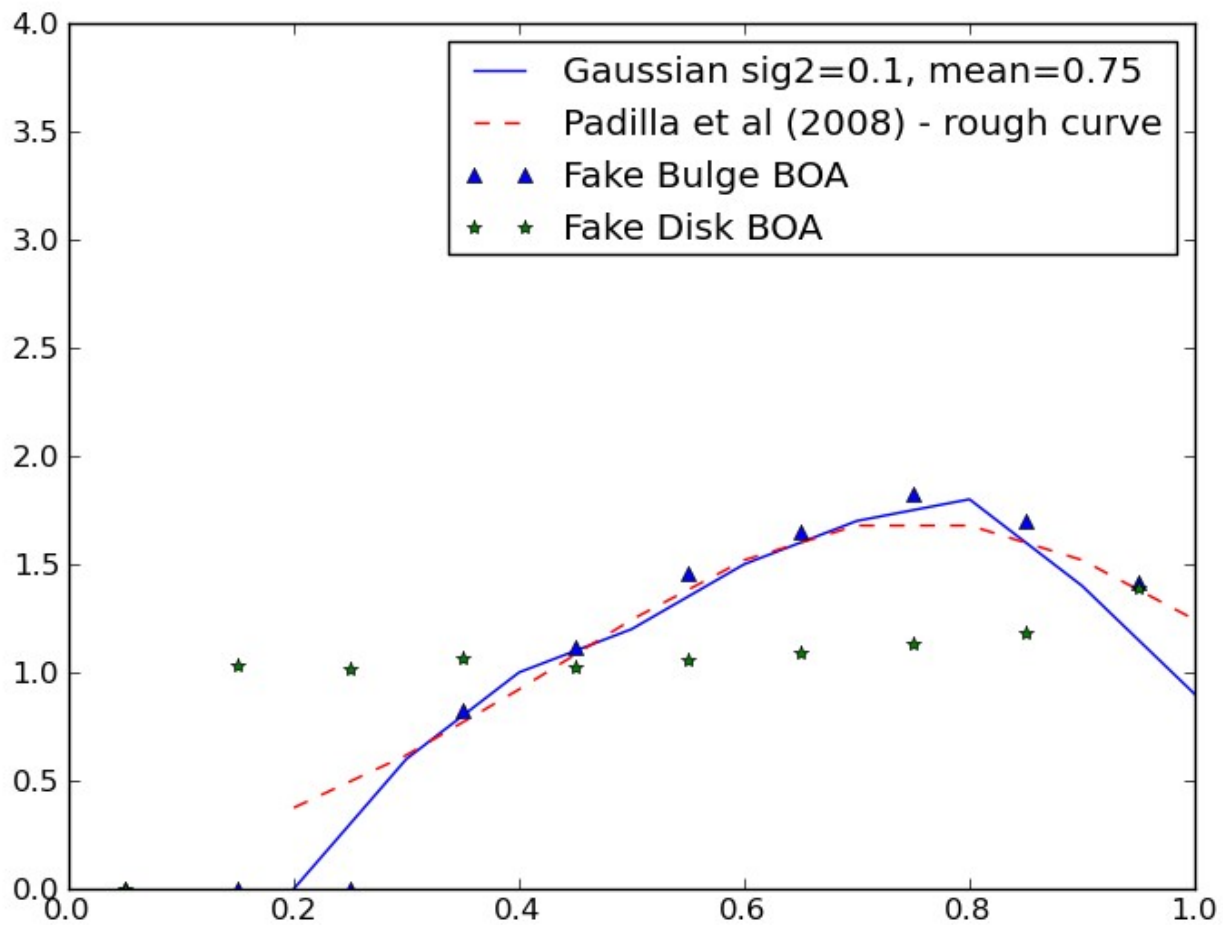
Sizes



Sizes from empirical relations of Shen et al. 2003 (corrected for inclination, see