

# IACT observations of gamma-ray bursts: prospects for the Cherenkov Telescope Array

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**Abstract** Gamma rays at rest frame energies as high as 90 GeV have been reported from gamma-ray bursts (GRBs) by the *Fermi* Large Area Telescope (LAT). There is considerable hope that a confirmed GRB detection will be possible with the upcoming Cherenkov Telescope Array (CTA), which will have a larger effective area and better low-energy sensitivity than current-generation imaging atmospheric Cherenkov telescopes (IACTs). To estimate the likelihood of such a detection, we have developed a phenomenological model for GRB emission between 1 GeV and 1 TeV that is motivated by the high-energy GRB detections of *Fermi*-LAT, and allows us to extrapolate the statistics of GRBs seen by lower energy instruments such as the *Swift*-BAT and BATSE on the *Compton Gamma-ray Observatory*. We show a number of statistics for detected GRBs, and describe how the detectability of GRBs with CTA could vary based on a number of parameters, such as the typical observation delay between the burst onset and the start of ground

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