The optical spectrum classifications of mid-infrared excess sources found by the AKARI All-SKy Survey

Y.Toba[1,2], S.Oyabu[3], D.Ishihara[3],
H.Matsuhara[2], T.Wada[2], Y.Ohyama[4] and M.Malkan[5]

[1] Sokendai
[2] ISAS/JAXA
[3] Nagoya University
[4] ASIAA
[5] UCLA
E-mail(TY): toba@ir.isas.jaxa.jp

Abstract

We present optical spectrum classifications of mid-infrared excess sources found by the AKARI All-Sky Survey. AKARI is the first infrared astronomical satellite in Japan launched in 2006. AKARI's main purpose is mid-infrared (9 and 18 micron) All-Sky survey as well as far-infrared (65, 90, 140 and 160 micron) All-Sky Survey. The spatial resolutions and sensitivities are one-order better than those of Infrared Astronomical Satellite IRAS which performed previous All-Sky Survey. As a result, AKARI can detect much fainter objects in much higher pointing accuracy. We are searching for Active Galactic Nuclei (AGNs) using AKARI mid-infrared All-Sky Survey catalog. One of the advantages of the mid-infrared searches is that we can directly detect infrared radiation from the dust torus which surrounds the central engine. About 2000 AGN candidates are selected by comparing their 9um fluxes with Ks-band photometry of Two Micron All-Sky Survey. Then, we obtained 130 spectra from our optical spectroscopic observations at Kitt Peak National Observatory and Lick Observatory and the archived data in the Sloan Digital Sky Survey (SDSS). We have classified these spectra into several types (type I AGNs, type II AGNs, Star-Forming galaxies etc) by these optical emission line ratios.