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Sesión Científica: La via lactea y sus componentes

Título: CARMENES input catalogue of M dwarfs: Looking for close and wide companions

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Resumen:

Aims: We aim to look for close low-mass companions of M dwarfs for a more appropriate selection of the CARMENES targets, as well as for wide common proper motion companions up to 10000 au for a better characterization of the multiplicity of M dwarfs in the solar neighborhood. **Methods:** On one hand, we obtained high-resolution images in the I band with the lucky imaging instrument FastCam at the 1.5m Telescopio Carlos Sánchez for 490 mid- to late-M dwarfs. For all the detected binaries we measured angular separations, estimated the masses of the components and calculated orbital periods. On the other hand, we used STILS, TOPCAT and Aladin Virtual Observatory tools together with proper motions and distances of the CARMENES input catalogue for an extensive search of similar proper motions in a 10000 au radius. **Results:** Of the observed stars with FastCam: 75% are single, 16% have confirmed or probable physical related companions in the range 0.15-17.70 arcsec (2-263 au) and the remaining 10% have background sources or artifacts. We provide new astrometric epochs for over 70 previously known pairs, and discover 28 new binary stars and 5 likely new bound systems. Of them, 16 systems have estimated periods shorter than 20 years. Of the more than 2000 input M dwarfs of the Virtual Observatory common proper motion search, we found around 730, of which 360 are already known WDS visual companions. A more restrictive cut off on the remaining 370 candidates gives 170 candidates that are still being analysed.