ID de Contribution: **13**

Type: **Non spécifié**

Z. Bosnjak (contribution) – Gamma-ray burst spectral evolution in the internal shock model: confrontation with Fermi observations

jeudi 23 septembre 2010 16:30 (20 minutes)

Using a time-dependent numerical model where the prompt gamma-ray burst emission is calculated in the framework of the internal shock model on a broad energy range (from soft X-ray to GeV energies), we compute gamma ray burst lightcurves and time-evolving spectra. We show how the spectral evolution in this model is determined by the evolution of the physical conditions in the shocked regions and by the dominant radiative process for the effective microphysics parameters. The predictions of the model are confronted with the observations in the standard sub-MeV energy range, as well as with high energy bands observed by Fermi/LAT. In the soft gamma-ray range we considered the evolution of the pulse shape in different energy channels and the empirical hardness-intensity and hardness-fluence correlations; the scenario where the soft gamma-ray component is due to synchrotron radiation from shock accelerated electrons gives the best agreement with observations. In this scenario a variable inverse Compton component is expected at high energies (>100 MeV). We examine the effect of this
component on the observed light curve and spectral properties. In particular, we investigate if the properties of Fermi LAT observations (the delayed onset
of high energy component, its prolonged duration with respect to GBM
emission) can be accommodated within our model.