

The Miniaturized Electron Proton Telescope, MERiT onboard Lunar
Gateway
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The Lunar Gateway or the Gateway, part of NASA's Artemis program, is a space station orbiting around the moon. The cis-lunar Gateway platform provides the opportunity for Heliophysics investigations to advance our knowledge of the coupled Sun-Earth system and the opportunity to better understand the radiation environment in order to support and improve crew safety and operations at the Moon and beyond. The Heliophysics Environmental and Radiation Measurement Experiment Suite (HERMES) is a suite of instruments placed on the outside of the Habitation and Logistics Outpost (HALO) to monitor the Sun's radiation environment and space weather. HERMES, led by NASA's Goddard Space Flight Center, will monitor lower energy solar particles critical to scientific investigations of the Sun including the solar winds. An additional suite of instruments provided by ESA, the European Radiation Sensors Array (ERSA) will complement space weather studies. We report here on the energetic particle instrument, the Miniaturized Electron Proton Telescope (MERiT) on board HERMES designed to measure electrons and protons in the energy range $\sim 0.3-9$ MeV and $\sim 1-190$ MeV in 11 and 20 differential energy channels respectively. MERiT is a solid state detector telescope with two sensor heads: one looking sunward and the other anti-sunward. MERiT will help advance our understanding of solar energetic particles, low energy cosmic rays and energetic electrons in the magnetospheric tail. We will describe the instrument in detail and the science topics it is expected to address. Lunar Gateway is currently expected to launch in 2024.