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The High Energy Telescope (HET) on the SolarOrbiter Mission: Overview and First Data

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As part of the Energetic Particle Detector (EPD) suite onboard Solar Orbiter, the High Energy Telescope has been launched on its mission to the Sun on February 9, 2020, and has been measuring energetic particles since it was first switched on about two weeks after launch. Using their double-ended telescopes, the two HET units provide measurements of ions above 7 MeV/nuc and electrons above 300 keV in four viewing directions. HET observed several Solar Energetic Particle (SEPs) events during the cruise phase, including the first one with a broad energy coverage (up to ~100MeV) on 29 Nov 2020. Being the first larger SEP event in a phase of rising solar activity, these measurements have already attracted extensive attention of the community. Apart from the SEPs, the HET can be used to observe the Galactic cosmic radiation (GCR) and its temporal variation. The GCR measurements can be also utilized for the validation of the energy response of HET. The overall spectra observed by HET are as expected, except for calibration issues in some specific energy bins that we are still investigating. Finally, the HET also observed several Forbush Decreases (FD), i.e. cosmic ray decreases caused by CMEs and their embedded magnetic field. Here, the capabilities and data products of HET, as well as first measurements of SEPs, GCR and FDs are presented.

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