

THE PHOTOMETRIC (UBV) STUDY OF THE PLANETARY NEBULAE VARIABILITY IN
1968-1987

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ABSTRACT. The photoelectric UBV-observations of planetary nebulae variability, begun in 1968 at Crimean Station of Sternberg State Astronomical Institute (USSR) and Skalnaté Pleso Observatory (Czechoslovakia), were carried out during 20 years, 1987 inclusive.

The results of our UBV-observations (1968-87) present the total UBV-magnitudes (the nebula plus the central star) of 6 nebulae: NGC 6572, Hu 2-1, NGC 6891, IC 3568, NGC 6720 and NGC 6543. The values Δv , Δb , and Δu , estimated relative to the comparison stars, give the average data for each observation season: usually several observation nights during one moonless period; each nebula was observed several times per night. The accuracy of the given data is generally several thousandths of one stellar magnitude. The data concerning the well-known nebula IC 4997, showed the most marked variability in brightness and spectrum, are presented separately, in the next contributed paper.

The obtained results permit to draw the following conclusions:

- 1) The nebula NGC 6572 after 1968 became clearly brighter by $0^m3 - 0^m5$ in visual light. However, from about 1978-79 its V-brightness either stabilized, or even began to weaken.
- 2) The nebula Hu 2-1 and 6891 showed fluctuations (of similar character) of the UBV-brightness in the range $0^m2 - 0^m4$.
- 3) The nebulae IC 3568 and NGC 6720, suspected earlier in variability, during our observations showed no changes of total UBV-brightness $> 0^m1$.
- 4) The nebula NGC 6543 was observed only from 1979; therefore conclusions on its variability would be yet premature.

Besides, from 1972 we have studied systematically the changes in spectra of the same objects for comparing them with the changes in UBV-brightness and analysing the causes of revealed variability.