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Modeling Spectral Variability of Prompt GRB Emission with the Jitter Radiation Paradigm SRIHARSHA POTHAPRAGADA, MIKHAIL MEDVEDEV, SARAH REYNOLDS, University of Kansas — We present a theoretical model of prompt GRB emission based on jitter radiation - electron emission in small scale magnetic fields, such as those produced in relativistic collisionless shocks mediated by the Weibel instability. We show that the combination of anisotropy in jitter radiation and relativistic shell kinematics of internal shocks produce well known features of time resolved prompt GRB spectra, e.g., the distinct “tracking” of the low energy spectral index α and the photon flux at peak energy $F_{ph}(E_{peak})$ and the presence of synchrotron violating hard spectra at the onset of individual spikes in lightcurves. We derive spectral evolution in time of individual spikes as well as full model lightcurves. We present agreement with observations and discuss predictions that can be made thereof.

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