

[☞IM-13] Variability Analysis of HBC722 using Lomb–Scargle Periodogram

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We present preliminary results of the photometric variability analysis in SDSS r, i and z bands for a newly confirmed FU Orionis-type object, HBC 722. We observed HBC 722 from 2011 April to 2012 November, with Camera for Quasars in Early uNiverse (CQUEAN) attached to the 2.1m Otto Struve telescope at McDonald Observatory, USA. The rapid cadence monitoring observations (minute timescale) were conducted in chosen photometric nights during observation campaigns to get adequate number of samples for short term period analysis. As this object is in active state, temperature at the inner disk/stellar surface can be characterized by the colors between r, i and z bands. Also, It is theorized that a sudden cataclysmic accretion associated with FU Orionis-type outburst can give rise to detectable “hot spots” on the central star and rotational asymmetries in the disk instability region. Thus the periodic variabilities of three bands would trace the stellar rotation or Keplerian rotation at the instability region of the inner accretion disk. Additionally, the range of instabilities could be estimated on the assumption of a temperature distribution for the HBC 722 disk. This analysis can provide a clue for understanding enhanced disk accretion of Class II young stellar object.

[☞IM-14] The Large Magellanic Cloud Polarization Source Catalog : Verification for quality of the catalog

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We compile a near-infrared photometric and polarimetric catalog for the 5x9 fields ($\sim 39' \times 69'$) in the eastern side of the Large Magellanic Cloud (LMC). The photometric and the polarimetric data were obtained in J, H, and Ks bands using JHKs-simultaneous imaging polarimeter SIRPOL of the InfraRed Survey Facility (IRSF) in 2008 December and 2011 December. We estimate quality of the data using the method and the result from the IRSF Magellanic Clouds point source catalog which was published on 2007 June. In this poster, we present configuration of the catalog and the results of the verification.