Dutton et al 2010)

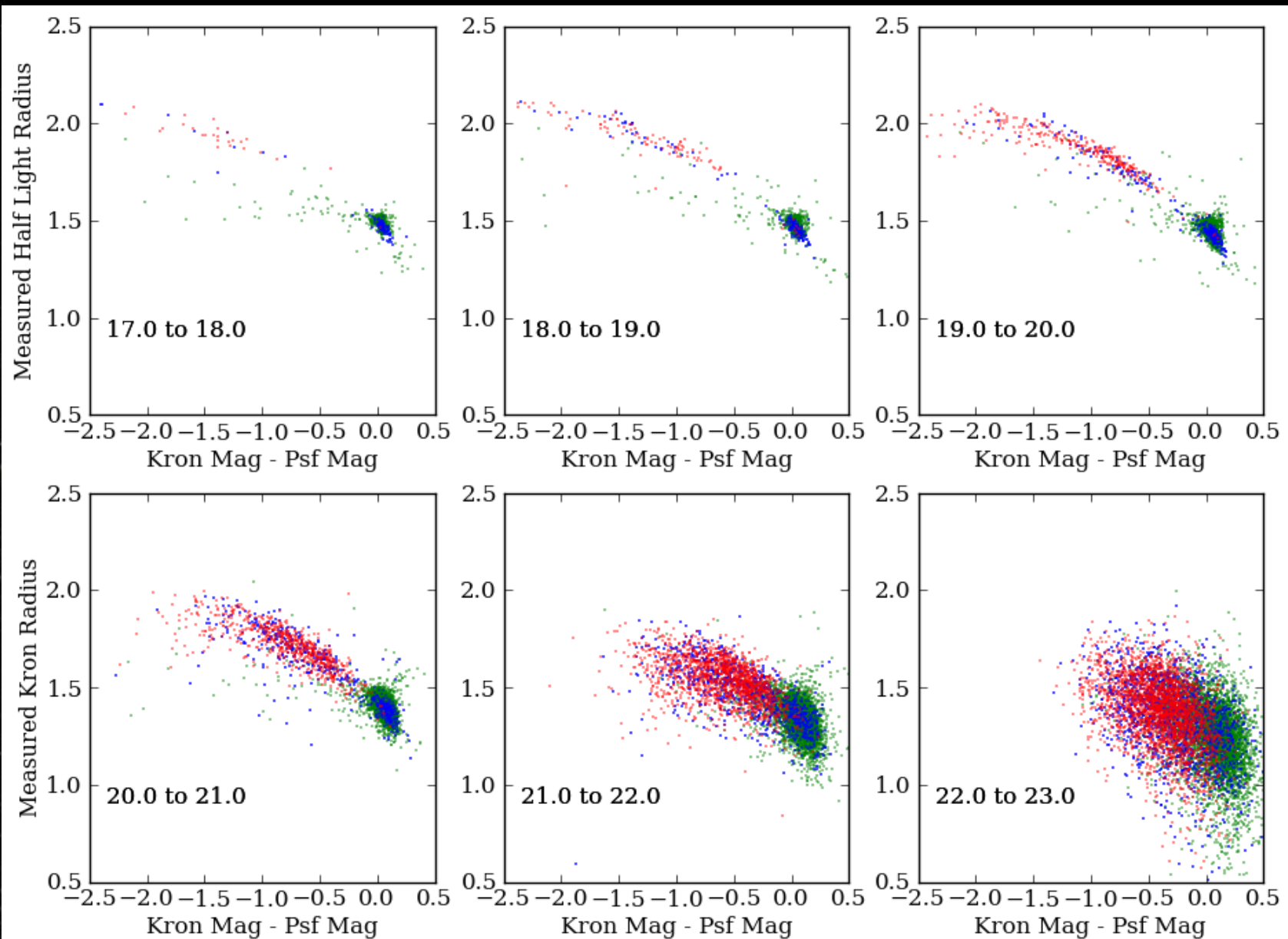
Axis Ratios

N

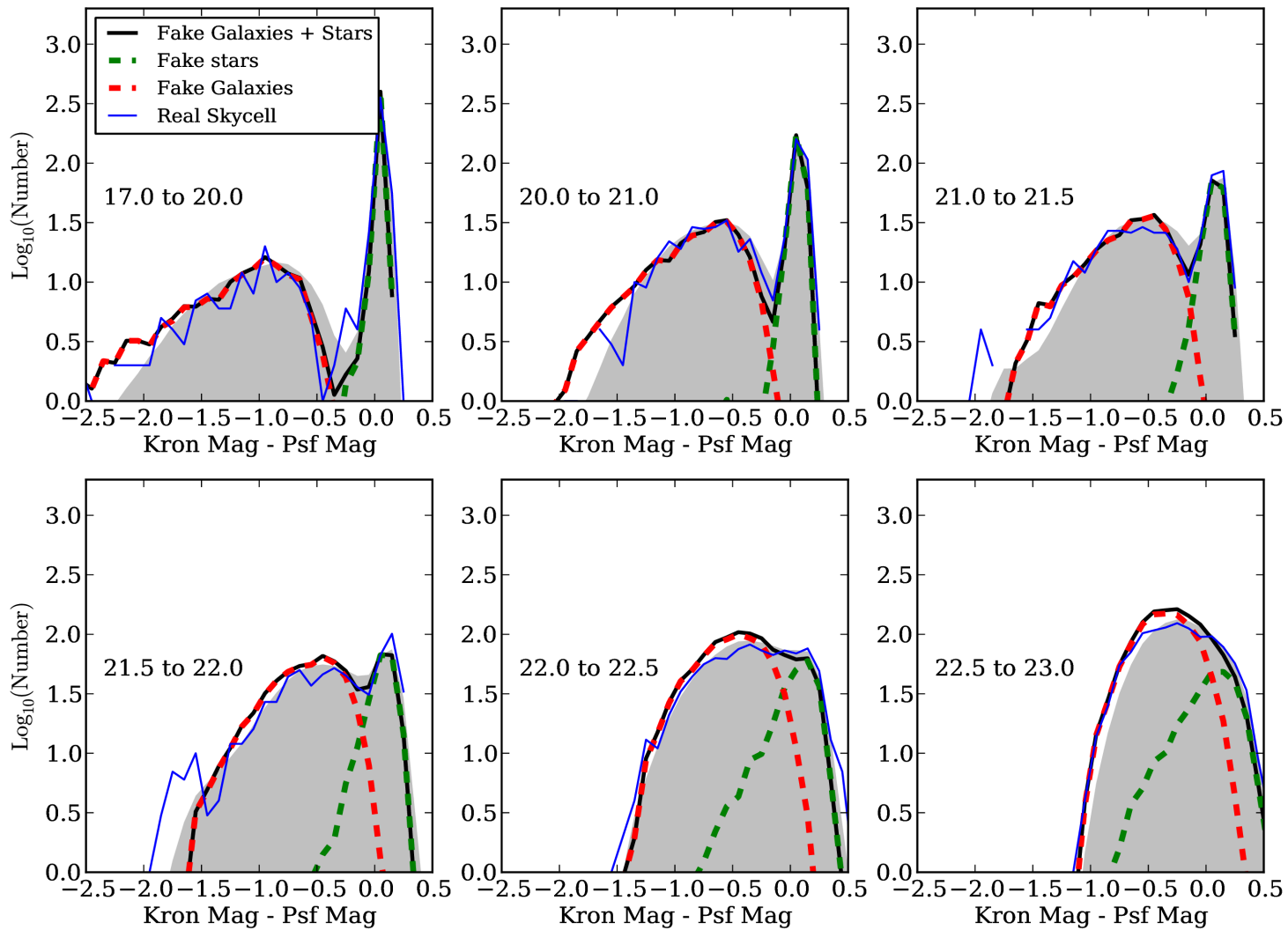


