

A SYNOPTIC VIEW OF THE MAGELLANIC CLOUDS:
VMC, GAIA AND BEYOND

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**Physical properties and evolutionary
status of Cepheids in eclipsing
binaries in the LMC**

**Pilecki Bogumil, Nicolaus Copernicus Astronomical
Center**

Cepheids are important distance indicators in the local Universe and key objects for testing the predictions of stellar evolution and stellar pulsation theories. A presence of Cepheids in eclipsing binary systems give us an opportunity to measure and study their physical parameters, including the mass. I will present the most important knowledge we obtained from the observations and analysis of 10 Cepheids in eclipsing binaries in the Large Magellanic Clouds, like firm relations between such measured parameters as period, mass and radius. The results based on evolution and pulsation models can be now compared with observations and challenged. The study resulted in finding various evidences for binary interactions during the evolution and a non-pulsating object inside the instability strip. Our measurements provide strong constraints for solving the famous Cepheid mass discrepancy problem. We have also measured the first dynamical mass and determined the evolutionary status of a type II Cepheid. A presence of complex ringed disk structures were also detected around the companions to type II Cepheids.