

Special algorithm for investigations of narrow-band spectral oscillations

N.N. Somov

Special Astrophysical Observatory of the Russian AS, Nizhnij Arkhyz 357147, Russia

Abstract.

The multichannel photon counting systems in spectral astronomical observations (Robinson and Wampler, 1972; Boksenberg, 1971; Somova et al., 1982; Sharp, 1992) permit to investigate fast spectral variability of faint objects with a high time resolution.

A special algorithm for reduction of the spectral data, obtained with BTA scanner (Drabek et al., 1986) in a high time resolution (32 ms) mode (Somov, 1988) of observations is presented. The algorithm is aimed at searching for monochromatic spectral oscillations and makes it possible to calculate the dependence of the amplitude, phase and power of spectral oscillations relative to the continuous spectrum on the wavelength and period in a region from ≈ 0.3 s to the time of exposure with a desirable resolution over the period. The described algorithm was realized in the last version of the special programming language SIPRAN (Somov, 1986), and was checked by a computer simulation and in spectral observations of standard stars and several astrophysical objects such as three intermediate polars and one polar.

References

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