Axis Ratio

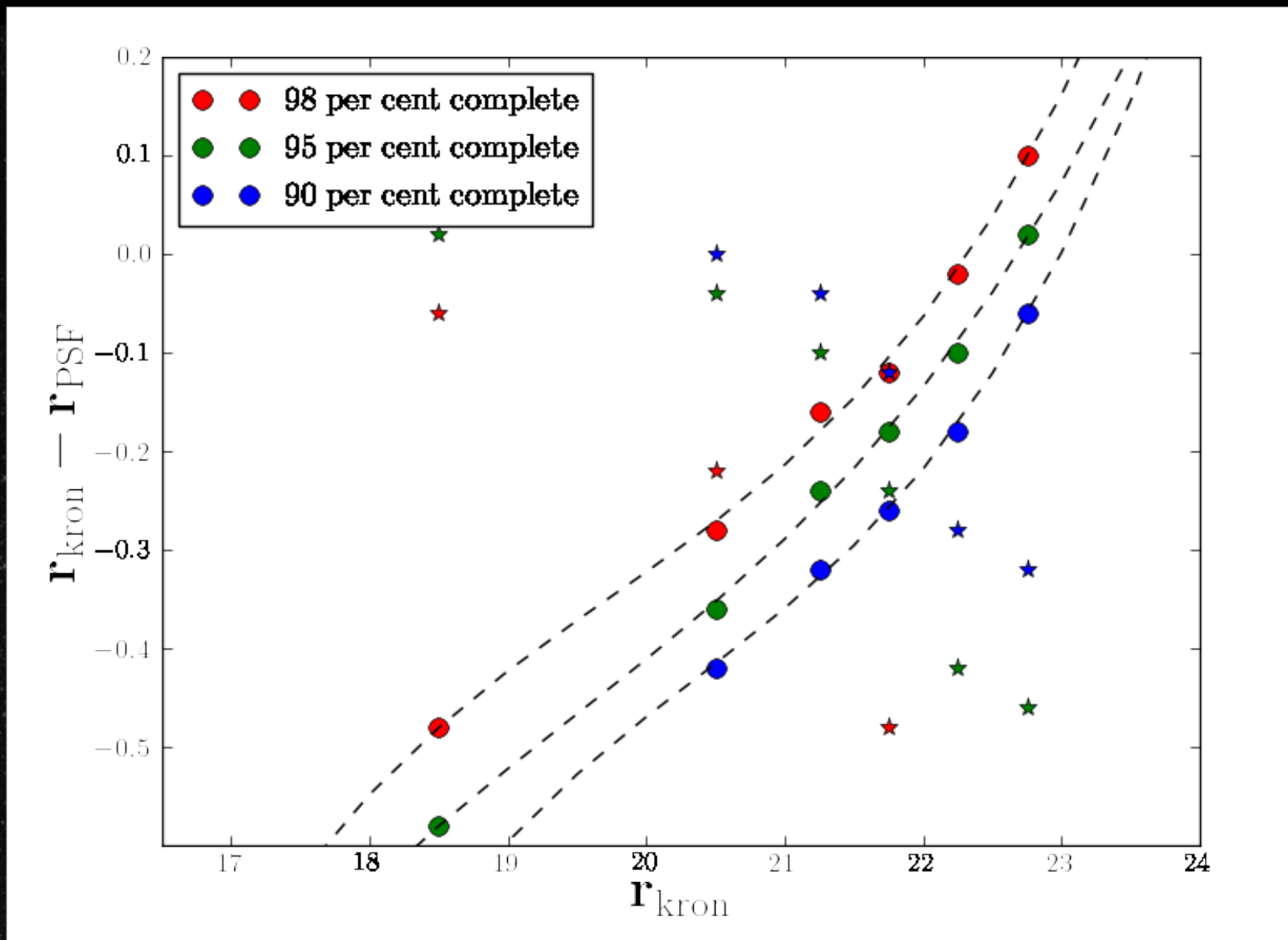
Fakes follow reality



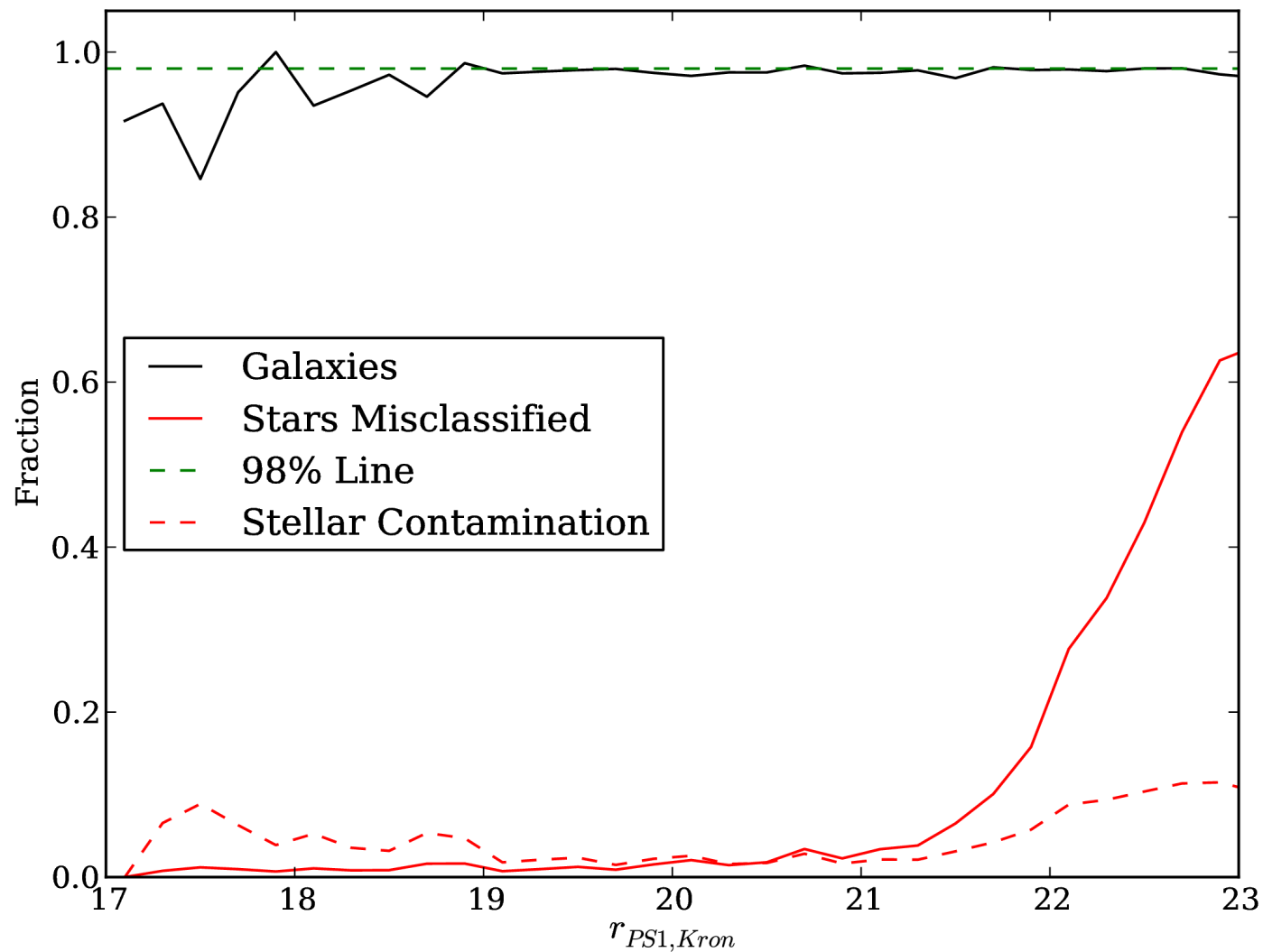
Fakes follow reality



