

A photometric variability study of massive stars in Cygnus OB2

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Abstract

We have conducted a 1.5-year-long variability study of the stars in the Cygnus OB2 association, the region in the northern hemisphere with the highest density of optically visible massive stars. The survey was conducted using four pointings in the Johnson R and I bands with a 35 cm Meade LX200-ACF telescope equipped with a 3.2 Mpixel SBIG ST10-XME CCD camera and includes 300+ epochs in each filter. A total of 1425 objects were observed with limiting magnitudes of 15 in R and 14 in I . The photometry was calibrated using reference stars with existing $UBVJHK$ photometry. Bright stars have precisions better than 0.01 magnitudes, allowing us to detect 52 confirmed and 19 candidate variables, many of them massive stars without previous detections as variables. Variables are classified as eclipsing, pulsating, irregular/long period, and Be. We derive the phased light curves for the eclipsing binaries, with periods ranging from 1.3 to 8.5 days.