

Calibrating optical distortions in the Solar Orbiter SPICE spectrograph

Abstract

The Spectral Imaging of the Coronal Environment (SPICE) instrument on Solar Orbiter is a high-resolution imaging spectrometer operating at extreme ultraviolet (EUV) wavelengths from 70.4-79.0 nm and 97.3-104.9 nm. A single-mirror off-axis paraboloid focuses the solar image onto the entrance slit of the spectrometer section. A Toroidal Variable Line Space (TVLS) grating images the entrance slit onto a pair of MCP-intensified APS detectors. Ray-tracing analysis prior to launch showed that the instrument was subject to a number of small image distortions which need to be corrected in the final data product. We compare the ray tracing results with measurements made in flight. Co-alignment with other telescopes on Solar Orbiter will also be examined.