

Probing the multiwavelength emission scenario of GRB 190114C

The multiwavelength observation of GRB 190114C, one of the extremely bright gamma-ray bursts (GRBs), opens a new window for studying the emission mechanism of GRBs. The Very-High-Energy (VHE; >100 GeV) detection by MAGIC suggested the inverse Compton process as the emission mechanism for the VHE gamma-rays during the early afterglow phase of the burst. However, other VHE GRB detections have casted doubt on this scenario as the inverse-Compton emission has not been clearly observed in other bursts. Furthermore, in GRB190114C, only a limited number of statistical and systematic studies on the emission scenario have been performed. Here, we perform the full likelihood analysis with the multiwavelength dataset: Swift-XRT, Swift-BAT, Fermi-GBM, Fermi-LAT, and MAGIC. We compute the statistical preference of the combined synchrotron (syn) and synchrotron self-Compton (SSC) model over the syn-only model, and check the stability of this preference.

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