



Publication Year	2021
Acceptance in OA	2022-06-07T12:31:20Z
Title	The flaring blazar BL Lacertae observed below $R=11.5$, a new record for its optical brightness
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Handle	http://hdl.handle.net/20.500.12386/32204
Journal	The Astronomer's Telegram
Volume	14328

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13 Apr 2022; 14:49 UT

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The flaring blazar BL Lacertae observed below R=11.5, a new record for its optical brightness

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on **18 Jan 2021; 18:08 UT**

Credential Certification: *Giacomo Bonnoli (giacomo.bonnoli@unisi.it)*

Subjects: Radio, Infra-Red, Optical, Ultra-Violet, X-ray, Gamma Ray, >GeV, TeV, VHE, Request for Observations, AGN, Blazar, Transient

Referred to by ATel #: [14329](#), [14334](#), [14342](#), [14343](#), [14350](#), [14356](#), [14548](#), [14751](#)

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We report that the optical brightness of the flaring blazar BL Lacertae (RA: 22 02 43.29 Dec: +42 16 39.98 J2000.0) reached levels that are unprecedented for this source to the best of our knowledge, with observed magnitudes below R=11.5. We are monitoring this source intensively, in the framework of a follow-up campaign on this flaring blazar coordinated by the WEBT Collaboration and better detailed in our recent ATel #[14318](#). Our last measurements in the Johnson-Cousins R filter are reported in the following table:

Civil Date(UT)	Mag (dMag)	Observatory	Notes
2021 Jan. 17.84	R= 12.47 (0.01)	Siena	Average of 16 frames
2021 Jan. 17.87	R= 12.45 (0.02)	Seveso	Single frame

These measurements were obtained using the photometric sequence made available by the WEBT Collaboration (<http://www.oato.inaf.it/blazars/webt/gasp/fc/2200fc.html>). Reported uncertainty is statistical only.

This magnitude is significantly below the previous record in the R band for the blazar BL Lacertae, to the best of our knowledge represented by the magnitude R=11.73(0.01) reported in ATel #[14081](#) and observed on 2020 Oct. 05.45.

Any enquiry on these observations can be addressed either to Alessandro Marchini (marchini@unisi.it) or to Giacomo Bonnoli (bonnoli@iaa.es). We will continue monitoring the source in the following nights. Multi-wavelength follow-up is encouraged.

We acknowledge excellent scientific cooperation with, and valuable support from, the WEBT Collaboration, the BOOTES Network Collaboration, the Tuorla Observatory and the MAGIC Collaboration. Co-author Giacomo Bonnoli acknowledges financial support to the Spanish "Ministerio de Ciencia e Innovación" (MICINN) through grant PID2019-107847RB-C44 and Unit of Excellence Severo Ochoa award to the Instituto de Astrofísica de Andalucía - CSIC (SEV-2017-0709).

A brief description of the instrumental setup used at the Astronomical Observatory of the

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University of Siena for the reported observation is available at the official webpage of the observatory (see link below). The instrumentation in Seveso consists of a 0.3 m, f/6.5 telescope equipped with a ST8 XME NABG SBig CCD.

[Astronomical Observatory of the University of Siena - Official Webpage](#)

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