ISOPHOTAL EFFECTS IN FAINT GALAXY SAMPLES.

P. BRISTOW AND S. PHILLLIPPS
Department of Physics, University of Bristol, Bristol, UK

Using Monte Carlo style simulations of galaxy populations we create artificial faint galaxy samples which mimic those obtained by actual observational techniques. By comparison of samples selected according to total luminosity or luminosity within an isophote we are able to estimate the extent to which isophotal effects could cause number magnitude counts of faint galaxies to appear artificially steep (cf. McGaugh 1994, Phillipps 1993). We find that, if we assume a 'standard' non-evolving galaxy population (essentially that used by Broadhurst, Ellis & Shanks 1988 amongst others) then isophotal effects alone cannot account for the discrepancy between the observed steepness and no-evolution models, though they could significantly reduce the amount of evolution required and alter the median redshifts. Modifying the underlying galaxy population by the addition of a bivariate brightness dwarf component as observed in clusters (e.g. Irwin *et al* 1990) increases the significance of the isophotal effects, though only fractionally, despite the fact that such effects would be highly important for such a population considered on its own.

Further development of the simulation software allows us to produce simulated CCD frames, taking full account of observational conditions, which may be examined with the same image detection and photometry software as is applied to real observational data. This provides a route from intrinsic galaxy population models to apparent diagnostics (such as number counts) which comprehensively allows for selection effects.

References

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