Dust in Warm Debris Disks

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Debris disks were discovered in main-sequence stars by infrared excess over the photospheric emission in observations by IRAS in the 1980s. Since debris disks are thought to be "extra-solar zodiacal light" formed as a consequence of the collision of planetesimals, or the destruction of cometary objects, it is interesting to examine mineralogical characteristics of debris dust and to explore connection between the debris dust and the dust in the solar system. Recent high-sensitivity observations in the mid-infrared allow us to investigate the properties of warm dust grains in the inner region of debris disks, which should have a more direct link to the formation of terrestrial planets than the low-temperature dust that has been previously studied. In this talk I will introduce results of our survey of warm debris disks around main-sequence stars based on the AKARI All-Sky Survey. I will also show mineralogical characteristics of some warm debris disks and discuss their origin based on the mid-infrared spectroscopy with Spitzer and ground-based telescopes.