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Prompt gamma-ray burst emission as a source of GeV/TeV photons

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The Fermi LAT spectra of many bright gamma-ray bursts have a power law component that extends to several GeV. This power law component is distinct from the Band function present at lower energies (< 10 MeV), and it suggests the importance of inverse Compton scatterings at high energies.

With the advent of GRB observations at very high energies by Imaging Atmospheric Cherenkov Telescopes (IACTs) such as Magic (GRB 190114C) and High Energy Stereoscopic System (H.E.S.S.; GRB 180720B and GRB 190829A), a new window has opened up for investigating radiation models for GRBs.

In this talk, I will provide an overview of theoretical models where the prompt GRB emission is a source of GeV/TeV photons, and examine the possible constraints on models that future observations could provide. For the most discussed model for prompt GRB emission -internal shock model- I will also present the simulated spectra and light curves extending to very high energies.

Primary author: BOSNJAK, Zeljka (University of Zagreb - FER)

Presenter: BOSNJAK, Zeljka (University of Zagreb - FER)

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