30th International Cosmic Ray Conference

Contribution ID : **1079** Type : **Oral**

Synchrotron emission in GRB prompt phase using a semi leptonic and hadronic model

Friday, 6 July 2007 13:05 (0:12)

Abstract content

The "fireball model" is often invoked to explain the prompt emission from Gamma-Ray Bursts (GRBs) as observed in the MeV energy range. In this standard model, the prompt emission occurs due to collisions between layers within the relativistic jet. We will present the expected synchroton emission from electrons accelerated through the usual Fermi mechanism, assuming that the distribution of magneto-hydrodynamic perturbations in the shocks is isotropic and follows a Kolmogorov turbulence. In addition, we can expect Ultra-High Energy Cosmic Rays to be accelerated through Fermi mechanism at the very beginning of the internal shock phase, by scattering off relativistic hydrodynamic fronts of the jet. We will present predictions for their synchrotron emission and other possible processes at very high energies (>GeV). Finally, we will discuss the sensitivity of the NASA's future telescope GLAST (Gamma-Ray Large Area Space Telescope) for observing GRBs following this model, and we will address some crucial tests of the GRBs physics.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 3 (OG part 2), pages 1167-1170

Primary author(s) : GUIRIEC, Sylvain (LPTA, Université Montpellier 2, CNRS/IN2P3, Montpellier, France)

Co-author(s) : GIALIS, Denis (LAOG, Université Joseph Fourier, CNRS/INSU, Grenoble, France); PELLETIER, Guy (LAOG, Université Joseph Fourier, CNRS/INSU, Grenoble, France); PIRON, Frédéric (LPTA, Université Montpellier 2, CNRS/IN2P3, Montpellier, France)

Presenter(s) : GUIRIEC, Sylvain (LPTA, Université Montpellier 2, CNRS/IN2P3, Montpellier, France)

Session Classification : OG 2.3, OG 2.4

Track Classification : OG.2.4