RHD simulation of convection in bright F-type stars

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Abstract

To this date, the role of turbulence in the excitation and damping of global oscillations in A- and Am-type stars has not been investigated adequately with 3D RHD simulations. We report here the first results from a project which aims at creating a grid of simulation of the convective layers for stars in the range of hot F- to A-type. In particular, we present the results from a 3D RHD simulation of an F-type star with Teff = 6600 K and log(g) = 4 obtained through the ANTARES code. The simulation extends to a box of 23 × 46 × 46 Mm with a resolution of 65 × 190 × 190 km and covers a time span of ∼ 3 days. Here we show the results obtained for the mean structure profile and we present a first analysis of the seismic properties predicted by our model by computing the temporal power spectra of the average vertical velocity and radiative flux.

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