



## **The Energetic Particle Experiment EPE for THOR**

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The Turbulence Heating Observer THOR is a candidate for ESA's next M4 mission, aimed to fly in 2026. Its mission purpose is to reveal how turbulent energy dissipation heats and energizes particles on kinetic scales in the solar wind as well as Earth's magnetosheath and bowshock.

The Energetic Particle Experiment EPE on THOR has heritage from Solar Orbiter's EPT and SOHO's ERNE and will provide particle measurements of electrons between 20 and 700 keV and ions from 20 to 8000 keV/n. Two sensor units with two double-ended telescopes each yield eight viewcones in total, four of which are dedicated to electrons and the other four to ions.

In combination with the rotation of the spacecraft the full sky will be covered, generating unique 3D measurements of the suprathermal particle population.

The particle velocity distribution functions obtained this way are a key ingredient for understanding how anisotropies, resonances and plasma beams are formed through the dissipation of plasma waves, structures, interaction with shocks and reconnection phenomena.