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Confirmation and Photometry of M31 Transients AT2016jbg and AT2016ize

ATel #9915; *Guy S. Stringfellow, Kelly Enloe, Andy Boyle, Dylan Gatlin, Sam Settlage, and Alex Burden (University of Colorado, Boulder)*
on **30 Dec 2016; 03:35 UT**

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Subjects: Optical, Nova, Transient

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On the night of 2016 December 27 UT we performed deep optical imaging of M31 as part of our ongoing program searching for transients using the SurveyCam imager on the ARCSAT 0.5m telescope located at Apache Point Observatory. Our observations were conducted using RIVB filters with 3x300s exposures in each filter. We independently discovered a transient that we found had recently been reported to the IAU Transient Name Server (IAU-TNS) on 2016 December 25.5099 UT by Gao from the XOSS observatory. This transient was designated AT2016jbg with a reported unfiltered magnitude of 17.2 and located at R.A. = 00h43m01s.49, Dec = +41o16'59".40 J2000.

Our observations provide an independent confirmation and report the first filtered photometry for AT2016jbg, uncorrected for any reddening. The observations were conducted over the time interval 02.9683 to 04.2303 UT. For AT2016jbg we report R=16.636 (0.092) [03.0733], I=16.312 (0.141) [03.3819], V=16.660 (0.055) [03.6986], and B=16.858 (0.049) [04.0325], where the photometry errors are provided in parenthesis and the UT time at the start of the second exposure in each filter sequence given in square brackets. The presumed nova has brightened since discovery and may be near peak brightness at the time of our observations. Spectroscopic confirmation and further time series photometry are strongly encouraged.

Roughly 2.9' almost directly west of AT2016jbg lies the transient AT2016ize, reported to the IAU-TNS by Belligoli on 2016 December 21.7139 UT with an unfiltered magnitude of 18.5 from observations conducted with ISSP. Hornoch provided an independent confirmation of the transient in ATel#[9896](#) providing R=16.73 (0.08) on 2016 Dec 23.033 UT, and a pre-discovery limiting magnitude of R=20.1 on 18.045 UT. We clearly see a detection of AT2016ize in our BVR images. Given that AT2016ize falls within the stronger background gradient provided by the center of M31, our longer exposures provide weak detections whose photometry is strongly affected by the gradient in the high background around AT2016ize. Hence, we report only the B magnitude of 16.293 (0.175) [04.0325] where the surrounding background gradient is weaker than that in the other filters. The presumed nova remains visible 6 days after discovery.

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