

On the origin of very-high-energy gamma-rays from gamma-ray bursts

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Recently, very high-energy (VHE) photons above 100 GeV were detected from several GRBs (including GRB 190114C, GRB 180720B and GRB 190829A) by IACTs during the afterglow phase. We discuss the origin of VHE emission of GRBs and its implications. We propose that the available broadband data of these GRBs can be modelled with the synchrotron plus synchrotron self-Compton (SSC) emission of the afterglow shocks. The parameter values (such as the circumburst density and shock microphysical parameters) in the modeling are not unusual for both GRBs, implying that the detection of VHE photons from GRBs should be attributed to their large burst energies and low redshifts. I will also briefly mentioned the VHE observations of the prompt phases of GRBs with LHAASO.

Abstract field

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