

S13b OISTER Optical and Near-Infrared Monitoring Observations of a Peculiar Radio-Loud Active Galactic Nucleus SDSS J110006.07+442144.3

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We present monitoring observations at optical and near-infrared (NIR) for a radio-loud AGN at $z = 0.840$ with a black hole of $\sim 1 - 1.5 \times 10^7 M_{\odot}$, SDSS J110006.07+442144.3 (J1100+4421) which was identified during a flare phase in 2014. Optical-NIR light curves and simultaneous spectral energy distributions (SEDs) are obtained. We found that the optical-NIR SEDs of J1100+4421 show an almost steady shape despite the large and rapid intranight variability. This constant SED shape is confirmed to extend to $\lambda_{\text{obs}} \sim 5 \mu\text{m}$ using the archival WISE data. Given the lack of absorption lines and the steep power-law spectrum of $\alpha_{\nu} \sim -1.4$ ($f_{\nu} \propto \nu^{\alpha_{\nu}}$), synchrotron radiation by a relativistic jet with no or small contributions from the host galaxy and the accretion disk seems most plausible as an optical-NIR emission mechanism. The steep optical-NIR spectral shape and the large amplitude of variability are consistent with this object being a low ν_{peak} jet-dominated AGN. Sub-arcsec resolution optical imaging taken with Subaru Hyper Suprime-Cam does not show a clear extended component and the spatial scales are significantly smaller than the large extensions detected at radio. The optical spectrum of a possible faint companion galaxy does not show any emission lines at the same redshift and hence a merging hypothesis for this AGN-related activity is not supported by our observations.