

Study of Changes in the Pulsation Period of Six Cepheid Variables

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Abstract : We study the period change of six Cepheids using 19376 accurate flux observations of the Solar Mass Ejection Imager (SMEI) onboard the Coriolis spacecraft. All observations for the six Cepheids have been derived as templates for each star, independent of the specific sites utilized to establish and update the O-C values. Sometimes, sinusoidal patterns are superimposed on the star's O-C changes, which cannot be regarded as random fluctuations in the pulsation period. Random period changes were detected and computed using Eddington's and Plakidis's approaches. A comparison of the observed and predicted period change reveals a good agreement with some published models and a very substantial divergence with others. Between the reported period change and that estimated by the current technique, a linear fit with a correlation coefficient of 90.08 percent was obtained. The temporal rate of period change in Cepheid stars might be connected to how well these stars' mass losses are known today.

Keywords : cepheids, period change, mass loss, O-C changes, period change, mass loss, O-C

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