

## **Astro-F All Sky Survey of Far-infrared Galaxies and Their Submillimeter-wave Follow-up Observations**

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Astro-F or IRIS (Infrared Imaging Surveyor) is a Japanese infrared satellite with 70cm liquid Helium cooled telescope planned to be launched in 2003. On board are near-infrared and middle-infrared imaging arrays (IRC) and a far-infrared survey instrument (FIS). Both instruments also have spectroscopic capability.

During the first half year period, the Astro-F will concentrate on the all sky survey at four wave-bands in the far-infrared and it is expected that more than  $10^6$  galaxies will be observed. Among the galaxies more than 1000 will have redshift larger than 1.0.

The galaxies detected by the Astro-F FIS instrument will be the largest database of distant galaxies at the time when ALMA start operation. A strategy for extracting the most distant galaxies is as follows. First the FIS colors are used to pre-select candidate galaxies. Next submillimeter-wave observations determine their photometric redshifts. Then spectroscopic observations of far-infrared lines are made in submillimeter-wave. After all these, ALMA observations will reveal the formation and evolution of the most distant galaxies.

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