

PROBLEMS OF PRECISION STAR PHOTOMETRY (Abstract)

A. V. MIRONOV

Sternberg Astronomical Institute

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In ideal conditions photoelectric apparatus shows an accuracy which is 10–100 times more precise than the accuracy of real observations. To obtain the most accurate data a package of measures is necessary. The package will be referred to as the *precision photometry technique*. If the influence of the apparatus is taken into account, together with mistakes or corrections in heterochrome star magnitudes for atmospheric effects then errors may arise. One can estimate the size of the systematic errors which result from using of an agreed-upon technique by numerical experiment. In ordinary cases the size of the errors is 1–3%. In more complex cases systematic errors of derived star magnitudes can reach 10% or more. If the systematic errors are neglected then false star variability can be deduced. It is necessary to determine the photometric system correctly and adhere to a precision photometry technique to arrive at a true result and achieve a high accuracy of photometric measurements. Among modern photometric systems the Tien-Shan broad-band system WBVR is most applicable to the goals of precision photometry. Dmitriy Martynov has inspired photometrists of the Sternberg Institute to use and refine this system. If observers use the precision photometry technique then many new variable stars of small amplitude can be observed.