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Fermi LAT observation of the Sun

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The Fermi Large Area Telescope (LAT) has provided the largest sample of solar flares with emission greater than 30 MeV to date. These include the detection of the prompt and the delayed emission, in some cases extending up to ~20 hrs. The LAT detected in gamma-rays also three flares placed behind the limb of the visible part of the Sun. These detections are shedding light on the particle acceleration and emission by the active Sun. LAT observed the Sun also in its quiescent state. The high energy gamma-ray emission from the Sun is due to the interactions of cosmic ray (CR) protons and electrons with matter and photons in the solar environment. The observation of the solar emission components may give useful information about the evolution of the solar cycle by probing two different CR components (proton and electrons) in regions not directly accessible by direct observations. In the talk we will present the main results about the Quiet and Active Sun obtained by the LAT in its 10 years of operation.

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