A Phenomenological Study of Short Gamma Ray Bursts with Extended Emission Observed by NASA’s Swift Mission

Gamma Ray Bursts (GRBs) are the most luminous and energetic explosions in the Universe since the big bang. GRBs are divided into two classes: long-duration bursts that are thought to result from the collapse of massive, short-lived stars (hypernovae) and short-duration bursts that are believed to arise from the merge of compact objects (neutron stars or black holes). Each class shows a distinct set of properties. Among the important discoveries of NASA’s Swift mission is the discovery of a new type of GRBs that are long in duration but are consistent with the short bursts properties. Here we present a comprehensive study of these bursts with Swift’s Burst Alert Telescope. We discuss the implications of our results to the proposed models.