

## Report

by Nestor Tyshko and Sviatoslav Smerechynskyi  
on practice results during the 19<sup>th</sup> February — 8<sup>th</sup> March 2018  
at the Astronomical Observatory on Kolonica Saddle (Vihorlat Observatory, Slovakia)

During our research stay at the Astronomical Observatory on Kolonica Saddle (Vihorlat Observatory) we were working under supervision of RNDr. Csc. Igor Kudzej, with Tomas Medulka (observer in AO on Kolonica Saddle) and Bartlomiej Debski (PhD. Student, Jagiellonian University in Krakow, Poland) on the following tasks:

1. Observation (photometry) of variable stars GW Cep (19.01-20.01) and RW Com (24.02-25.02), both W UMa type, with reflector Celestron CGEM 1100 C11 (aperture 0.28 m), as well as observation of galaxy NGC 3367 with supernova event SN2018kp and variable star V1073 Her (25.02-26.02) with help of three reflectors Vihorlat National Telescope (VNT, aperture 1m), Žiga - Planewave CDK20 (UPJŠ, aperture 0.508 m) and Celestron Edge HD CGE Pro 1400 C14 (aperture 0.356 m). Practical work with telescopes performed remotely with help of program MaximDL Pro.

2. Data reduction (bias, dark field, flat field corrections) of observed variable objects as well as objects for which photometrical observations were done earlier (provided by B. Debski). Full procedure was performed with help of Muniwin program.

3. Calculating time of primary minimum with program Protokoly, as well as with Gauss fitting of light curves and estimation of accuracy of both methods.

4. Analysing light curve profiles in B, V, R, I filters and theoretical modelling of binary systems with help of Wilson-Deviney code (modified version of code provided by B. Debski).

5. Fitting observed light curves in all four filters (BVRI) for GW Cep and obtaining best fit parameters.

6. Analysing of results of modelling and possible existence in variable GW Cep one or two spot(s) on the secondary more massive component.

We also gave a seminar at the Astronomy Department of Pavol Jozef Safarik University in Kosice (Slovakia) with an overview of scientific research of white dwarf physics at Astrophysics Department of Ivan Franko National University of Lviv.

8 March 2018

Docent of Astrophysics Department,  
Ivan Franko National University of Lviv,  
Ukraine

Nestor Tyshko

Docent of Astrophysics Department,  
Ivan Franko National University of Lviv,  
Ukraine

Sviatoslav Smerechynskyi

Report validated by  
Superintendent of research project,  
Director of Vihorlat Observatory,  
RNDr. Csc.

Igor Kudzej