

A possible association of a Fermi-LAT flaring activity with a blazar candidate behind the Large Magellanic Cloud

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We present the results of a preliminary investigation of a potential association of a blazar candidate behind the Large Magellanic Cloud (LMC) and a gamma-ray transient object. The indication of gamma-ray flaring activity in the Fermi-LAT data was detected at the position (RA, decl.) $\sim(86.60 \text{ deg}, -69.02 \text{ deg})$, while the J0545-6846 blazar candidate is located at (RA, decl.) = (86.47 deg, -68.77 deg). J0545-6846 is characterised by a particularly large radio flux of 176.3 mJy at 843 MHz, a high value of the radio-loudness parameter $R=6900$, and an integrated gamma-ray flux $>1 \text{ GeV}$ of $\sim 9.6 \times 10^{-12} \text{ erg cm}^{-2} \text{ s}^{-1}$. We have analysed the Fermi-Large Area Telescope (LAT) data from the LMC region in order to verify the flaring activity detected in July/August 2008 and later in April 2015 at MeV and GeV energies, using the latest Fermi-LAT point source catalogue. The unbinned maximum likelihood analysis performed took into account the positions of all known point-like sources, diffuse emission as well as the advanced gas modelling from the region investigated. Our preliminary analyses indicate positional consistency between J0545-6846 and the flaring activity in both periods. This suggests that the observed transient activities are related to the same blazar.

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