

## SPACE RESEARCH IN BALDONE OBSERVATORY

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At the Baldone observatory were carried out the U, B, V, R, I photometry and low resolution spectroscopy of carbon stars, the monitoring of small bodies of Solar system, the digitizing and processing of the Baldone Schmidt telescope wide field 24300 plate archive. Astronomers make popularization of astronomy.

Carbon star photometry revealed that some of carbon stars have the first and second period of variability and new type of variability – DY Per. The spectroscopy of carbon stars give the fundamental parameters of their atmospheres - T(eff), m(bol) and distances to these stars.

From 2008 the monitoring of small bodies of Solar system are carried out. 49 new asteroids are discovered. 3511 astrometric positions of 826 asteroids are calculated in cooperation with Institute of Theoretical Physics and Astronomy, Vilnius University. Orb-Fit v.4.0 program, which take into accounts planets and Ceres, Pallas, Vesta perturbations, is used in ephemerides calculations in case of asteroids of Main belt, but Orb-Fit v.4.2, which take into accounts 25 objects perturbation, in cases of Trojan and Centaurus asteroids.

The archive contain the astrophotos of Schmidt telescope of the Institute of Astronomy of the University of Latvia in the period 1967-2006. The archive contains more than 22000 direct and 2300 spectral photos of various sky regions. Information on the types of photo materials and color filters used as well as on most frequently photographed sky fields or objects are given. The images were digitized by the scanners EPSON EXPRESSION 11000XL. Standard image processing was performed in the environment of LINUX/MIDAS/ROMAFOT with an advanced set of original programs, which were developed in the Main Astronomical Observatory of National Academy of Sciences and Research Institute Nikolaev Astronomical Observatory. The equatorial coordinates and magnitudes of all objects on the plates were obtained. Additional studies were conducted of the carriage mechanics and optical distortion.