

**THE RESULTS OF OBSERVATIONS OF BINARY AND  
MULTIPLE STAR SYSTEMS FROM THE WDS CATALOG  
AT THE RI “MAO”**

*D. Bodryagin, N. Maigurova, Yu. Protsyuk*

*Research Institute “Mykolaiv Astronomical Observatory”,  
Mykolaiv, Ukraine, daniil@mao.nikolaev.ua*

Double and multiple star systems are source of unique information for determining the parameters of star formation models and for testing stellar models evolution. Therefore observations and measuring of their mutual configuration parameters is still important. The history of observations of double and multiple stars at the Research Institute «MAO» (RI MAO) covers the period from 2013 to 2020. Two telescopes of the RI MAO equipped with CCD cameras were used for observations: AMC (D=180mm, F=2500mm) and KT-50 of the MobiTel complex (D=500mm, F=3000mm). Target objects for observational list were selected from Washington Visual Double Star Catalog (WDS) taking into account the conditions of visibility and technical capabilities of telescopes. All astrometric processing was performed by the Astrometrica software using UCAC4 and GAIA DR2 as reference catalogs. The measurement of the mutual configuration parameters (separations and positional angles) was performed by the software REDUC in manual mode till 2019.

Software for automatic search of the double and multiple stars from WDS catalog and measuring of their mutual configuration parameters was created at RI MAO in 2019. This made it possible to search for WDS systems in the CCD database of old observations, which were carried out according to the other programs of observations. In current work we presented such data from observation of fields around open clusters in the plane of the galactic equator from 2011 till 2020.

The statistics, analysis and processing results of the obtained observations for more than 2, 000 double and multiple systems are presented, as well as the results of comparison of the Mykolaiv data with the WDS catalog.