

The sample of FBS cataclysmic variables

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The First Byurakan Survey (FBS) was conducted by Markarian *et al.* (1989) to reveal UV-excess galaxies. However, many other interesting objects were possible to detect based on its low-dispersion spectra, and the Second part of the FBS (Mickaelian 2008) was carried out later to reveal UV-excess stellar (point-like) objects, such as white dwarfs (WD), hot subdwarfs, cataclysmic variables (CV), HBB stars, as well as QSOs and Seyfert galaxies. In addition, the FBS plates were digitized (DFBS, Digitized First Byurakan Survey; Mickaelian *et al.* 2007) and the extraction and reduction of spectra allowed selection of objects with higher confidence and to fainter magnitudes.

Spectroscopic observations have been carried out with three telescopes (Byurakan Astrophysical Observatory BAO-2.6m, Russian Special Astrophysical Observatory SAO-6m and Observatoire de Haute Provence OHP-1.93m) (Sinamyan & Mickaelian 2009) for classification of objects. The spectral features of CVs are narrow emission lines (Balmer series, HeI and HeII lines and Bowen band at 4640Å) (Fig. 1). In addition, we use the NSVS database (Wozniak *et al.* 2004) for revealing variability and our method of comparison of POSS1 and POSS2 epoch photometric data (Mickaelian *et al.* 2011) based on accurate calculations of weighted average POSS1 and POSS2 magnitudes. 27 objects are present in the NSVS and light curves are available (Fig 2.). X-ray data may serve as an additional criterion to detect CVs among the FBS blue stellar objects (Voges *et al.* 1999; 2000).

The subsample of FBS WDs has already been published (Sinamyan & Mickaelian 2011), where some CVs are also present. The subsample of FBS CVs consists of 38 objects, including the following types: dwarf novae (DN; UG and SU subtypes; 7 objects), nova-like variables (NL; SH, AC, VY subtypes; 11 objects), as well as there is a DQ Her type object (FBS 1140+719), a Helium CV (HeCV; FBS 1232+379), and a Low-mass X-ray Binary (LMXB; FBS 1656+354). Other objects do not have accurate classification because of the lack of photometric data. The Periods are in the range of 0.012 to 0.343 days.

To make a complete study of these objects possible, multiwavelength (MW) data were retrieved for these 38 objects, including X-ray (ROSAT BSC and FSC), UV (GALEX), optical (APM, MAPS, USNO-B1.0, GSC 2.3.2, SDSS), and IR (2MASS, WISE, IRAS, AKARI) and MW SEDs were built. For CVs, MW SEDs have some disadvantage as their variability does not allow to have their accurate energy distribution. Diagrams with relations between MW data-points and some other physical parameters were also built.

Keywords. surveys, techniques: photometric, novae, cataclysmic variables, X-rays: binaries

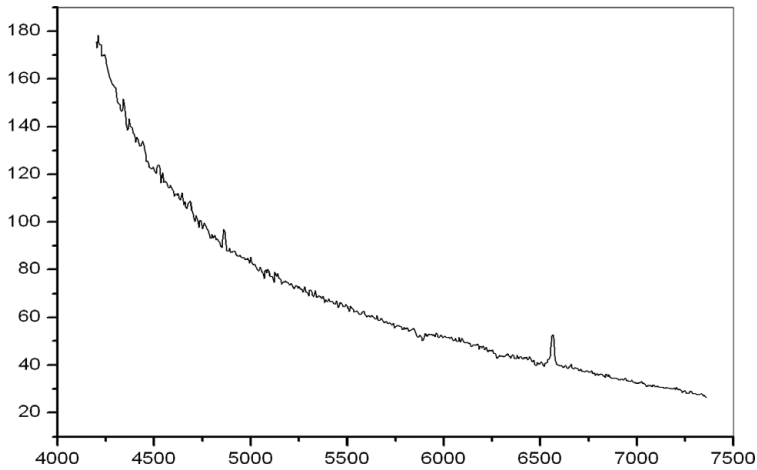


Figure 1. BAO 2.6m telescope slit spectrum for the FBS CV.

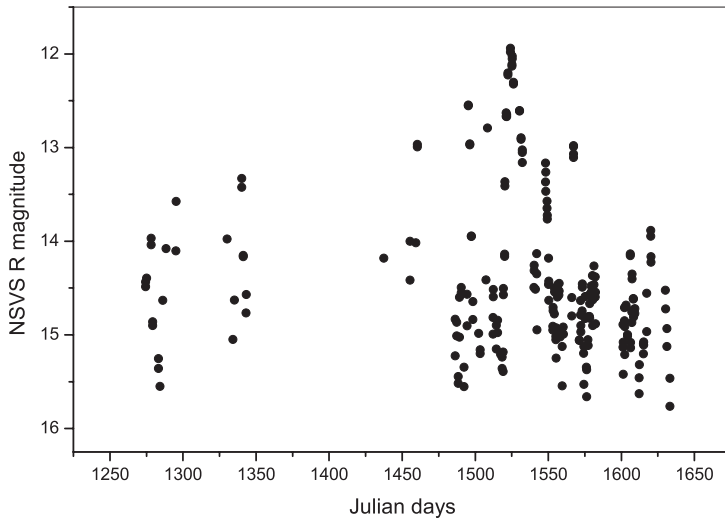


Figure 2. NSVS photometric data for FBS 0808+628 showing its changes during 359 days.

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