

Herschel-SPIRE Performance and Science Highlights

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Abstract—SPIRE, the Spectral and Photometric Imaging Receiver, is the submillimetre imager and spectrometer on board the *Herschel Space Observatory*, which was launched in May 2009 and will continue to operate until early 2013. SPIRE has a submillimetre camera operating simultaneously in three bands at 250, 350 and 500 μm , and an imaging Fourier transform spectrometer (FTS) covering 194 – 671 microns. The SPIRE detectors are arrays of spider-wed bolometers with NTD Ge thermistors, operating at a temperature of 300 mK. SPIRE is fully functional in flight, and its performance meets or exceeds pre-flight estimates in all respects, and the data processing pipelines are also producing high quality photometric and spectroscopic data. The main design features, operating modes, measured in flight performance, and scientific capabilities of the SPIRE photometer and spectrometer will be outlined, and some scientific highlights will be presented. The technical, operational, and scientific heritage the SPIRE FTS, and of *Herschel* in general, are important for future far infrared space astronomy, most immediately the SPICA mission, and these aspects will be emphasized.