AUTOMATED SPECTRAL CLASSIFICATION OF STARS BY MEANS OF OBJECTIVE PRISM SPECTRA

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Some years ago a complex program of studying the main meridional section of the Galaxy was initiated with the aim of improving our knowledge of spatial and kinematic characteristics of stellar populations. To classify stars, objective prism stellar spectra (D = 166 A/mm at H_γ), are used. The field diameter is 4° $50'$, the limiting photographic stellar magnitude is about 12^m. Our automated quantitative spectral classification of F-K stars applies criteria evaluation and is based mainly on the SDR package for spectrophotometric data reduction (Malyuto, Pelt, Shvelidze, 1993) and the CTATEC-2 package for the definition of a multiple linear regression model "criteria values *versus* main physical parameters" (Malyuto, Shvelidze, 1989). Our regression model was based on the final sample of calibration stars containing 95 standard (bright) stars and 96 program faint (8^m < B < 11^m.6) stars from our areas near the North Galactic Pole. The standard deviations of our calibration with the use of all data taken together are ±0.015 for log T_{eff}, $\pm0^m.96$ for Mv and ±0.25 for [Fe/H]. These results are encouraging for application of our method to a large set of Abastumani objective prism spectra.

References

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