KASI Activities in Basic Space Science

In the field of basic space science, KASI is mainly focusing on two areas : ground-based observations and space-bourn observations. Ground-based observations with small telescopes located in different time zones provide a power tools to monitor variations of stars' brightness and positions. From 2000, KASI is developing the robotic observation technology (network & stereo observations) and currently operating two robotic observatories in South Africa and Australia to research small bodies in our Solar System.

Space-bourn observations in Korea became possible by the FIMS (Far ultraviolet IMaging Spectrograph) as the main payload of the Science and Technology Satellite 1 (STSAT-1), which was successfully launched in 2003. The science mission of the FIMS is to provide spectral sky survey data of hot Galactic plasmas in the far-ultraviolet wavelength range. The FIMS was developed by KASI in collaboration with KASIT and UC Berkeley, and published more than 30 papers in Astrophysical Journal.

Since 2007, KASI is developing a compact wide field IR space telescope, MIRIS (Multi-purpose Infra-Red Imaging System), as the main payload of the STSAT-3. The science mission of MIRIS is to survey the Galactic plane for the emission line of Pa-α (1.88 μm) and to detect the cosmic infrared background (CIB) radiation. Comparing the Pa-α map with the Hα data from ground-based surveys, we can test the theories on the origin of the warm-ionized medium (WIM) of the Galaxy and study the physical properties of the turbulence of the WIM. The MIRIS is expected to launch in 2011.

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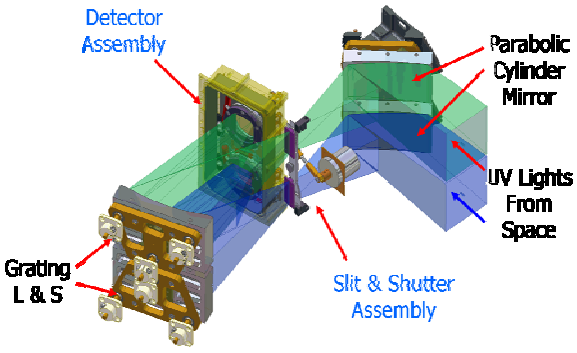
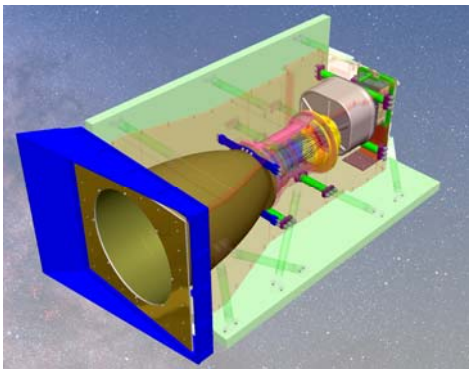


FIMS Optical System Design



MIRIS IR Space telescope System Design