



Performance of the DAMPE silicon-tungsten tracker-converter during the first 5 years of in-orbit operations

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DAMPE (DARK Matter Particle Explorer) is a satellite-based experiment for the detection of cosmic rays and gamma rays taking data smoothly, since its launch, in December 2015.

The Silicon-Tungsten tracker-converter (STK) of DAMPE consists of six tracking planes (6x, 6y) of single-sided silicon micro-strip detectors mounted on seven support trays. The STK is able to measure the charge and precisely reconstruct the track of traversing charged particles. Tungsten plates (1 mm thick) are integrated in the second, third and fourth tray from the top to serve as $\gamma \rightarrow e^+e^-$ converters.

The STK is showing an excellent noise, thermal and mechanical stability since the beginning of the data taking. About the totality of channels (99.74%) are superbly performing, with a noise less than 5 ADC. In-orbit calibration and alignment procedures allow to achieve the best possible position resolution and long-term stability.