

AKARI Far-Infrared View of Nearby Galaxies

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Abstract. We have observed 57 nearby galaxies in the far-infrared with the Far-Infrared Surveyor on *AKARI* to study the properties of dust in various environments.

Keywords. ISM: dust, extinction — infrared: galaxies — galaxies: ISM

AKARI far-infrared (IR) observations of 57 nearby galaxies have been carried out in part of the *AKARI* mission program “ISM in our Galaxy and Nearby Galaxies” (Kaneda *et al.* 2009a). The Far-IR Surveyor (FIS) on *AKARI* has 4 photometric bands at the wavelengths of 65, 90, 140, and 160 μm , which are of great use to accurately determine spatial variations in the properties of dust. For face-on spiral galaxies such as M 101 and M 81, we spectrally decompose dust emission into warm and cool components and spatially resolve each component, whereby we obtain physical insight into relationship between star formation rates and ISM densities (e.g. Suzuki *et al.* 2007). Large dynamic ranges of signal detection of the FIS provided by a special read-out mode is another advantage; we clearly confirm the presence of far-IR dust in the halo of the edge-on starburst galaxy NGC 253 without saturation problems at its very bright nucleus (Kaneda *et al.* 2009b). For NGC 1316, we find that far-IR emission is extending along the mid-IR jet-like structures, getting softer away from the galactic nucleus (Fig.1). Spatial information on vertical structures as well as face-on ones of galaxies is important in view of material circulation in a galaxy. Our *AKARI* data will be complementary to both existing and upcoming far-IR data of nearby galaxies such as those from *Spitzer* and *Herschel*.

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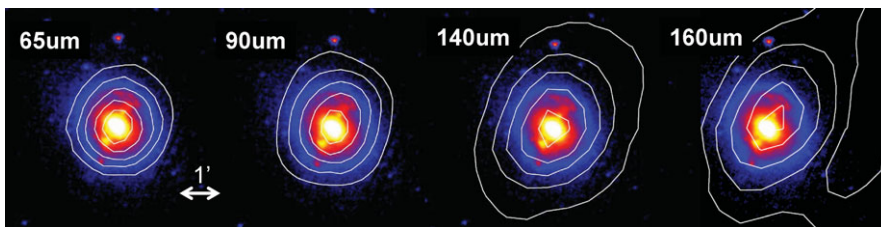


Figure 1. *AKARI* far-IR 4-band contour maps of NGC 1316, overlaid on the *AKARI* 11 μm image. Contour levels are logarithmically drawn from 10 to 80 % of the peak brightness.

References

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