

ZEMAX Simulations of ASTRO-F/FIS

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ASTRO-F is the Japanese Infrared Astronomical Satellite and will be launched in February 2004. The Far-Infrared Surveyor (FIS) is one of the Focal Plane instrument on-board ASTRO-F. FIS includes two types detector modules ; Short Wavelength (SW) and Long Wavelength (LW). SW covers 50 to 110 μ m, and LW covers 110 to 200 μ m. The ZEMAX package has been used for FIS optical system in order to certify the ray trace. In addition, the result of the ZEMAX simulation gives us the information on the Point Spread Functions (PSFs) and the distortion patterns of images. We present accurate PSFs of FIS/SW and LW detectors including all the optical and mechanical elements according to the latest information on the design of ASTRO-F. For the PSFs, the effect of spiders which are the supporting structures for sub-mirror are included in the optical simulations. We compare the PSFs with the Airy pattern. We also show the distortion patterns of the images. The results of these simulations have been used for the Far Infrared Surveyor Virtual Instrument.