Spectroscopic confirmation and photometry of the recent nova M31 2020-11c (AT 2020yye) (= OMB-PNV12) (= PNV J00431316+4124562)

ATel #14217;  
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We report optical spectroscopic confirmation of the nova M31 2020-11c (PNV J00431313+4124567) announced in ATel #14155.

The spectral data were obtained on 2020 Nov. 15.861 UT using the Russian BTA telescope equipped with the SCORPIO spectrograph. The spectrum was taken with a resolution of 5.3 Å in the 3700 - 5440 Å blue range and in the 5680 - 7380 Å red range. The widths were corrected for spectral resolution. The photometry of the nova was obtained just before the time of the BTA spectrum with the same device and gave U = 16.99 ± 0.08, B = 17.57 ± 0.08, V = 17.60 ± 0.05, Rc = 16.69 ± 0.08, I = 16.44 ± 0.09.

The Balmer lines (Hα, Hβ, Hγ) are all broad with double peaks (Hα: 1800 ± 100 km/s, FWHM = 3400 ± 150 km/s, red wing FWFM/2 = 10500 ± 500 km/s; Hβ: 1800 ± 50 km/s, FWHM = 3200 ± 100 km/s, red wing FWFM/2 = 5100 ± 500 km/s; Hγ: 1600 ± 100 km/s, FWHM = 3300 ± 100 km/s, red wing FWFM/2 = 4700 ± 200 km/s). The Balmer lines also display P Cyg profiles (Hα: -4400 ± 200 km/s; Hβ: -3800 ± 200 km/s; Hγ: -2400 ± 200 km/s).

There are many detections of Fe II lines at: 4233, 4515, 4629, 4924, 5018, 5169, 5317, and 6148 Å. The Fe II line at 5018 Å is flat-topped with a FWHM of 2300 ± 100 km/s. Na I D_1,2 (5889, 5895 Å) is present and shows a double-peaked structure with peaks at 5905, 5880 ± 200 km/s. We also detect Al II lines at 3901, 4663, 4399, 4501, 4563 Å, Mg I 5173, 5183 Å, and Si II 5957, 5978 Å. Overall, the spectrum seems consistent with a nova of the broad-lined Fe II (Fe IIb) class.

Blue and red parts of AT2020yye

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