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

ATel #14328; *Alessandro Marchini (Astronomical Observatory, Department of Physical Sciences, Earth and Environment (DSFTA), University of Siena - Italy), Pietro Aceti, Massimo Banfi (Osservatorio Astronomico Città di Seveso, Seveso - Italy), Fabio Mortari (Hypatia Observatory, Rimini - Italy), Riccardo Papini, Fabio Salvaggio (Wild Boar Remote Observatory, Florence - Italy), Giuseppe Marino (Gruppo Astrofili Catanesi Observatory, Catania - Italy), Claudio Arena (ObsCT Private Observatory, Catania - Italy), Antonio Frasca (INAF - Osservatorio Astrofisico di Catania), Massimo Conti, Simone Leonini, Paolo Rosi, Luz Marina Tinjaca Ramirez (Montarrenti Observatory, Siena - Italy), Giacomo Bonnoli (IAA-CSIC, Granada - Spain)*
on **18 Jan 2021; 18:08 UT**

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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](#)

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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 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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