

LOW SURFACE BRIGHTNESS GALAXIES AND THE FIELD GALAXY LUMINOSITY FUNCTION

D. SPRAYBERRY

Kapteyn Laboratory, Postbus 800, 9700 AV Groningen, NL

Co-authors: C. D. Impey, Steward Observatory; G. D. Bothun, Dept. of Physics, Univ. of Oregon; M. J. Irwin, RGO.

We have developed a catalog of local low surface brightness galaxies (LSBGs) which is selected by objective criteria. We present here a luminosity function (LF) for LSBGs based on that catalog. This LF includes the effects of the completeness corrections to the LSBG catalog, and includes only galaxies with surface brightnesses ($22.25 \leq \mu_B(0) \leq 24.5$) fainter than those included in the CfA Redshift Survey (see Marzke et al. 1994, AJ 108, 437). The best-fitting Schechter function has parameters $\alpha = -1.42$, $M_B^* = -18.34$, and $\phi^* = 0.0036 h^3 \text{Mpc}^{-3} \text{mag}^{-1}$. Thus, surveys which do not take account of the observational selection bias imposed by surface brightness are missing a substantial fraction of the local galaxies, but, this missed fraction is not large enough to explain the counts of faint blue galaxies observed at moderate redshift.

