

Seminarium Astrofizyczne

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PASIPHAЕ Survey : PSF photometry methods for the WALOP instrument

Polarization studies of cosmic microwave background radiation (CMBR) are useful in order to probe the large scale structures and fluctuations in the early universe. But, contamination from various sources in the CMB maps poses a great problem to observational cosmologists. One of the main sources of contamination is the polarized emission from prolate dust particles aligned with the galactic magnetic field. Understanding the magnetic field structure of our galaxy is important to subtract these foreground contaminations. Polarization data of multiple stars help us in modelling the structure of the galactic magnetic fields. This the main purpose of the PASIPHAЕ survey which aims at creating a dataset of polarization of numerous stars in the galactic polar regions with the help of upcoming state-of-the-art polarimeter named WALOP. In this talk, I will discuss how we use polarization data of stars to create a tomographic map of the galactic magnetic field in the context of the PASIPHAЕ survey. The WALOP instruments are designed to have a large field of view (35×35 arcminutes) that can measure the normalised stokes parameters (I, q, u) of multiple stars in one shot with 0.1% accuracy. I will present the photometry and polarimetry methods we used in developing the pipeline for carrying out high accuracy polarimetry with the WALOP instrument.

Serdecznie zapraszam,
Agnieszka Majczyna