The Astronomer's Telegram
Post | Search | Policies
Credential | Feeds | Email

21 Jun 2021; 16:28 UT

[Previous | Next]

Spectroscopic follow-up observations of Nova Herculis 2021

ATel #14718; *I. Albanese, A. Farina, V. Andreoli, P. Ochner (UniPd), A. Reguitti (UNAB)*
*on **15 Jun 2021; 13:29 UT***
Credential Certification: Andrea Reguitti (andreareguitti@gmail.com)

Subjects: Optical, Nova, Transient

Referred to by ATel #: 14720, 14728

We report spectroscopic follow-up observations of Nova Herculis 2021 (TCP J18573095+1653396). It was discovered by Seiji Ueda on 2021-06-12.548 UT and spectroscopically classified as a classical nova by Munari et al. 2021 (ATel #14704). We obtained a low-resolution spectrum with Monte Baldo Observatory 0.25-m Telescope + Alpy 600 spectrograph (380-800 nm, 0.497 nm/px) on 12/06/2021 and 13/06/2021, and a medium resolution spectrum with Asiago 1.22-m 'Galileo' telescope + B&C spectrograph (460-700 nm, resolution 0.25 nm) on 13/06/2021.

The first spectrum shows a blue continuum with emission lines from the Balmer series, He I and Fe II, with P-Cyg absorption profiles blue-shifted by -3200 km/s. The FWHM velocity of the Balmer lines is about 3000 km/s. Overall the spectrum is similar to the one reported by Munari et al. 2021 (ATel #14704).

Instead, the second spectrum taken the day after shows a flat continuum, the P-Cyg profiles have now weakened, with the blue-shift that has increased to -5000 km/s, as observed also by Aydi et al. 2021 (ATel #14710). All the Balmer emission lines present a flat-topped profile in both the two spectra taken on 13/06/2021, and are much broader, with the FWHM velocity that has increased to ~6000 km/s. Meanwhile, the Halpha profile seems to be more sloped, with a blue shoulder on top. The flat-topped profile can be interpreted as a signature of interaction between different ejecta being shocked, this interaction can explain the Fermi-LAT gamma-rays detection (Kwan-Lok Li 2021, ATel #14705), and can lead to the production of high-energy neutrinos (Kang et al. 2020, ApJ, 904, 4) that may be observed in the future (see Vandenbroucke 2021, ATel #14713).

The observations were performed in the framework of the ASYAGO Summer School. The two spectra taken on 13/06/2021 can be visualized at the link below.

NovaHer2021

Related
14728 Near Infrared Spectroscopy of V1674 Herculis
14723 Further Optical Spectroscopic Observations of V1674 Herculis
14720 An 8.4 min period in the archival ZTF light curve of Nova Herculis 2021
14718 Spectroscopic follow-up observations of Nova Herculis 2021
14713 Nova Herculis 2021 (TCP J18573095+1653396): IceCube neutrino search
14710 Multi-wavelength follow up of the very fast Nova Herculis 2021 (TCP J18573095+1653396)
14707 Erratum to ATel #14705: Fermi-LAT Detection of TCP J18573095+1653396 (=Nova Her 2021)
14705 Fermi-LAT Detection of TCP J18573095+1653396 (=Nova Her 2021)
14704 Spectroscopic classification of TCP J18573095+1653396 as a nova bordering naked-eye brightness

[**Telegram Index**]

R. E. Rutledge, Editor-in-Chief rrutledge@astronomerstelegram.org
Derek Fox, Editor dfox@astronomerstelegram.org