
The period distribution of Cepheids a test of stellar evolution.

Martin Groenewegen*¹ and Leo Girardi²

¹Koninklijke Sterrenwacht van België (KSB-ROB) – Belgium

²Osservatorio Astronomico di Padova, INAF – Vicolo dell'Osservatorio 5, I-35122 Padova, Italy

Abstract

The period distribution of classical Cepheids in our Galaxy and the Small and Large Magellanic Cloud is quite different. These differences are related to different star formation histories (SFHs) and differences in the location of the Cepheid instability strip related to metallicity.

The VISTA Magellanic Cloud (VMC) survey will lead to the derivation of the SFH in the SMC and LMC on a spatial scale of a square degree or less. With this uncertainty removed, the theoretical and observational period distribution of Cepheids will only depend on the location of the instability strip and properties of the pulsation.

Using the TRILEGAL population synthesis code and a theoretical instability strip first results of this idea are presented for one area in the LMC and the Solar neighbourhood as comparison.

*Speaker