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Signs of magnetic acceleration and multi-zone emission in GRB 080825C

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The era of the Band function paradigm is ending, due in large part to the high-quality data provided by the Fermi Gamma-ray Space Telescope. Practically all bright GRBs detected by Fermi-LAT and GBM data show deviations from a pure Band function, most often due to extra spectral features being present. Understanding the physics of these components is necessary to reveal the acceleration and emission processes active in the highly relativistic outflows of GRBs. Unfortunately, the number of bright GRBs is limited and we therefore look for the presence of possible extra components in weaker GRBs, to enlarge the sample. Here we present signs of a new high energy component in GRB080825C. This component is different from those previously reported, and its high energy and temporal behaviour point to multi-zone emission models where the particle acceleration is due to magnetic reconnection in the jet.

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