

Z315r The Compton Spectrometer and Imager – Status and Science Goals

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The Compton Spectrometer and Imager (COSI) is a NASA Small Explorer (SMEX) satellite mission in development with a planned launch in 2027. COSI is a wide-field gamma-ray telescope designed to survey the entire sky at 0.2-5 MeV. It provides imaging, spectroscopy, and polarimetry of astrophysical sources, and its germanium detectors provide excellent energy resolution for emission line measurements. Science goals for COSI include studies of 0.511 MeV emission from antimatter annihilation in the Galaxy, mapping radioactive elements from nucleosynthesis, determining emission mechanisms and source geometries with polarization measurements, and detecting and localizing multimessenger sources. The instantaneous field of view for the germanium detectors is 25% of the sky, and they are surrounded on the sides and bottom by active shields, providing background rejection as well as allowing for detection of gamma-ray bursts and other gamma-ray flares over most of the sky. This presentation will include an overview of the COSI mission, including the science, the technical design, the project status, and highlighting some of the Japanese contributions to the mission.