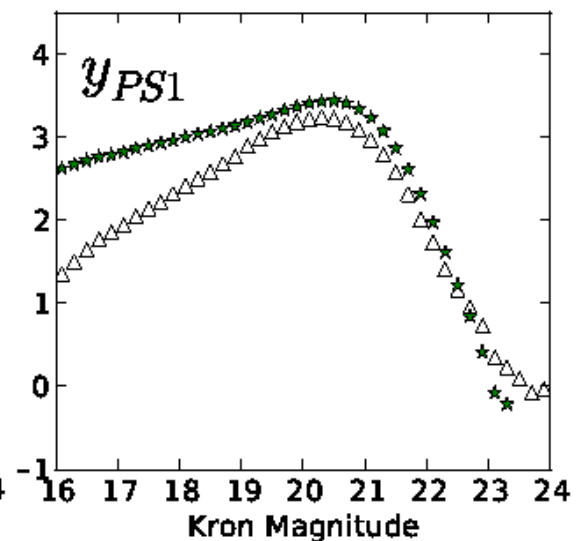
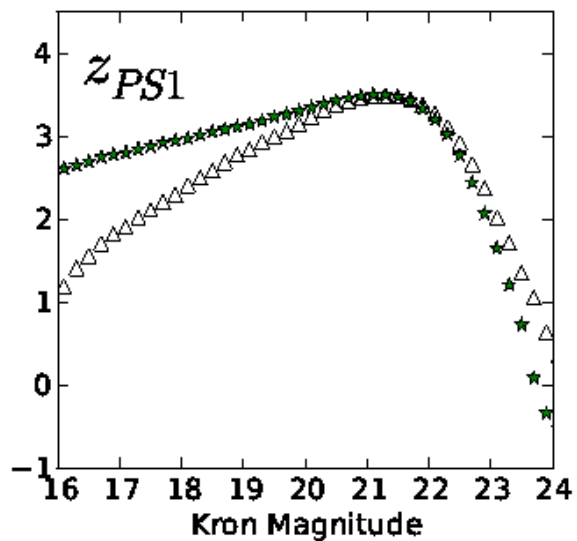
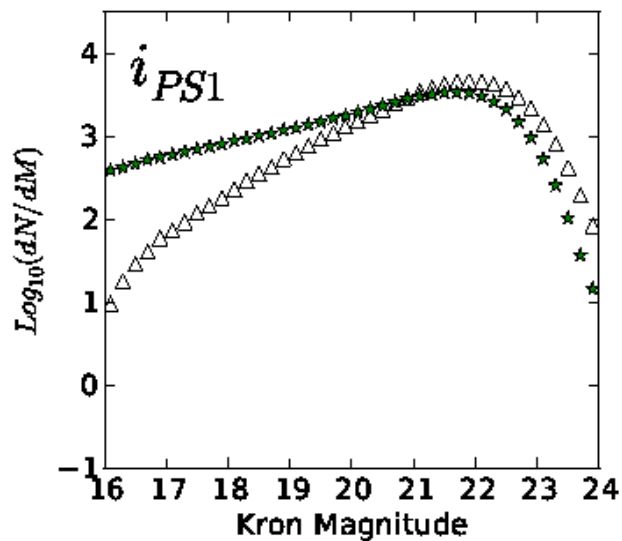
