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High-energy spectral component of GRB prompt emission.

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Prompt emission of GRB is believed to be produced from electrons accelerated up to non thermal energies in the internal shocks. This emission peaks in the keV-MeV energy band, but a high energy component is theoretically expected. While photons in the very high energy domain have been detected by Cherenkov Telescopes in recent years, prompt-related VHE photons have not been observed yet. Their detection would be crucial for the understanding of the physics related to the prompt emission.
In the last years, there have been many Fermi/LAT detections of high energy photons, temporally coincident with the prompt emission phase, but with different spectral properties. This GeV emission has been interpreted by several authors as mostly dominated by the afterglow. I will present new results based on a systematic study of GRBs with an early GeV emission detected by Fermi/LAT, including the exceptionally bright GRB221009A. By studying the temporal evolution of the GeV emission from the first seconds up to days, prompt GeV candidates can be found.

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