

SINGLE STELLAR POPULATIONS

Colors and Indices

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To determine metallicity and age distributions of globular clusters (GCs) in distant galaxies—now accessible, e.g. to Keck spectroscopy—it is important to have reliable calibrations of the color-metallicity, color-age, and index-metallicity relations.

We have calculated colors in UBVRIK and stellar atmospheric indices for single stellar population (SSP) models at various metallicities. We are using the evolutionary tracks from the Padova group (Bressan et al. 1993; Fagotto et al. 1994), theoretical color calibrations from Lejeune et al. (1997) and fit functions for atmospheric indices from Worthey et al. (1994). Our models give theoretical calibrations for GC colors and indices in terms of $[\text{Fe}/\text{H}]$. The theoretical colors and metallic indices at an age of about one Hubble time are in good agreement with the observations (Fig. 1).

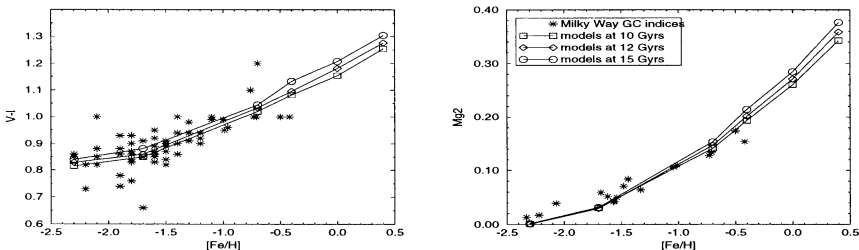


Figure 1. V-I (left) and Mg2 index (right) vs. metallicity for Milky Way globular clusters (stars) and for models at 10 (squares), 12 (diamonds) and 15 (circles) Gyrs. Metallicities and colors are from Harris 1996, indices from Burstein et al. (1984).

References

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