Follow-up observations for AKARI/IRC near-infrared asteroid spectroscopic survey (AcuA-spec)

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In the range from 1 to 2.5 μm, we made the spectroscopic observations of the AcuA-spec asteroids (Hasegawa et al. 2017, PASJ, 69, 9), whose spectra were obtained in continuous covered between 2.5 and 5.0 μm by NIR/IRC/AKARI (Usui et al. 2019, PASJ, 71, 1). Candidates of AcuA-spec asteroids were selected from only main-belt asteroids classified based on visible spectrophotometric and spectroscopic observations (Tholen 1984, PhD thesis, Arizona University; Bus & Binzel 2002, Icarus, 158, 146; Lazzaro et al. 2004, Icarus, 172, 179). About 200 classified asteroids were raised as observational candidates. Spectroscopic observations for 65 AcuA-spec asteroids which were selected among the AcuA-spec candidate catalogue in taking account of signal-noise ratio and target opportunity by AKARI were executed.
Section work of the AcuA-spec candidate catalogue was done around 2005, yet there were not many spectroscopic observations of asteroids in the near-infrared wavelength range. As a result of survey of published paper for near-infrared spectroscopic observations of asteroids, howevwer, it was found that spectroscopic observations in the near-infrared region of 1–2.5 μm for most AcuA-spec asteroids are performed except for several asteroids.
If data in near-infrared wavelength range of the lacked AcuA-spec asteroids were acquired, all AcuA-spec asteroids will have 0.35–5 μm of data available. Obtaining continuous reflectance of asteroids is essential data to compare with those such as meteorites. Based on the Bus-DeMeo taxonomy (DeMeo et al. 2009, Icarus, 202, 160), we conducted classification of all AcuA-spec asteroids using published and our observational data.

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