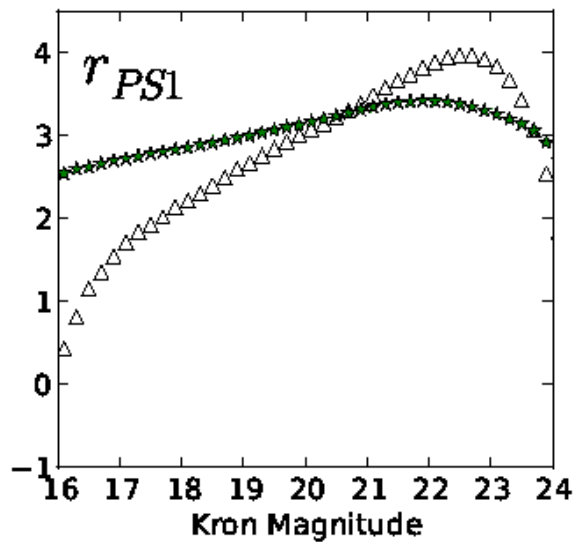
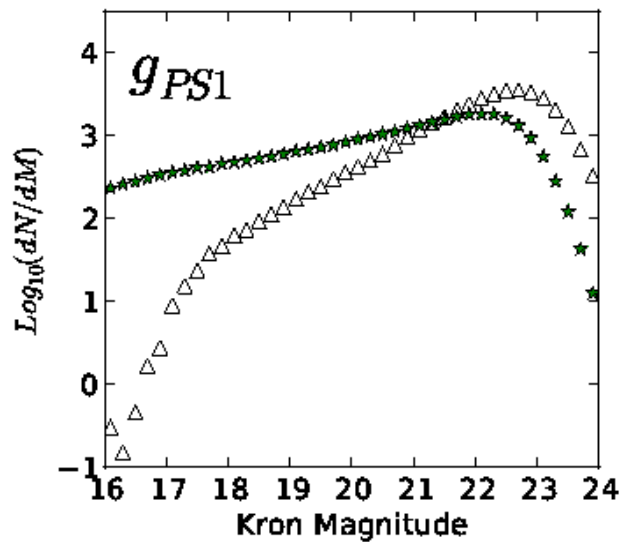
Star/galaxy separator



