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Fermi-LAT Solar Flare Catalog: Observations of Solar Flares at High Energy During Solar Cycle 24th

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The Fermi Large Area Telescope (LAT) observations of the active Sun provide the largest sample of solar flares with emission greater than 30 MeV to date. These include detections of impulsive emission coincident with hard X-rays and hours-long sustained emission associated with GOES soft X-ray flares as well as very fast Coronal Mass Ejections (CME). Of particular interest is the first detection of >100 MeV gamma-ray emission from three solar flares whose positions behind the limb were confirmed by the STEREO spacecrafts and the 2017 September 10 X8.2 flare associated with Ground Level Enhancement 72. Fermi-LAT detections of solar flares at high energy present a unique opportunity to explore the mechanisms of high-energy emission and particle acceleration and transport in solar flares. We will present the Fermi-LAT Solar Flare (FLSF) Catalog, which includes observation of 45 solar flares during Solar Cycle 24. We will discuss correlation studies with Solar Energetic Particles (SEP) and CMEs, and highlight future prospects.

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