

Optical Variability of NGC 4151 During 100 Years

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Star Name:	NGC 4151
Coordinates (J2000):	12 10 32.73 , +39 24 19.6
Variability type:	AGN; Limits, System: 11.2-13(B); Spectrum: Sy1G
Period:	5700 d; Epoch: JD

Remarks:

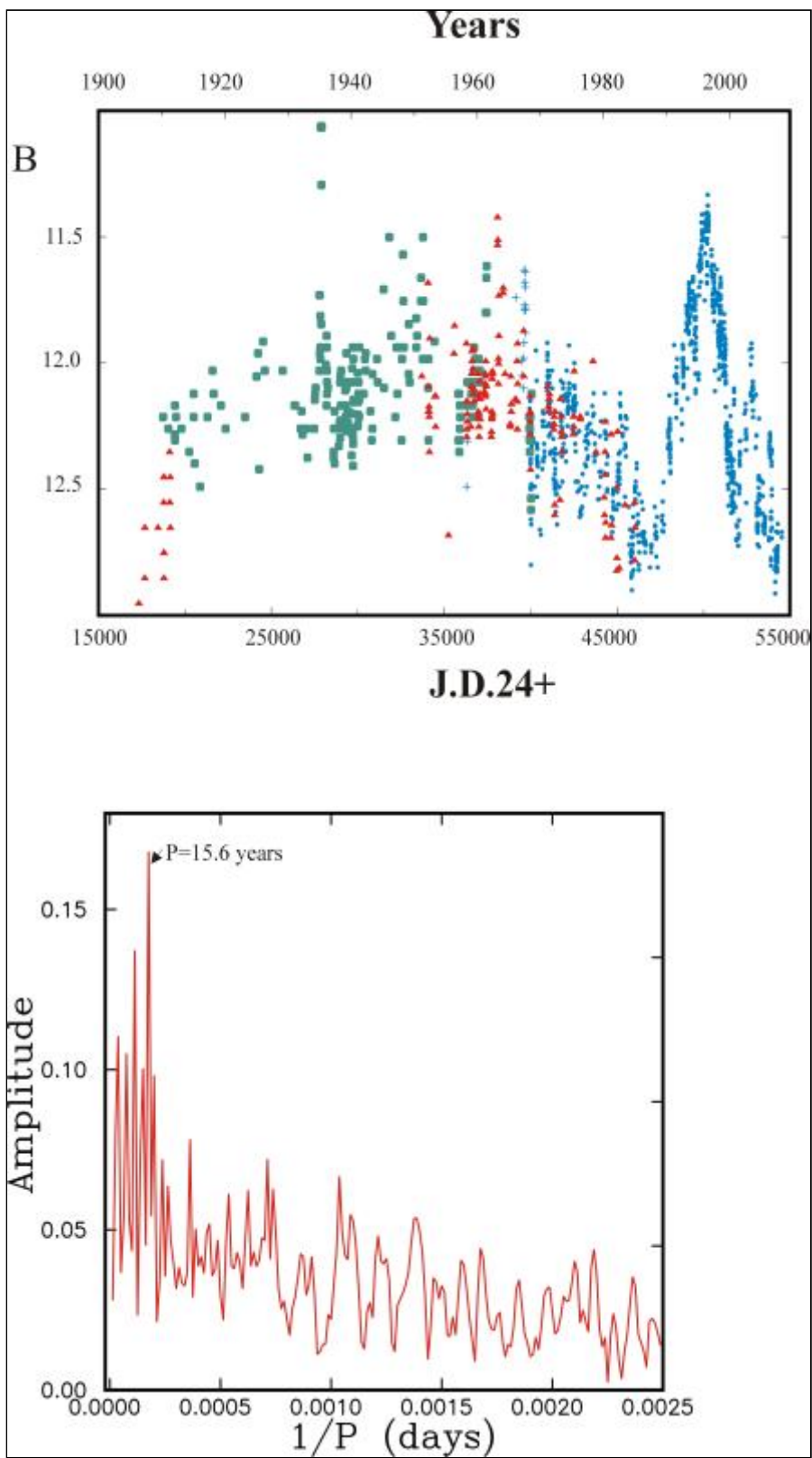
We present the historical light curve of NGC 4151 for 1906 - 2007. The light curve is primarily based on our published photoelectric data (1968 - 2007, about 1040 nightly mean measurements) and photographic estimates (mostly Odessa and Moscow plates taken in 1906 - 1982, about 350 measurements; Oknyanskij 1977, 1978, 1983). Additionally, we include all data obtained prior to 1968 and published by other authors (de Vaucouleurs and de Vaucouleurs 1968; Sandage 1966; Wisniewski and Kleinmann 1967; Fitch et al. 1967; Barnes 1968; in total, 19 photoelectric observations from 1958 - 1967, reduced by us to the same diaphragm aperture as that used in our measurements) as well as photographic data of Pacholczyk et al. (1983) (Harvard and Steward observatories' patrol plates taken in 1910 - 1968, about 210 measurements). For additional references and details, cf. Lyutyi and Oknyanskii (1987), Lyuty (2005, 2006). All these data were reduced to a uniform photometric system. Applying Fourier (CLEAN) algorithm, we find a periodic component about 15.6 years (5700 days) in the 100-year light curve. 30 years ago, nearly the same "period" was first revealed from Odessa photometric data (Oknyanskij, 1977, 1978). There is a strong correlation between the AGN's spectral type and brightness. The 14-16-year cycles seen in the light curve probably correspond to some accretion dynamic time.

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Light Curve



Top: The observed light curve of the nucleus of NGC 4151 for 1906 - 2007. The blue dots are Lyuty's photoelectric data; blue crosses, photoelectric measurements before 1968; red triangles, Oknyasnkiy's photographic data; green filled squares, photographic data by Pacholczyk et al. Bottom: the CLEAN power spectrum.