

Motions of Carbon Stars

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Radial velocities and proper motions of the Hipparcos Input Catalogue have been used for a preliminary study of the motions of the variable and 'non-variable' carbon stars. Large uncertainties in distances and the fact that a large fraction of the 'constant' stars are suspected variables make separation into variable and constant carbon stars barely significant. On the other hand, the mean motions of the N- and R-type carbon stars are not the same: for the mean galactic velocity components we obtain $(u, v, w) = (-15 \pm 4, -19 \pm 4, -7 \pm 8) \text{ km s}^{-1}$ from 155 N-type stars and $(0 \pm 13, -43 \pm 14, 13 \pm 17) \text{ km s}^{-1}$ from 74 R-type stars. The dispersions about the solutions are 31 and 71 km s^{-1} , respectively. If the 'high velocity' stars with residuals exceeding 3σ are excluded one obtains $(-14 \pm 3, -15 \pm 3, -6 \pm 7) \text{ km s}^{-1}$ from the N-type stars, and $(-9 \pm 8, -16 \pm 8, -22 \pm 10)$ from the R-type stars. Of the 8 stars excluded from the solution, 6 stars are of type R. The nature of these 'high velocity' stars is discussed. Solutions including differential galactic rotation and the implied mean absolute magnitude are also discussed.