STATE AGENCY ON SCIENCE, INNOVATION
AND INFORMATION OF UKRAINE
RESEARCH INSTITUTE "NIKOLAEV ASTRONOMICAL OBSERVATORY"

ASTRONOMICAL RESEARCH: FROM NEAR-EARTH SPACE TO THE GALAXY

International Conference

ABSTRACT BOOK

September 26-29, 2011,
Mykolaiv, Ukraine

RESIDUAL ROTATION OF THE HIPPARCOS/TYCHO-2 SYSTEM DETERMINED FROM THE DATA OF THE XPM CATALOGUE

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From a comparison of absolute proper motions of stars from XPM catalogue with those of the same stars from PPMXL, UCAC3, Tycho-2 and XC1 catalogues, the equatorial components of the rotation vector of these coordinate systems were determined with respect to the coordinate system spaced by positions and proper motions of XPM. These parameters are calculated with the use of about 90 million stars from the UCAC3 catalogue and about 300 million stars from the PPMXL catalogue. It was shown that HCRF, represented by Tycho-2, PPMXL, UCAC3 and XC1 catalogues, have a significant rotation component ω_z = (-1.8 0±0.16) mas/yr about the equatorial axis directed to the celestial pole. The result is confirmed by the analysis of the formal proper motions of the extragalactic sources from catalogues under consideration.

BASIS OBSERVATIONS OF METEORS USING TV REGISTRATIONS

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An overview of the results of basis observations of meteors, conducted by Odessa and Nikolaev Astronomical Observatories (in 2010-2011) is presented. Observations were carried out on the bases: Nikolaev - Odessa (Kryzhanovka), distance - 100 km; Odessa (Kryzhanovka) - Snake Island, distance - 150 km. Description of telescopes for basis television meteor patrolling is presented. The original method of observations with a TV camera is described. Software for observation, identification, and automatic measurement of stellar images coordinates for positional linking is created.

Statistics of fixed meteor phenomena in basis observations is presented. Estimation for the accuracy of kinematic characteristics of meteor phenomena, determined on the different basis distances, is made. Advantages and disadvantages of different methods of observations and

processing are discussed. The database structure of the meteor patrolling and opportunities for immediate processing of observational data are described.

Questions of modernization of basis meteor patrolling with the use of new technical possibilities of receiver equipment and management systems are discussed. Prospects of basis television observations in meteor studies are presented.

PERSPECTIVES OF SPECTRAL OBSERVATIONS OF NEAS AT THE RTT150 TELESCOPE COMPLEX

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New option, tracking on given trajectory, has been realized in an observational complex of 1.5m telescope RTT150. This makes it possible to get long exposure with minimal signal loss of the objects with high proper motions, in particularly, Near Earth Asteroids (NEAs). The reflecting spectra of NEAs – 433 (Eros), 1036 (Ganimed), 1917 (Cuyo) and 8567, with magnitudes range from 10.5 to 16.5 and the proper motion range from 20 to 160 arcsec per hour were obtained. The spectra are covered visible range from 3500 to 9000 Angstrom with the resolution R~600. To compare the quality of spectra of asteroids with known classes (433, 1036 and 1917) the spectral classification in SMASS system were performed. The spectral class of NEA 8567 was estimated for the first time as a class Q. Due to "tracking on given trajectory" are carrying out without feedback, the exposure time of highly movement asteroids is limited by 600 seconds. For this duration the reflecting spectra of 16 mag asteroids with signal-to-noise ratio from 8 to 25 at whole visible range are obtained.

CLOSE ENCOUNTERS BETWEEN ASTEROIDS FOR DETERMINING ASTEROID MASSES IN THE TIME BEFORE GAIA

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One of the possible scientific outcomes of the future Gaia mission in the field of Solar system research will be masses of large asteroids.