

Observation of the BOAT GRB from LHAASO

The brightest gamma-ray burst of all time, GRB 221009A, occurred within the field of view of LHAASO at a zenith angle of approximately 28 degrees. LHAASO collected over 65,000 very-high-energy (VHE) photons from the burst and detected the onset of the GRB afterglow process in the VHE band for the first time. The light curve exhibits four stages, consisting of two rises and two decays. The rapid rise is a novel feature in GRB phenomena, and the steep decay helps uncover the reasons behind the exceptional brightness of this GRB. The maximum energy of photons from the GRB exceeds 10 TeV, setting a new world record. Utilizing the unprecedented data from LHAASO, various topics, including Lorentz invariance violation, were studied.

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