

**AKARI OBSERVATIONS OF INTERSTELLAR POLYCYCLIC AROMATIC HYDROCARBONS.** D. Ishihara<sup>1</sup>, H. Kaneda<sup>1</sup>, D. Ishihara<sup>1</sup>, S. Oyabu<sup>1</sup>, T. Kondo<sup>1</sup>, M. Yamagishi<sup>1</sup>, and A. Yasuda<sup>1</sup>, <sup>1</sup>Graduate School of Science, Nagoya University (Furo-cho, Chikusa-ku, Nagoya, Aichi, 458-0001, Japan, E-mail: ishihara@u.phys.nagoya-u.ac.jp)

**Introduction:** Polycyclic aromatic hydrocarbons (PAHs) are small organic matters found also in the interstellar space [1]. They are subjects of interest as distant ancestors of organic matters in our Solar system, in view of the life cycle of solid matters in space.

**Data and analysis:** AKARI, Japanese infrared astronomical satellite, surveyed all the sky in the 9, 18, 65, 90 and 160 micron bands. Among them, the 9um band map is the world-first all-sky PAH map efficiently tracing the emission features of PAHs at wavelengths of 6.2, 7.7, 8.2 and 11.2 micron [2]. Furthermore, from 2-5 micron spectra of various fields taken by AKARI, which cover 3.3 micron aromatic and 3.4 micron aliphatic features of PAHs, we can investigate local variations of aromatic/aliphatic ratios [3].

**Results:** From the all sky PAH map, we reveal that PAHs are widely distributed in the Galactic plane, showing good spatial correlation with other tracers of general interstellar medium such as CO, HI and far-IR dust emissions [4]. From the 2-5 micron spectra, we find that the variation of aromatic/aliphatic ratio reflects processing of carbonaceous grains in the local interstellar environments [5].

**Summary:** In this talk, we review the results from AKARI observations of PAHs. We also discuss our future prospect for this study using the next Japan-led infrared space mission, SPICA.

**References:** [1] Tielens, A. G. G. M. (2008), *Annual Review of Astronomy & Astrophysics*, 46, 289. [2] Ishihara, D., et al. (2010) *Astronomy & Astrophysics*, 514, id.A1. [3] Kondo, T., et al. (2012) *Astrophysical Journal*, 751, L18. [4] Ishihara, D., et al. (2012) *Publ. of Korean Astronomical Society*, 27, 117. [5] Kaneda, H., et al. 2012, *Publ. of Astronomical Society of Japan*, 64, No.25.