

J46a **Pulse analysis of Swift bright-long bursts with known redshift**

Vasquez Nicolas, 河合誠之

Recent studies of the prompt emission of Gamma-Ray Bursts (GRBs) indicate that the burst properties like spectral lags are characteristics of individual pulses rather than of a whole GRB. Considering this fact, we study a sample of bright Swift bursts with known redshifts, to determine the pulse characteristics of the long class GRBs. In the light curves of GRBs in 15-30 keV (soft band) and 50-150 keV (hard band), we recognize two kinds of pulses, those present in both bands and those present only in the soft band. In order to find differences between the two kinds of pulses, we calculate the spectral lags between the 15-30 keV and 50-150 keV bands and the autocorrelation functions for individual pulses. Combining this temporal analysis with the standard spectral analysis, we look for correlations of pulse properties and their energy dependence.