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Early TeV Gamma-Ray Afterglow of GRBs

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LHAASO and/or CTA will increase the detected samples of TeV afterglows of GRBs in the near future, which is essential to revealing jet magnetization, particle acceleration, and magnetic field amplification. The emission from the reverse shock largely depends on the magnetization of the jets.
On the other hand, X-ray afterglows frequently show a shallow decaying emission in their first few thousand seconds. Possible models for the shallow decay phase are continuous energy injection, late catch-up of lately launched ejecta, the evolution of microscopic parameters, thin wind profile of the circumstellar medium, and so on.
Depending on the models, the TeV emission of the early afterglow will show different behaviors. We show model calculations of multi-wavelength lightcurves based on our time-dependent simulation code. The detection of early TeV afterglows will provide a clue to distinguishing the models of the shallow decay phase.

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