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FSRQ or BL Lac? MWL view of the transitional blazar OT081

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We report on a multiwavelength study of the blazar OT081 during a high-activity state in July 2016, in which very-high-energy (VHE; E >100 GeV) gamma-ray emission from the source was discovered by MAGIC and H.E.S.S. telescopes, following a trigger from Fermi-LAT. OT081 is a luminous blazar well known for its variability in many energy bands, but only once detected in the VHE energy range. The presence of broad emission lines in the optical spectrum of the source challenges the categorization of OT081 as a BL Lac and hints at its transitional nature between a BL Lac and a flat spectrum radio quasar.
From the analysis of the multiwavelength light curves and of the broadband spectral energy distribution (SED), we study the evolution of the source, and identify four states of activity in the period 6 July – 20 August 2016. Instruments and facilities involved in this work are H.E.S.S., MAGIC, Fermi-LAT, Swift-XRT, Swift-UVOT, Lick/KAIT, ATOM, AZT-8+ST7, ALMA, Metsahovi, OVRO, RINGO, Steward Observatory, Tuorla Observatory, and the WEBT community. Moreover a dedicated study with the Very Long Baseline Array at 43GHz has provided key insight regarding the jet evolution. A simple one-zone synchrotron self-Compton model is not sufficient to describe the broadband SED, and external Compton is required to explain the high Compton dominance displayed by the source. We present the MWL study and the modeling, with our interpretation of the emission
mechanism, and compare our findings with the other few transitional blazars discovered so far.

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