

## Multiband optical variability of the blazar OJ 287 during its outbursts in 2015-2016

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### Abstract

© 2016 The Authors. We present recent optical photometric observations of the blazar OJ 287 taken during 2015 September-2016 May. Our intense observations of the blazar started in 2015 November and continued until 2016 May and included detection of the large optical outburst in 2015 December that was predicted using the binary black hole model for OJ 287. For our observing campaign, we used a total of nine ground-based optical telescopes of which one is in Japan, one is in India, three are in Bulgaria, one is in Serbia, one is in Georgia, and two are in the USA. These observations were carried out in 102 nights with a total of ~1000 image frames in BVRI bands, though the majority were in the R band. We detected a second comparably strong flare in 2016 March. In addition, we investigated multiband flux variations, colour variations, and spectral changes in the blazar on diverse time-scales as they are useful in understanding the emission mechanisms. We briefly discuss the possible physical mechanisms most likely responsible for the observed flux, colour, and spectral variability.

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### Keywords

BL Lacertae objects: general, BL Lacertae objects: individual: OJ 287, Galaxies: active

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