



Fiducial Stellar Population Sequences for the VJKs Photometric System

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We have obtained broad-band near-infrared photometry for seven Galactic star clusters (M92, M15, M13, M5, NGC1851, M71 and NGC6791) using the WIRCam wide-field imager on the Canada-France-Hawaii Telescope, supplemented by images of NGC1851 taken with HAWK-I on the VLT. In addition, 2MASS observations of the $[Fe/H] \sim 0.0$ open cluster M67 were added to the cluster database. From the resultant $(V-J)-V$ and $(V-Ks)-V$ colour-magnitude diagrams (CMDs), fiducial sequences spanning the range in metallicity, $-2.4 < [Fe/H] < +0.3$, have been defined which extend (for most clusters) from the tip of the red-giant branch (RGB) to ~ 2.5 magnitudes below the main-sequence turnoff. These fiducials provide a valuable set of empirical isochrones for the interpretation of stellar population data in the 2MASS system. We also compare our newly derived CMDs to Victoria isochrones that have been transformed to the observed plane using recent empirical and theoretical colour-Teff relations. The models are able to reproduce the entire CMDs of clusters more metal rich than $[Fe/H] \sim -1.4$ quite well, on the assumption of the same reddenings and distance moduli that yield good fits of the same isochrones to Johnson-Cousins BV(R)C photometry. However, the predicted giant branches become systematically redder than the observed RGBs as the cluster metallicity decreases. Possible explanations for these discrepancies are discussed.

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