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# Spectroscopic classification AT 2017jdm as a nova, and likely recurrent eruption of M31N 2007-10b

ATel #11088; *S. C. Williams (Lancaster), M. J. Darnley (LJMU)*  
on *24 Dec 2017; 23:46 UT*  
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We obtained a spectrum of the transient AT 2017jdm (discovered by F. Castellani, R. Belligoli, C. Marangoni and F. Marziali; see [TNS](#)) with the SPRAT spectrograph (resolution  $R \sim 350$ ; [Piascik et al. 2014](#)) on the 2-m Liverpool Telescope ([Steele et al. 2004](#)) on 2017 Dec 24.86 UT.

The spectrum shows extremely broad Balmer emission, with FWHM of  $H\alpha$  measured at  $\sim 10,000$  km/s. Broad emission lines of He I 5876 Å and N II 5679 Å are also identified. N III 4638 Å is present and there is evidence of P-Cygni absorption profiles accompanying some lines.

As noted by Patrick Schmeer ([CBAT TOCP](#)), AT 2017jdm is just 0.3 arcsec away from the position of M31N 2007-10b. The only spectrum of that nova showed the spectrum of a He/N nova, but with line velocities atypically narrow (ATel #[1242](#)). If AT 2017jdm is indeed a recurrent eruption of M31N 2007-10b, we may therefore expect significant evolution of the spectrum over the coming days.

In summary, this spectrum confirms AT 2017jdm is a nova eruption in M31, which is likely a recurrent nova outburst of M31N 2007-10b. This nova could evolve quickly and further follow-up is strongly encouraged.

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