

OPTICAL MONITORING OF TWO $z \sim 0.2$ QSO'S BEHIND THE DISK OF M31 GALAXY

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We report BR-band monitoring of two low-redshift ($z \sim 0.20$) quasars Gaia DR2 369276756923364224 (Nedialkov et al. 2018) and Gaia DR2 369288714109887744 (Dorn-Wallenstein et al. 2017) from 2015 Nov to 2018 Dec. The two QSO's, only 3'.17 apart, are located behind the outskirts of M31 disk. Earlier, they were both misclassified as eclipsing binaries in M31 with similar periods of ~ 80 d by Vilardell et al (2006). Initially they were selected as QSO's candidates on the base of their mid-infrared colors as point-like sources from the Spitzer catalog (Khan 2017) with optical counterparts in PHAT catalog of Williams et al. (2014). The quasar nature of the candidates was confirmed by combining four 1800s exposures taken with the Dual Imaging Spectrograph (DIS) on 3.5 m telescope at APO on 2018 October.

In this paper we used also photometry from Palomar Transient Facility (PFT) and Zwicky Transient Facility (ZTF), Rozhen and SAO plates to detect statistically significant changes of the QSO's brightness and to check if the QSO's might have undergone a brightening event during the time of monitoring or in the past. We also applied structure function analysis to see whether the objects show variability properties similar to those of the quasars at the similar redshift.

References

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