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Probing the multiwavelength emission scenario of GRB 190114C

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The multiwavelength observation of GRB 190114C, an extremely bright gamma-ray burst (GRB), 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 and synchrotron self-Compton (SSC) model over the synchrotron-only model, and check the stability of this preference.

Collaboration name

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