

P119a **The AKARI Phase 3 Near-infrared Spectroscopic Catalog of the Large Magellanic Cloud and the Stellar Spectroscopic Variability**

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Since the Large Magellanic Cloud (LMC) is one of the nearest star-forming galaxies ( $d \sim 50$  kpc), we are able to observe individual stars in it. Based on the Large-area Survey of the LMC (PI: Takashi Onaka) with the Infrared Camera (IRC) on board AKARI in Phase 1&2, a point source catalog (Ita et al. 2008; Kato et al. 2012) and a near-infrared spectroscopic catalog (Shimonishi et al. 2013) have been released to the public. The slitless spectroscopy of AKARI suffers contamination from overlapping nearby sources. Compared with Phase 1&2, the spectral dispersion direction was designed to rotate by  $180^\circ$  respected to the detector array in Phase 3, resulting in different overlapping parts of spectra. By careful analyses, more spectral information has been derived which could not be obtained only by Phase 1&2 data.

We performed the data reduction of the AKARI Phase 3 near-infrared spectroscopy (2 - 5.5  $\mu\text{m}$  with prism) of the LMC, which covers almost the same area as in Phase 1&2 ( $\sim 10$  deg<sup>2</sup>). A new spectroscopic catalog that includes  $\sim 200$  contamination free (more than 100 new) and  $\sim 900$  not heavily contaminated (more than 500 new) sources has been created. The time intervals between Phase 1&2 observations and the corresponding Phase 3 ones are more than 200 days, which allow to investigate the spectroscopic variability of carbon stars. We will report the details of the Phase 3 spectroscopic catalog as well as some of the results so far obtained.