

Abstract Submitted
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Modeling the spectral evolution of prompt GRBs and X-ray flares¹ S. POTHAPRAGADA, S. REYNOLDS, S. GRAHAM, M.V. MEDVEDEV, University of Kansas — We use the detailed theory of jitter radiation from relativistic shocks containing small-scale magnetic fields and relativistic shock kinematics to build a numerical model of spectral variability of GRB emission. It is, then, applied to the conditions of the internal shocks in order to model the prompt phase and X-ray flares. We derive the lightcurves, spectral evolution in time within each sub-pulse of a prompt GRB and during an X-ray flare. Correlations of spectral parameters are also deduced. We demonstrate that the model lightcurves and spectra agree well with observation data. We discuss how one can deduce certain parameters of the plasma of the shock and the ejected material.

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