

## SPACE EXPLORATION SYMPOSIUM (A3)

## Space Based Astronomy (4)

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## Abstract

The Science and Technology Satellite 3 (STSAT-3) is the first infrared satellite in Korea, and the main payload of STSAT-3, Multipurpose InfraRed Imaging System (MIRIS) is being developed by Korea Astronomy and Space Science Institute (KASI). The MIRIS will produce imaging with a wide field of view (3.67 deg x 3.67 deg) and the wavelength coverage from 0.9 to  $2\mu\text{m}$ . To reduce a thermal noise, we will cool down the telescope temperature for space observation to 200K by a radiative cooling method.

Our main scientific purposes are to survey the Galactic plane in Pa $\alpha$  (1.88 $\mu\text{m}$ ) emission line and to observe the Cosmic Infrared Background (CIB) in two wide bands (I and H bands). Pa $\alpha$  survey will reveal the origin of Warm Ionized Medium (WIM) which is a major component of the interstellar medium of the Milky Way. The structure information of WIM enables us to find the physical properties of interstellar turbulence related to star formation. In order to understand the origin of the first generation of massive stars (Population III stars) which caused the reionization of the universe, we will perform the CIB observations for North Ecliptic Pole region in two wide bands. In addition, our large sky coverage (10 deg x 10 deg) can measure clearly the large-scale (degree-scale) CIB fluctuation detected by the IRTS (Infrared Telescope in Space) mission.