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Giancarlo Ghirlanda: Gamma Ray Bursts at high and very high energies: physical insights

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The study of the emission of GRBs at high and very high energies holds the key to unveil fundamental properties of their jets and environment, of the leading dissipation and radiation mechanisms. Recent investigation of the sub-MeV prompt emission, while revealing the synchrotron nature of the radiation, poses new challenges to the physical conditions in the emission region. GeV emission of GRBs probes the prompt to afterglow transition disclosing key features of the jet dynamics and of the shock physics. The very recent detections at TeV energies provide new clues to study particle acceleration and shock emission physics. I will review the current detections and understanding of high energy emission from GRBs and discuss the impact of future detections on still open issues.

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