

Invited lecture

PHOTOMETRIC VARIABILITY OF LUMINOUS BLUE VARIABLES IN M33 ON SHORT TIMESCALES

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We used SDSS *r*-band aperture photometry and astrometry of ~500 000 stellar-like objects in the M33 galaxy performed by the CASU (Cambridge Astronomy Survey Unit) Astronomical Data Centre in the Institute of Astronomy, University of Cambridge. The observations were carried out with the 2.6m VISTA telescope at the Cerro Paranal, Chile. More than 500 images in that passband were obtained with the OmegaCAM, a large format (16k x16k pixels) CCD camera, and each of them covers a field of view of 1°x1°. The current time span of the data is 2.1 yrs until the end of 2014.

The structure function analysis (Hughes et al. 1992) was applied in order to study the variability of ~30 known or suspected LBVs in the M33 galaxy (Massey et al. 2007) on different time scales. In some cases like Var C the time resolution of the data allows us to confirm an enhanced weekly variations $\Delta m \sim 0.3^m$ which is somehow shorter than the previously know typical monthly variations with the same maximum amplitude thought to be caused by non-radial pulsations.

References

- Hughes, P. A., Aller, M. F., Aller, H. D.: 1992, *Astrophysical Journal*, **396**, 469.
Massey, P., McNeill, R. T., Olsen, K. A. G., Hodge, P. W., Blaha, C., Jacoby, G. H., Smith, R. C., Strong, S. B.: 2007, *Astrophysical Journal*, **134**, 2474.