Numerical simulation of line profile variation in roAp stars

Takashi Nomura , Hiromoto Shibahashi

Department of Astronomy, University of Tokyo

Since the oscillations found in roAp stars are high overtones, the vertical wavelengths of the oscillations are so short that the amplitude and phase of variation of each spectroscopic line are highly dependent on the level of the line profile. Hence the analyses of variation of spectroscopic lines of roAp stars potentially provide us with new information about the vertical structure of the atmosphere of these stars. In order to extract such information, numerical simulation of line profile variation beyond a single-surface approximation is necessary. We have carried out numerical simulation of line profile variation by taking account of finite thickness of the line forming layer. We demonstrate how effective this treatment is, by comparing the simulation with the observed line profiles.