CENSUS OF THE GALAXY: CHALLENGES FOR PHOTOMETRY
AND SPECTROMETRY WITH GAIA

CENSUS OF THE GALAXY: CHALLENGES FOR PHOTOMETRY AND SPECTROMETRY WITH GAIA

Proceedings of the Workshop held in Vilnius, Lithuania
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PREFACE

Astrometry from space was performed for the first time and with great success by the ESA Hipparcos satellite (1989–93). This mission was designed as an astrometry mission, but the use of a photon counting detector made it possible to produce very important photometric results: the most accurate astronomical photometry ever by the main Hipparcos mission in a very broad band of 120 000 stars, and the two-colour Tycho-2 photometry of 2.5 million stars.

The cornerstone ESA mission GAIA was approved in October 2000 for launch not later than 2012. This mission will use CCDs in time-delayed integration mode instead of the photo-cathode detectors used in Hipparcos. Due to the higher quantum efficiency of the CCDs, simultaneous integration of many stars, and larger telescope apertures GAIA will utilize the star light a million times more efficiently than Hipparcos, resulting in astrometry and multi-colour photometry for one billion stars. GAIA photometry is crucial for the scientific utilization of the astrometric results, and the photometric data have a high scientific content in themselves.

The present Workshop is the first full-scale meeting of the GAIA Photometry Working Group. To hold the Workshop in Vilnius was natural in view of the many years of development and application of the Vilnius medium-band photometric system. The first photometric system proposed for GAIA some five years ago was a combination of the Vilnius and Strömberg systems. The Workshop was held on 2–6 July 2001 with 38 participants from 12 countries. The agenda covered the following broad subjects:

- Scientific and Technical Realization of the GAIA Mission;
- Classification and Design of the Photometric Systems;
- Methods and Data Bases for GAIA Testing;
- Astrophysical Issues.

There were 22 oral presentations, 15 posters, and a general discussion, most of which are represented in these Proceedings as refereed contributions.

We believe, that results presented in these Proceedings will provide a timely report on the current status in the design of the GAIA photometric instrument, providing also the recommendations for the future development of both ground- and space-based photometry.

February 2002

Erik Høg and Vidas Vansevičius

European Meeting

CENSUS OF THE GALAXY:

Challenges for Photometry and Spectrometry with GAIA

Vilnius, Lithuania 2–6 July 2001

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