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Determination of Effective Temperature and Spectral Class of G and K Stars From Synthetic Spectra

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DETERMINATION OF EFFECTIVE TEMPERATURE AND SPECTRAL CLASS OF G AND K STARS FROM SYNTHETIC SPECTRA

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The intention of this study is to develop a model for determining the effective temperature, T_{eff} , and hence, the spectral class of stars by means of examining the line ratios of a given set of *synthetic* spectra. Line ratios measurements have been restricted to the wavelength region of 3900 Angstroms to 4600 Angstroms, since many significant spectral features are observable throughout this range. The available synthetic spectra temperature range is between 4000 K and 6000 K. It is observed that next to H and K, the strongest line in the blue region is the resonance line of calcium at 4226 Angstroms; it is a sensitive indicator of temperature as are other ratios, including the ratio Fe 4325 Angstroms to 4226 Angstroms.