

High energy face of Gamma-ray bursts

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TeV emissions from Gamma-ray bursts (GRBs) are very important to study the origin and the radiation mechanisms in detail. Recent discoveries of TeV photons in some of the GRBs are challenging to be explained by Synchrotron mechanism. In this work, we present the results of a detailed investigation of the prompt and afterglow emission of recently discovered TeV GRBs (GRB 180720B, GRB 190114C and GRB 190829A) based on the publicly available prompt and afterglow data. We studied the time-resolved spectroscopy of their prompt emission data to understand their emission mechanisms and to search for spectral parameter correlations based on various binning methods such as Bayesian blocks and signal to noise (SNR). GRB 190829A is a peculiar low luminous burst and it could have shock- breakout origin. We analyzed the late time Fermi-LAT emission that encapsulates the H.E.S.S. and MAGIC detection. Some of the LAT photons are likely to be associated with the GRBs and they could have Inverse Compton mechanism origin.

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