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Gamma-ray Observations of Impulsive Flare-Accelerated Electrons and Ions on 2017 September 10

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We use background-subtracted spectra from Fermi GBM to separate electron and ion components of the impulsive phase of the 2017 September 10 solar flare. This phase is distinct from the Late Phase Gamma Ray Emission (LPGRE) that peaks at 16:00 UT that is explained by CME shock acceleration of protons onto field lines returning to the Sun (Kouloumvakos, et al. 2020). We show evidence for hardening of the electron spectrum between 15:56 and 16:00 UT. We also discuss estimates of the power-law spectral indices of accelerated ions from 5 to 300 MeV in both the impulsive phase and LPGRE.

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