curve of shine becomes unsuitable for the further research. In this connection there is an important problem of clearing of the satellite's shine from distortions caused by hit of stars in a field of sight. Usually this problem is decided with the help of the following procedures.

Visible angular coordinates of the satellite - azimuth Ai and altitude Hi, referred to the moments of time Ti (i = 1, ..., n), are corrected for tool mistakes and under the formulas of spherical astronomy the right ascensions and declinations of the satellite are calculated.

Then the catalogue's positions of stars which are taking place in the nearest vicinity of the point placed by satellite are translated on seen places appropriate to the moments of supervision , the angular distances on the sky from satellite up to the stars, nearest to it, are determined and compare with the aperture size of photometer rd . This variant is complicated because of translation of a plenty of star's places from epoch of the catalogue on seen places of current epoch.

In the program the alternative variant is realized, when instead of the specified translation of catalogue's positions of stars on a seen places, the translation of seen positions of the satellite on epoch of the catalogue is carried out. The number of such transformations is limited, that appreciably simplifies a task.

At "fast" displacement of the satellite and, hence, center of aperture during accumulation of a signal , the form of area in the sky with background stars essentially differs from a circle. The integration by time of stay of a star in range of vision of photometer allows to construct time function of shine of an "average background", which is compared to a common curve of shine. The good synchronization makes possible to subtract of shine of a background from common shine.

ON NEW POSSIBILITIES FOR RESEARCH OF THE ARTIFICIAL SATELLITES WITH CCD CAMERA IN DRIFT SCAN MODE

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At present, the Axial Meridian Circlle (AMC) is equipped with modern devices and necessary means for robotic observations to realise all possibilities of high-accuracy observations of different space objects.

A substantial part of the report is devoted to presentation of the features of separate automated systems and the entire instrument as well, for example, principal layouts of electronic hardware and necessary software are given.

The features of opto-mechanical and electronic devices are given, namely:

– the telescope CCD camera;
– the telescope positioning system;
– the circle reading system with four CCD microscopes;
– the CCD autocollimator;
– two CCD meridian collimators;
– the time recording system.

CCD PHOTOMETRY OF FAST–MOVING ASTEROIDS: OBSERVATION AND REDUCTION TECHNIQUES

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Photometric observations remain to date the principal source of information on the physical properties of asteroids. Observations of near-Earth asteroids (NEAs) are usually performed during the periods of their closest approach to the Earth. At this time NEAs move at fast angular rates that are usually greater than 1 deg per day. The problems associated with the photometry of fast-moving objects are discussed.

The effect of noise in CCD observations on the photometric accuracy is analyzed. A photometric accuracy limitation is shown to exist for observations of a fast-moving object. The effective exposure time for observing a moving object is determined.

Since an NEA often moves rather fast across the sky and, that during a one-night observations it may run an arc several times longer than the size of the field of view of the CCD camera. The method of overlapping areas is analyzed, which is used for obtaining the lightcurves of fast-moving asteroids. This method includes the determination of the mutual magnitude