

Optical monitoring of two brightest nearby quasars, PHL 1811 and 3C 273

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Abstract

Variability is one of the most observable characteristics of active galactic nuclei, and it is important when considering the emission mechanism. In this paper, we report optical photometry monitoring of two nearby brightest quasars, PHL 1811 and 3C 273, using the ST-6 camera attached to the Newtonian focus and the Ap6E CCD camera attached to the primary focus of the 70 cm meniscus telescope at the Abastumani Observatory, Georgia. PHL 1811 was monitored during the period from 2002 September to 2012 December, while 3C 273 was monitored during the period from 1998 February to 2008 May. During our monitoring period, the two sources did not show any significant intra-day variability. The largest detected variations are $\Delta R = 0.112 \pm 0.010$ mag. for PHL 1811, $\Delta B = 0.595 \pm 0.099$ mag, $\Delta V = 0.369 \pm 0.028$ mag, $\Delta R = 0.495 \pm 0.076$ mag, and $\Delta I = 0.355 \pm 0.009$ mag for 3C 273. When the periodicity analysis methods are adopted for the observations of the sources, a period of $p = 5.80 \pm 1.12$ yr is obtained for PHL 1811 in the R light curve in the present work, and periods of $p = 21.10 \pm 0.14$, 10.00 ± 0.14 , 7.30 ± 0.09 , 13.20 ± 0.09 , 2.10 ± 0.06 , and 0.68 ± 0.05 yr are obtained for 3C 273 based on the data in the present work combined with historical works. © 2014. The American Astronomical Society. All rights reserved..

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Keywords

galaxies: active, galaxies: photometry, quasars: individual (PHL 1811, 3C273)