



**5-th Gamow Memorial International Conference
dedicated to 111-th anniversary of George Gamow**

**ASTROPHYSICS AND COSMOLOGY AFTER GAMOW:
PROGRESS AND PERSPECTIVES**

and

**15-th Odessa International Astronomical Gamow Conference-School
ASTRONOMY AND BEYOND: ASTROPHYSICS,
COSMOLOGY, COSMOMICROPHYSICS, ASTROPARTICLE
PHYSICS, RADIOASTRONOMY AND ASTROBIOLOGY**



PROGRAM AND ABSTRACTS

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**DATA PROCESSING OF PLATES CONTAINING
IMAGES OF URANUS AND NEPTUNE FROM
UKRVO DIGITAL ARCHIVE: STRUCTURE,
QUALITY ANALYSIS**

*Protsyuk Yu.¹, Andruk V.², Kovylianska O., Protsyuk S.¹,
Yizhakevych O.², Kashuba S.³, Kazantseva L.⁴*

*¹Research Insitute: Nikolaev Astronomical Observatory,
Ukraine*

*²Main Astronomical Observatory, National Academy of
Sciences, Ukraine*

*³Astronomical Observatory, Odessa National University,
Ukraine*

*⁴Astronomical Observatory, Kyiv National University
named after T. Shevchenko, Ukraine*

*yuri@nao.nikolaev.ua, andruk@mao.kiev.ua,
izhak@mao.kiev.ua, sv.kashuba@gmail.com,
kazl@ukr.net*

To use accumulated resources of UkrVO digital archive, analysis of the available photographic plates containing images of Uranus and Neptune was conducted. Data processing of selected plates was also carried out to provide an estimate of positional precision and accuracy. Archives of the Research Institute: Nikolaev Astronomical Observatory (NAO), Main Astronomical Observatory of National Academy of Science (MAO), Astronomical Observatory of Odessa National University (AO ONU), Astronomical Observatory of Kyiv National University (AO KNU) were used. Numbers of plates containing images of Uranus and Neptune are, respectively, the following: 220 and 218 plates in NAO, 64 and 33 plates in MAO, 54 and 44 plates in AO ONU, 3 and 1 in AO KNU. Plates of NAO and MAO have

2 or 3 exposures per plate, and other plates have only one exposure per plate. The epoch of observation for most plates is 1960 to 1998, and for only one plate is 1908.

All plates were scanned with the resolution not less than 1200 dpi. Each plate of NAO was scanned 4 to 6 times. Plates containing images of Uranus and Neptune were, respectively, scanned 850 and 1339 times in NAO. All plates of other observatories were scanned only once. Raw image processing for scans containing images of Uranus and Neptune was, respectively, conducted for 630 and 960 scans in NAO and for all scans obtained in other observatories. (X, Y) coordinates, (I) intensities and FWHM values were obtained for images of all objects.

Star identification for scans containing images of Uranus and Neptune was, respectively, conducted for 444 and 726 scans in NAO and for all scans in MAO. Coordinates of all objects were obtained. Positional accuracy of reference stars was estimated for 186 plates of NAO and 97 plates of MAO, and has value of 0.05"-0.30".