

## Discovery of ATLAS17jrp as an Optical, X-ray and Infrared Bright TDE in a Star-forming Galaxy

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We hereby report the discovery of ATLAS17jrp as an extraordinary TDE in star-forming galaxy SDSSJ162034.99+240726.5 in our recent sample of mid-infrared outbursts in nearby galaxies. Its optical/UV light curves rise to a peak luminosity  $\sim 1.06 \times 10^{44} \text{ erg s}^{-1}$  in about a month and then decay as  $t^{-5/3}$  with a roughly constant temperature around 19000 K, and the optical spectra show a blue continuum and very broad Balmer lines with FWHM  $\sim 15000 \text{ km/s}$  which gradually narrowed to 1400 km/s within 4 years, all agreeing well with other optical TDEs. A delayed and rapidly rising X-ray flare with a peak luminosity  $\sim 1.27 \times 10^{43} \text{ erg s}^{-1}$  was detected at  $\sim 170$  days after the optical peak. The high MIR luminosity of ATLAS17jrp ( $\sim 2 \times 10^{43} \text{ erg s}^{-1}$ ) has revealed a distinctive dusty environment with covering factor as high as  $\sim 0.2$ , that is comparable with that of torus in active galactic nuclei but at least one order of magnitude higher than normal optical TDEs. Therefore, ATLAS17jrp turns out to be one of the rare unambiguous TDE found in star-forming galaxies and its high dust covering factor implies that the dust extinction could play an important role in the absence of optical TDEs in star-forming galaxies.

### Topic

活动星系核与超大质量黑洞

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