
What can we learn from solar-like stars' rotation rates ?

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Abstract

We studied the lightcurves of the 540 Kepler targets of the solar-like seismic sample studied by Chaplin et al. (2014) and derived robust surface rotation rates for 310 of them (Garcia et al., submitted). This was achieved using two different corrections - PDC-MAP (Thompson et al. 2013) and KADACS (Garcia et al. 2011) - and two different analyses - wavelets decomposition (Mathur et al. 2010b) and autocorrelation function (McQuillan et al. 2013a). We also extracted photometric levels of activity for these stars, which are comparable to the one of the Sun for the majority of the dwarves in our sample. Using the ages derived by Chaplin et al. (2014), we then studied age-activity-rotation relations for the hot stars, the dwarves, and the subgiants of our sample and the limits of their applicability. We also examined the influence of rotation on the behavior of the external convective envelope of these solar-like stars.

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