

Dark-to-luminous mass ratio in spiral galaxies

P. JABLONKA¹ AND N. ARIMOTO²

1. *Observatoire de Meudon, D.A.E.C, URA 173 CNRS, 92195 Meudon, France*

2. *Physics Department, University of Durham, South Road, DH1 3LE, U.K.*

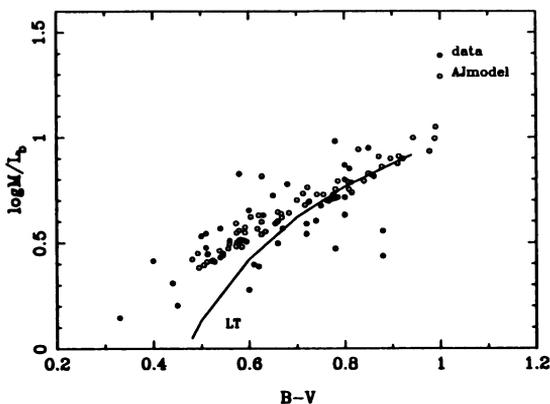
Present address: Institut für Theoretische Astrophysik der Universität Heidelberg, Neuenheimer Feld 561, W-6900, Heidelberg 1, Germany

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Abstract. We demonstrate that, contrary to the conventional view, late type spirals do not seem to contain more dark matter than early type ones

Tinsley (1981) has compared her predicted M/L_b vs $B - V$ variation for spiral galaxies with the observations. The slope of her relation was steeper than the observed one. She concluded that late type spirals contained more dark matter than late type ones. Vader (1984) reached the same conclusion comparing the M/L_h vs $B - H$ relation. Both of the authors used Larson and Tinsley's (LT) model, which may have strongly influenced their conclusions.

Arimoto and Jablonka (1991) (hereafter AJ) have developed a two-component bulge - disc population synthesis model for spiral galaxies. Three major improvements in the modelling have been included compared to LT model. First, the AJ model is constructed by taking into account halo pre-enriched gas infall onto the disc. Second, the AJ model has included the mass of the disc gas in the M/L_b ratio. Third, the effect of a change of stellar metallicity, due to chemical evolution, is explicitly taken into account in AJ model colours. We have compared theoretical M/L vs colour relations of the AJ model with those derived from 55 Sa-Sc galaxies (Jablonka and Arimoto, 1991). We found no clear evidence for a significant enhancement of dark matter towards later type spiral galaxies.



References

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