F T1 Search for SB2 systems among selected Am binaries

I. Iliev[1], M. Feňovčík[2], J. Budaj[3,4], J. Žižňovský[4], J. Zverko[4] and I. Barzova[1]

[1] *Institute of Astronomy, National Astronomical Observatory Rozhen, P.O.Box 136, BG-4700 Smolyan, Bulgaria*

[2] *University of Pavol Jozef Safarik, Košice, Slovak Republic*

[3] *Department of Astronomy and Astrophysics, Pennsylvania State University, Davey Lab. 525, University Park, 16802 PA, USA*

[4] *Astronomical Institute, Slovak Academy of Sciences, 059 60 Tatranská Lomnica, Slovak Republic*

We report on the detection of secondary spectrum signatures in five spectroscopic binary systems: HD 434, HD 861, HD 108642, HD 178449, and HD 216608.

High signal-to-noise high resolution spectroscopic observations have been carried out at Bulgarian NAO Rozhen in the frame of an extended project concerned mainly with Am stars in binary systems. We found out that our knowledge about early type binaries has serious gaps. This is true especially when it is based on older photographic techniques only. We reach the conclusion that photographic data involving longer orbital periods (where the orbital Doppler shifts are less or comparable to the rotational broadening of the spectral lines) and early type stars (that have only few and broad lines) should be revisited or at least used with caution.

We demonstrate on the five systems above how CCD observations made with even 2-m class telescopes can discover the binary nature or secondary spectra in many currently unresolved SB1 systems. Important astrophysical information such as atmospheric parameters and mass ratios is used to unravel the previous misinterpretation of the data leading often to spurious orbits.