MASS-TO-LIGHT RATIOS OF SPIRAL GALAXIES

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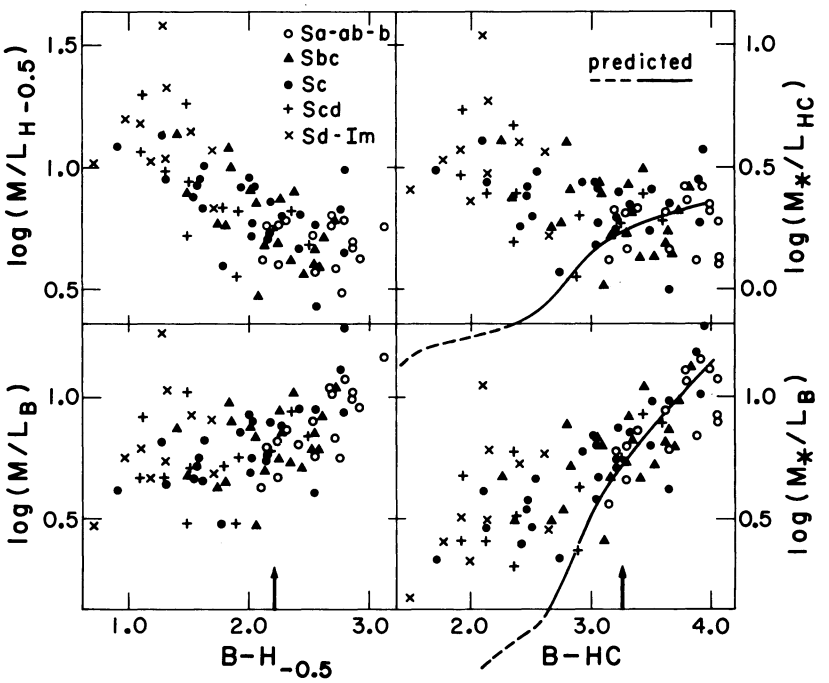
Mass-to-light ratios $M/L_{H-0.5}$ and M/L_B are plotted against color $B-H_{-0.5}$ in Fig. 1 for 82 nearby spirals from the catalog of Aaronson et al. (1982, Ap.J. Suppl. 50, 241), with B_T magnitudes from the RC2, $|b| > 20°$, $45° \leq i \leq 80°$, and HI mass estimates. Total masses and infrared $H_{-0.5}$ magnitudes are measured within the blue isophotal radii R_{25} and $R_{25}/3$, respectively, which depend on galaxy color. This color bias is corrected for by replacing R_{25} by R'_{25}, the radius a galaxy would have at a standard color $B-H_{-0.5} = 2.17$. Stellar masses M_* and L_{HC} luminosities within R'_{25} are obtained by substracting twice the HI mass and by extrapolation, respectively. Corrected ratios M_*/L_{HC} and M_*/L_B versus corrected color B-HC are shown in Fig. 1 together with theoretical model predictions. The corrected observed ratios are systematically larger for bluer galaxies than predicted so that bluer spirals seem to have relatively more massive halos, in agreement with earlier results (Tinsley, B.M. 1981 M.N.R.A.S. 194, 63; Vader, J. P. 1984, in Formation and Evolution of Galaxies and Large Structures in the Universe, eds. J. Audouze and J. T. Thanh Van, p. 227).

Fig. 1



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