

THE SHAPE OF THE BULGE FROM IRAS MIRAS

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ABSTRACT. Detailed observations of 103 IRAS Miras found in two strips across the Bulge with $-15^\circ < l < 15^\circ$ and $7^\circ < |b| < 8^\circ$ were discussed by Whitelock *et al.* (1991). Among other things they derived distance moduli for each object. In this work (which will be reported in more detail by Whitelock and Catchpole 1991) we examine the number of Miras per 0.3 mag distance modulus bin as a function of distance modulus and as a function of galactic longitude. The important aspect of this approach is that it provides us with a probe of the depth and structure of the bulge. If the number distribution as a function of modulus is examined separately for the two sides of the bulge, then it is very clear that the distribution of the Miras with $l > 0^\circ$ is narrower and peaks in front of the distribution of Miras with $l < 0^\circ$. This asymmetry can be understood if the Bulge is bar shaped, the bar is tilted at approximately 45° to the line of sight and the near end is in the first quadrant. This conclusion is consistent with those of Blitz & Spergel (1991) and Nakada *et al.* (1991). It is particularly interesting to note that Menzies' (1990) radial velocity data for a subset of the Miras discussed here show that the Bulge is rotating rapidly.

The observations were fitted with various models of the stellar density distribution. An X shaped Bulge model actually fits the data, particularly the longitude distribution, better than a simple triaxial ellipsoid. However given the limited data the details of the models are very speculative.

References

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