

MULTI-COMPONENT VARIABILITY OF THE SYNCHRONIZING POLAR BY CAM

I. L. Andronov^{1,2}, K. A. Antoniuk³, V. V. Breus², L. L. Chinarova², W. Han⁴,
Y.-B. Jeon⁴, Yonggi Kim^{5,6}, S. V. Kolesnikov², J.-Y. Oh⁵, E. P. Pavlenko³,
N. M. Shakhovskoy³

¹ Odessa National Maritime University, Ukraine

² Astronomical Observatory and Department of Astronomy, Odessa National University, Ukraine

³ Crimean Astrophysical Observatory, Ukraine

⁴ Korea Astronomy and Space Science Institute, Daejeon, Korea

⁵ University Observatory, Chungbuk National University, Cheongju, Korea

⁶ Institute for Basic Science Research, Chungbuk National University, Korea

Results of the multi-color study of the magnetic cataclysmic variable BY Cam are presented, which have been obtained during the «Noah-2» project, which is a part of the «Inter-Longitude Astronomy» campaign. 56 observational runs cover 189 hours obtained at the Korean 1.8m and Ukrainian 2.6 m, 1.2 m and 38-cm telescopes in 2003–2005. The astrophysical processes discussed are: «shot noise» variability (dozens of seconds); quasi-periodic oscillations (8 and 30 minutes); apparent variability due to nearly synchronous spin and orbital rotations of the white dwarf (3.3 hours); spin/orbital beat

(14.5 days) modulation of the accretion structure causing abrupt switches of the accretion from one magnetic pole to another while the white dwarf «idles» in respect to the red dwarf; daily- and monthly- scale transitions between the «bright» and «intermediately faint» luminosity states; spin-orbital synchronization (hundreds years). Numerous characteristics of different types of variability are studied as functions of time and luminosity.

The complete paper is accepted for publication in the «Central European Journal of Physics».