

Eclipsing Binaries in the Magellanic Clouds

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We present results of a search for eclipsing binaries in the Magellanic Cloud fields covering central parts of these galaxies. The data were collected during the second phase of the Optical Gravitational Lensing Experiment survey (OGLE-II) in 1997–2000. In total, about 1500 and 3000 eclipsing stars were found in the Small and Large Magellanic Cloud, respectively (Udalski et al. 1998, Wyrzykowski et al. 2003). The photometric data of all objects are available to the astronomical community from the OGLE Internet archive (<http://sirius.astrouw.edu.pl/~ogle/>). OGLE-II data contain a full variety of classical eclipsing objects of all types: Algol EA-type, β -Lyr EB-type and W UMA EW-type stars. Large samples of stars allow to study in detail statistical properties of eclipsing objects. OGLE data also contain many very unusual eclipsing stars. Examples include eclipsing variable B-type stars (Mennickent et al. 2003), many spotted stars or eclipsing stars with a Cepheid as a component (Udalski et al. 1999). Recently three objects from the LMC revealing simultaneously RR Lyr and eclipsing binary type variability were discovered (Soszyński et al. 2003). If the follow-up observations confirm that both components are physically bound and not optical blends these stars will provide a unique opportunity of direct determination of physical parameters of RR Lyr pulsating stars.

The OGLE-III project, which began regular observations of the Magellanic Clouds in June 2001, is still in the early phases. Up to the end of June 2003 about 100–250 epochs were collected for the LMC fields and about 200 epochs for the SMC fields. The LMC and SMC fields cover now practically the entire galaxies. Photometry of more than 30 million stars from both MC is obtained in real time. The new data pipeline system based on image subtraction technique provides now photometry with mmag accuracy for the brightest stars. We believe that in the time scale of a few years the vast majority of eclipsing stars from the Magellanic Clouds down to ≈ 20 mag will be detected by the OGLE-III survey and photometry will be released to the astronomical community.

References

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