

Method of Incident Low-Energy Gamma-Ray Direction Reconstruction in GAMMA-400 Gamma-Ray Space Telescope

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Gamma-telescope GAMMA-400 is designed to measure fluxes of γ -rays and the electron-positron cosmic ray component possibly associated with dark matter particles annihilation or decay; and to search for and study in detail discrete γ -ray sources, to investigate the energy spectra of Galactic and extragalactic diffuse γ -rays, and to study γ -ray bursts (GRB) and γ -rays from the active Sun. GAMMA-400 gamma-ray space-based telescope scientific goals require fine angular resolution. GAMMA-400 is the pair production telescope. In the converter-tracker the incident gamma-quantum convert into electron-positron pair in the tungsten layer and then the tracks are registered by silicon-strip position-sensitive detectors. Multiple scattering processes become a significant obstacle in the incident gamma direction reconstruction for energies below several GeV. The method of utilising this process to improve the resolution is proposed in the presented work.

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