

STATE AGENCY ON SCIENCE, INNOVATION  
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**ASTRONOMICAL RESEARCH:  
FROM NEAR-EARTH SPACE  
TO THE GALAXY**

International Conference

**ABSTRACT BOOK**

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The perturbing effect of these asteroids onto orbits of asteroids of small masses is expected to be measured with reasonable errors during Gaia mission. For the cases of maximum perturbation for asteroids of small masses being occurred before or just after Gaia mission, the ground-based astrometric observations of high accuracy can be helpful in getting better solution.

The population of discovered asteroids is constantly growing, so the previous calculations made earlier (Kuzmanoski & Knezevic 1993, Hilton et al. 1996, Galad 2001, Galad & Gray 2002, and Fienga et al. 2003, Mouret et al. 2007) were not able to consider asteroids as perturbed candidates discovered later.

The details of method used (Hilton et al. 1996), the results of calculations made useful for planning astrometric activities at the ground-based telescopes will be described.

## **ASTROMETRY AND PHOTOMETRY OBSERVATIONS OF SELECTED ASTEROIDS WITHIN THE INTERNATIONAL JOINT PROJECT**

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The participating institutions of France, Ukraine, Russia and Turkey are engaged in the joint project complementary to one of the Gaia outputs for research of Solar system objects, namely determination of masses for large asteroids. The idea consists in observing and thus providing astrometry observations for the selected asteroids, which are already or will be perturbed before the launch of Gaia mission in 2013. Such observations will have high added value for those asteroids perturbed just before or after the mission window, and for which the Gaia data alone are insufficient. These observations will provide the orbit at the time of maximum deflection angle or perturbation useful for the later mass determination together with the Gaia data.

The paper presents statistics of observations made at the Russian-Turkish telescope RTT150 under the international joint project in 2008-2011. Besides, the standard errors of astrometric and photometric measurements are given and discussed. Current status of the project, problems and possibilities are also discussed.

## **THE COLLABORATION BETWEEN SHAO AND NAO — CELEBRATION OF THE 190TH ANNIVERSARY OF NAO**

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The long histories of SHAO and NAO are briefly described. The process of collaboration between SHAO and NAO, which has been implemented near 15 years since October 1996, is reviewed. The scientific results, such as link between optical and radio reference frame, Sino-Ukrainian network of optical telescopes for observations of the Space Debris on the low orbits, manufacture of rotating CCD camera etc., are attained and introduced. Finally, the further collaboration in the near future is suggested.

## **OBSERVATIONS WITH KYIV MERIDIAN AXIAL CIRCLE**

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The Kyiv meridian axial circle (MAC) is a meridian refractor (D=180 mm, F=2.3 m). This instrument was used for observations of star fields in the direction of ICRF objects and, currently, for the equatorial zone astrometric survey. Since March 2001 we have started the program of observations of star fields with extragalactic radio-sources, which is now completed. The purpose of the astrometric survey program is to determine positions, proper motions, magnitudes and V-R colours of faint stars in the equatorial zones.