

Multi-frequency study of the gamma-ray flaring BL Lac object 2233-148 in 2009-2012

A.B. Pushkarev, M.S. Butuzova, Y.Y. Kovalev

We study jet physics of the BL Lac object 2233-148 making use of synergy of observational data sets in the radio and gamma-ray energy domains. The four-epoch multi-frequency (4-43 GHz) VLBA observations were triggered by a flare in gamma-rays registered by the Fermi-LAT on April 24, 2010. We also used 15 GHz monitoring data from the MOJAVE and OVRO programs. We have found that (i) jet shape of the source is conical on scales probed by our VLBA observations setting a lower limit on its unknown redshift, (ii) nuclear opacity is dominated by synchrotron self-absorption, (iii) turnover frequency of the synchrotron spectrum of the VLBI core shifts towards lower frequencies, and (iv) the corresponding speed of the flare propagation down the jet is significantly higher comparing to results from traditional kinematics based on tracking bright jet features.