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THE HUBBLE CONSTANT FROM TULLY AND FISHER'S RELATION

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Nous dérivons la distance de l'amas Virgo et la constante de Hubble à partir de la relation de Tully et Fisher en utilisant les formules de réduction de Heidmann, Heidmann et de Vaucouleurs. Nous trouvons la même valeur que celle de Tully et Fisher et que celle déduite de la relation diamètre-luminosité de Heidmann.

From data on the Local group, M 81 and M 101 group galaxies, Tully and Fisher (1976) derived a relation between 21 cm line width and absolute magnitude which they applied to Virgo cluster galaxies in order to obtain their distance modulus.

In view of the uncertainties which were suspected about the various corrections introduced in the reduction of the data, we here redo the derivation of the modulus, using the Heidmann et al's (1972) inclinations and corrections for galactic and internal absorption.

The left part of the Table lists the calibrating galaxies. Their distances are taken from Sandage and Tammann (1976 b), their line widths at the 20% level from Tully and Fisher (except for Ho II, from Sandage and Tammann), their inclinations and absolute magnitudes M_o from Heidmann et al. and Balkowski (1973, who used the same precepts) ; the M_o's are here reduced to Sandage and Tammann s distances and ΔV_o are the line widths reduced to edge-on view, in km s^{-1}.

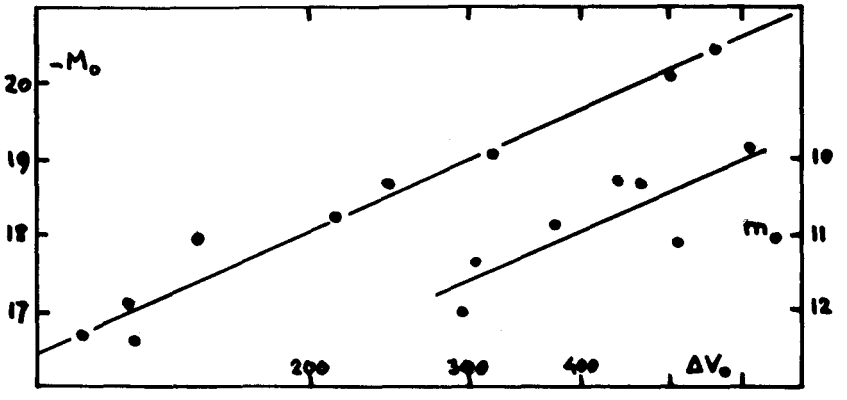
The right part of the Table lists the Virgo cluster spirals ; their line widths and inclinations are taken from the same sources as above, and their apparent corrected magnitudes m_o from Heidmann et al. The data are plotted in Figure ; top part : absolute magnitude versus line width for calibrating galaxies, with regression line ; bottom part : apparent magnitude versus line width for Virgo spirals, with best fitted line parallel to the top line.

From these two lines one deduces the distance modulus 30. 6 ± 0. 5, in excellent agreement with Tully and Fisher's value (30. 6 ± 0. 2) and with Heidmann et al's one derived from the use of the completely independent Heidmann's (1970) luminosity-diameter relation (30. 7 ± 0. 5).

The corresponding distance is 13. 2 Mpc, which, with Sandage and Tammann's (1976 a) systemic velocity 1100 km s^{-1}, gives $H = (83 \pm 19)$ km s^{-1} Mpc^{-1}.

TABLE

Galaxy	$-M_o$	ΔV_o	Galaxy	m_o	ΔV_o
N 224	20. 45	559	N 4178	11. 36	303
N 598	18. 65	245	N 4192	10. 33	465
N 2366	16. 6	128	N 4206	12. 00	297
N 2403	19. 1	320	N 4501	9. 83	614
N 3031	20. 1	501	N 4535	10. 28	436
I 2574	17. 1.	126	N 4651	11. 08	507
HO II	16. 7	112	N 4654	10. 86	373
N 5204	17. 95	151			
N 5585	18. 25	214			



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