

UNCERTAINTIES IN THE TULLY-FISHER METHOD, AND A PHILOSOPHICAL REMARK

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Studies are now in progress on the nature of various possible systematic and random errors which may be influencing the values of the Hubble parameter H_0 derived from application of the Tully-Fisher method to samples of cluster spirals outside of the Local Supercluster. Three effects seem to be of most importance. (1) Clusters yield slopes in the infrared Tully-Fisher diagram varying from 8 to 12, making it problematic as to how to derive a relative distance modulus from comparison with the local calibrators, (2) errors in measured 21-cm line widths (often measured at low signal-to-noise ratios) are the dominant source of error in derived relative distances, (3) errors in measured optical major and minor axes of a galaxy influence both its derived inclination and the H-magnitude as corrected to a standard isophote. Monte Carlo simulations of cluster samples, however, have shown that the tendency not to detect H I from edge-on and/or low-luminosity galaxies introduces no important biases. Overall, the relative distance of any of these clusters to the local calibrators appears to be good to $\pm 20\%$.

A philosophical remark: it seems to me that many people confuse the issue of the extragalactic distance scale by bringing in cosmological and "age" arguments in support of a particular value of H_0 . The task of determining the "nearby" distance scale should involve no cosmology or evidence from ages. Once the scale is reliably determined, then of course many cosmological inferences follow, but we are not yet at that stage. The history of science has shown that reliable data almost always prevail over conflicting theories also thought to be reliable.