
Atmospheric parameters and chemical abundances of pulsating Beta Cephei stars in open clusters.

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Abstract

Beta Cephei stars are massive, non-supergiant, intrinsic variables. Theoretical investigations indicate that their pulsation mechanism strongly depends on the abundance of heavy elements. Until now, hundreds of these B-type variables were discovered photometrically, but only for a small sample spectroscopic data were investigated. We present the results of the investigation of high-resolution and high signal-to-noise spectra of Beta Cephei stars in the young open clusters. We use the spectrum synthesis method and TLUSTY and SYNTH code to calculate models of the atmospheres and synthetic spectra. For all stars, we determine effective temperatures, surface gravities, rotational velocities and chemical abundances. This allow to determine the relationships between chemical abundances and pulsational parameters of Beta Cephei stars. Moreover, the atmospheric parameters are necessary constraints for future asteroseismology, an independent method of studying stellar interiors and evolution.

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