

Search for stellar binary companions with high-contrast imaging

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We present results on nearby stars identified as having long term radial velocity variations in an ongoing survey by Butler et al. To confirm that these are multiple star systems, and to get more information on their mass ratios, separations, and orbits, high contrast images were taken using the Magellan Telescope MagAO system with its visible (VisAO) and infrared (Clio) cameras in several filters at visible and infrared wavelengths. We measured photometry of the primary and secondary stars and used their flux ratios to find the spectral types of the companions. These were checked against the absolute magnitudes inferred for the secondary stars. The likely companions are all M-type stars whose masses can be estimated from their absolute magnitudes using previously published relations and checked against dynamical constraints that include the radial velocities, Hipparcos-Gaia accelerations, and the measured separations from their primaries.