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Evidence of energy cutoffs in flare-accelerated electrons

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Flares are violent explosions and natural particle accelerators in solar atmosphere. The accelerated particles play an essential role in flare energy release and distribution. High and low energy cutoffs define the upper and lower limits of accelerated electrons. They are important parameters in understanding particle acceleration and energy distribution. However, the existence of acceleration-related low-energy cutoff is still a question, and the high-energy cutoff has been rarely studied and discussed. We present a recent study using X-ray and SEP (solar energetic particles) observations and report on the evidence of low and high energy cutoffs that are related to acceleration process in flares. The result provides new clues and constraint for understanding high energy spectra, electron acceleration, and transportation.

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