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Are we seeing magnetic reconnection generated gamma-ray flares in 3C 84

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Magnetic reconnection - relinking of magnetic field lines - has been proposed as a possible mechanism to power the high-energy flares in gamma-ray bright Active Galactic Nuclei but has not been confirmed via observations. Our study found observational evidence of magnetic reconnection generated gamma-ray flares in a radio galaxy, 3C 84. In a sequence of radio images, the radio-emitting region (plasma blob) gets brighter and larger, then splits into two, and finally dissipates. A gamma-ray flare is observed shortly before the split. This 'split-flare-dissipate' behavior - detected for three gamma-ray events - provides an indication of magnetic reconnection in the source.

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