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An old nearby quadruple system Gliese 225.2

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Abstract

We discovered a new component E in the nearby multiple system Gliese 225.2, making it quadruple. We derive a preliminary 24-yr astrometric orbit of this new sub-system C,E and a slightly improved orbit of the 68-yr pair A,B. The orientations of the A,B and C,E orbits indicate that they may be close to coplanarity. The orbit of AB,CE is rather wide and does not allow to determine its curvature reliably. Thus, the 390 yr orbit computed by Baize (1980, Inf. Circ. IAU Comm., 26(80)) was premature. The infrared colors and magnitudes of components A, B, and C match standard values for dwarfs of spectral types K5V, M0V, and K4V, respectively. The new component E, 3 magnitudes below the Main Sequence, has an anomalously blue color index. We estimate its mass as roughly 0.2 solar from the astrometric orbit, although there remains some inconsistency in the data hinting on a higher mass or on the existence of additional components in the system. Large space velocities indicate that Gliese 225.2 belongs to the thick Galactic disk and is not young. This quadruple system survived for a long time and should be dynamically stable. © ESO 2005.

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Keywords

Stars: binaries: visual, Stars: individual: HD 40887