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UV follow-up observations of five recently active novae in M31

ATel #14762; **David Modiano, Sill Verberne, Rudy Wijnands (Anton Pannekoek Institute for Astronomy)**
on 7 Jul 2021; 08:30 UT

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Subjects: Optical, Ultra-Violet, Nova

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Recently we initiated the Transient UV Objects (TUVO) project, in which we search for serendipitous UV transients in near-real time in Swift/UVOT data using a purposely-built pipeline. Recently (ATEL #14716) we reported on UV detections of three novae in M31 which we have also detected as part of our TUVO project.

Here we report on our most recent follow-up UVOT observations of these novae, as well as two more very recent novae detected in M31 which were also in the UVOT field of view for our observations. All magnitudes were derived from our observations taken on 2 July and are reported in the AB system. All coordinates are given in the J2000 epoch.

AT2021jwr (located at RA=00:42:46.560, Dec=+41:14:26.30; see TNS ID 82054) was detected at magnitudes of 19.8 +/- 0.4 in uw1, 20.4 +/- 0.3 in um2, 20.3 +/- 0.3 in uw2, and not detected with an upper limit of >19.1 in u. Our new uw1 magnitude of the source is very similar to that observed on June 13 (ATEL #14716) indicating that the nova is only slowly fading.

AT2021pap (located at RA=00:43:05.89, Dec=+41:15:48.2; see TNS ID 85592 and ATEL #14682) was detected at magnitudes of 18.8 +/- 0.2 in u, 19.7 +/- 0.2 in uw1, 20.0 +/- 0.2 in um2, and 20.0 +/- 0.2 in uw2. This most recent uw1 magnitude of the source is approximately 0.6 fainter than that measured on June 13 (ATEL #14716).

PNV J00425897+4118085 (located at RA=00:42:58.97, Dec=+41:18:08.5; see ATEL #14702) was detected at magnitudes of 20.8 +/- 0.4 in um2 and 20.0 +/- 0.2 in uw2, and not detected with upper limits of >19.1 in u and >20.0 in uw1. This nova has decreased significantly in brightness since the June 13 observations (where it was detected at 17.8 +/- 0.1 in uw1; ATEL #14716).

Related

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4680	Possible Nova in M31 detected by MASTER
3914	M31N 1923-12c is a recurrent nova in M31
3877	Spectroscopic classification of the recent M31 nova candidate PNV J00423804+4108417

PNV J00423807+4108423 (or **AT 2021rno**, located at RA=00:42:38.03, Dec=+41:08:41.3; see ATEL #**14755**) was detected at magnitudes of 17.9 +/- 0.2 in u, 18.7 +/- 0.2 in uw1, 19.1 +/- 0.2 in um2, and 18.9 +/- 0.1 in uw2. These observations were taken at around 17:00 UT. There were no detections in the previous UVOT exposures in all four filters, taken around 12:00 UT on the same day, with upper limits of >18.9 in u, >19.7 in uw1, >20.3 in um2, and >20.6 in uw2. Thus the nova brightened by about 1 magnitude in each UV band within approximately 5 hours.

We further report on non-detections of the very recent (4 July) nova in M31 PNV J00424717+4118173 (located at RA=00:42:47.17, Dec=+41:18:17.3; see ATEL #**14753**) on 2 July, with upper limits >18.8 in u, >19.7 in uw1, >20.5 in um2, and >20.7 in uw2.

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