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Solar gamma-ray analysis during the latest solar cycle using FERMI-LAT data

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The Sun is a well-known source of gamma rays emitted from cosmic rays during solar activity. It exhibits the variations over an approximately 11-year cycle due to the changes in the Sun's magnetic field. In this work, we studied photons of energy of 0.1 –10 GeV from the Sun disk detected by the Large Area Telescope (LAT) onboard of the *Fermi* Gamma-ray Space Telescope (*Fermi*), moving in the low-earth orbit at an altitude of about 550 km. We present the solar gamma-ray variations during the latest solar cycle between 2009 and 2021 of the latest versions of the LAT event selection (Pass 8). The results show the relationship between the solar gamma rays and the number of sunspots. This study provides a better understanding of the solar gamma rays, solar magnetic activity, and cosmic rays.

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