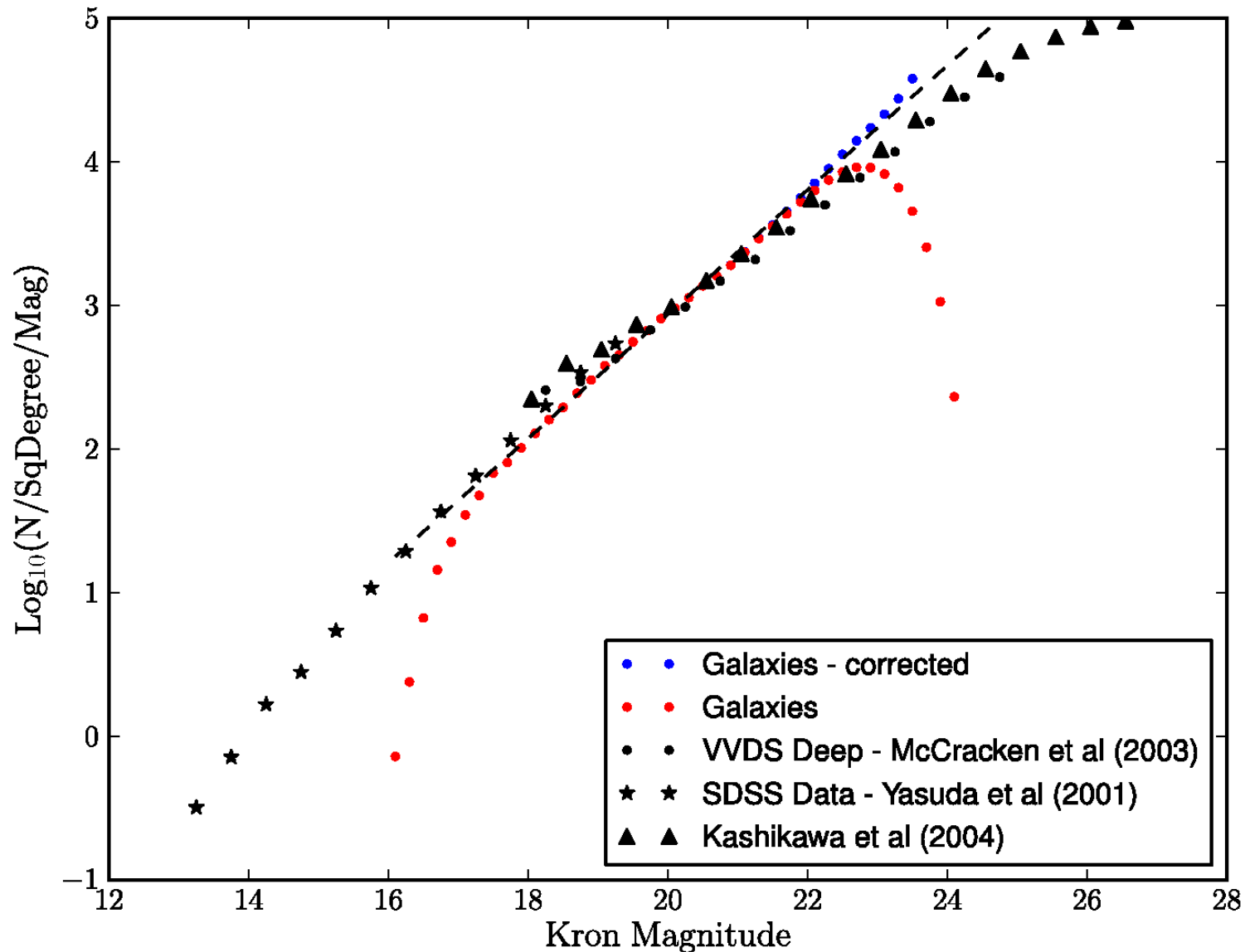
Predicted Accuracy



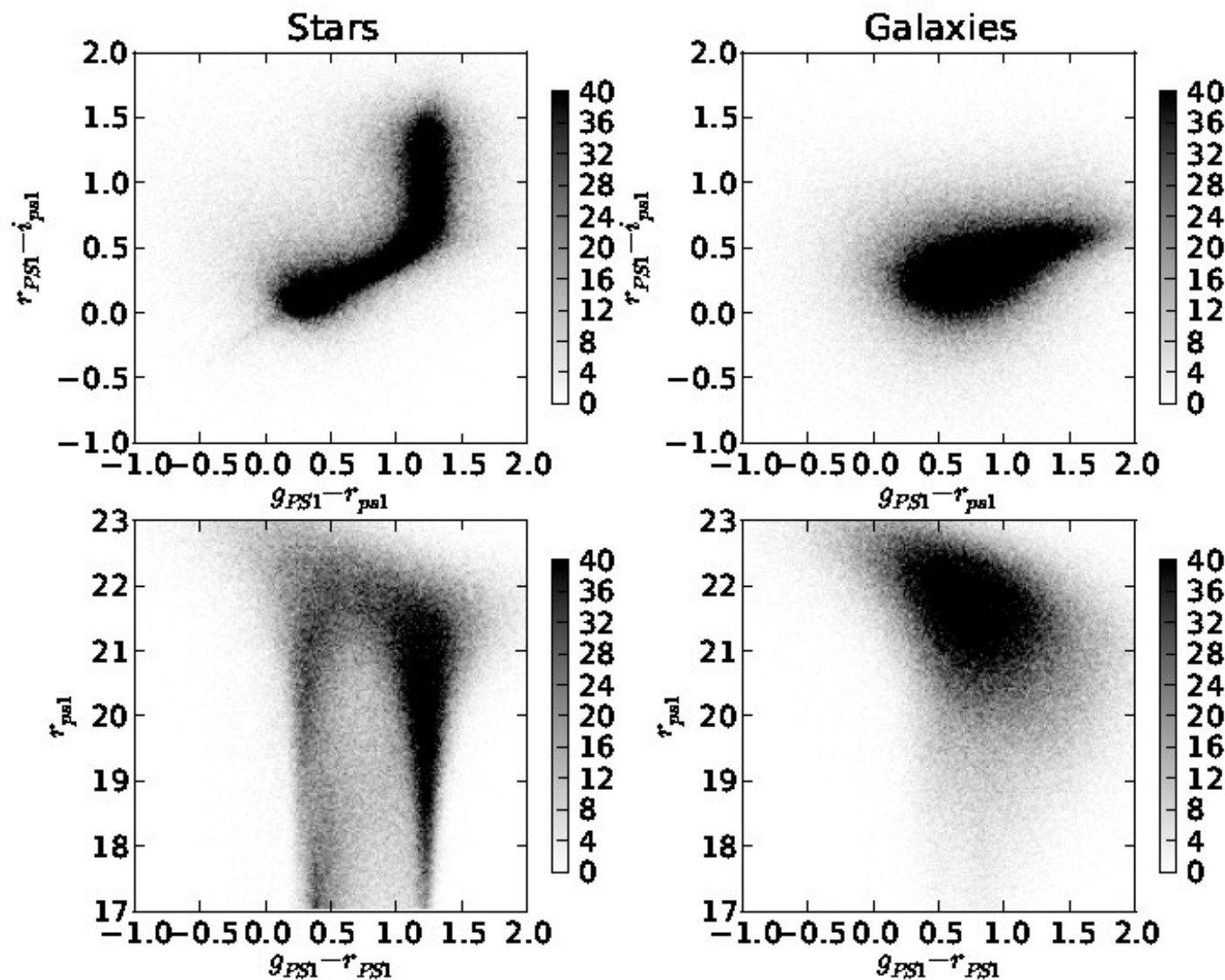
Number Counts



Number Counts



Colour Diagrams



Conclusions

- Have a simple star/galaxy separator that works well over SAS2
- Need to extend separator to areas with different seeing and backgrounds using fake images
- Test the above using real data
- Combine with information from photo-z pipeline