SYNTHETIC SPECTRA FOR SINGLE-AGED POPULATIONS

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1. Introduction

Spectra of single-aged old stellar populations of metallicities in the range -1.0 $\leq$ [Fe/H] $\leq$ +0.5 are built in the wavelength range 6950-7550 Å including TiO bands, by combining synthetic spectra of individual stars. Two approaches are applied: one for moderately metal-poor populations, entirely based on isochrones, and the other one applied to the metal-rich Galactic globular clusters, based on isochrones for the main sequence and data of observed colour-magnitude diagrams for the evolved stages. Abundance ratios of [α/Fe] = +0.3 are adopted for populations of [Fe/H] = -1.0, -0.5, and both 0.0 and +0.3 for the more metal-rich ones. The composite synthetic spectra of 8 single old stellar populations compared to the integrated spectra of Galactic globular clusters give satisfactory results. The composite spectra for these populations are shown in Figures 1a,b.

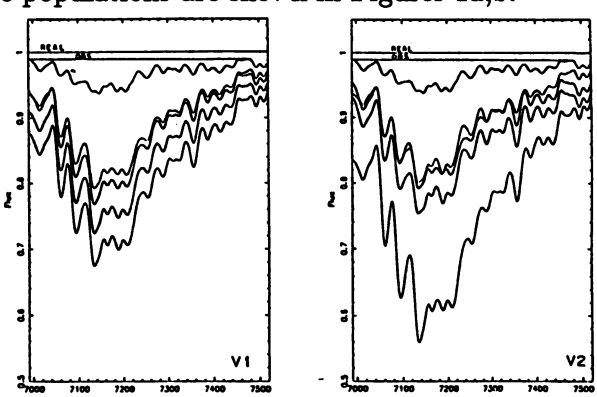

Figure 1. Synthetic composite spectra for single-aged populations, convolved with FWHM = 12.5 Å for: (a) ([Fe/H],[α/Fe]) = (-1.0,+0.3), (-0.5,+0.3), (-0.3,+0.3), (0.0,+0.3), (0.0,+0.3); (b) ([Fe/H],[α/Fe]) = (-1.0,+0.3), (0.0,0.0), (-0.5,+0.3), (+0.3,+0.3), (+0.5,+0.5)

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