Li and Be depletion in stars with exoplanets

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In collaboration with:
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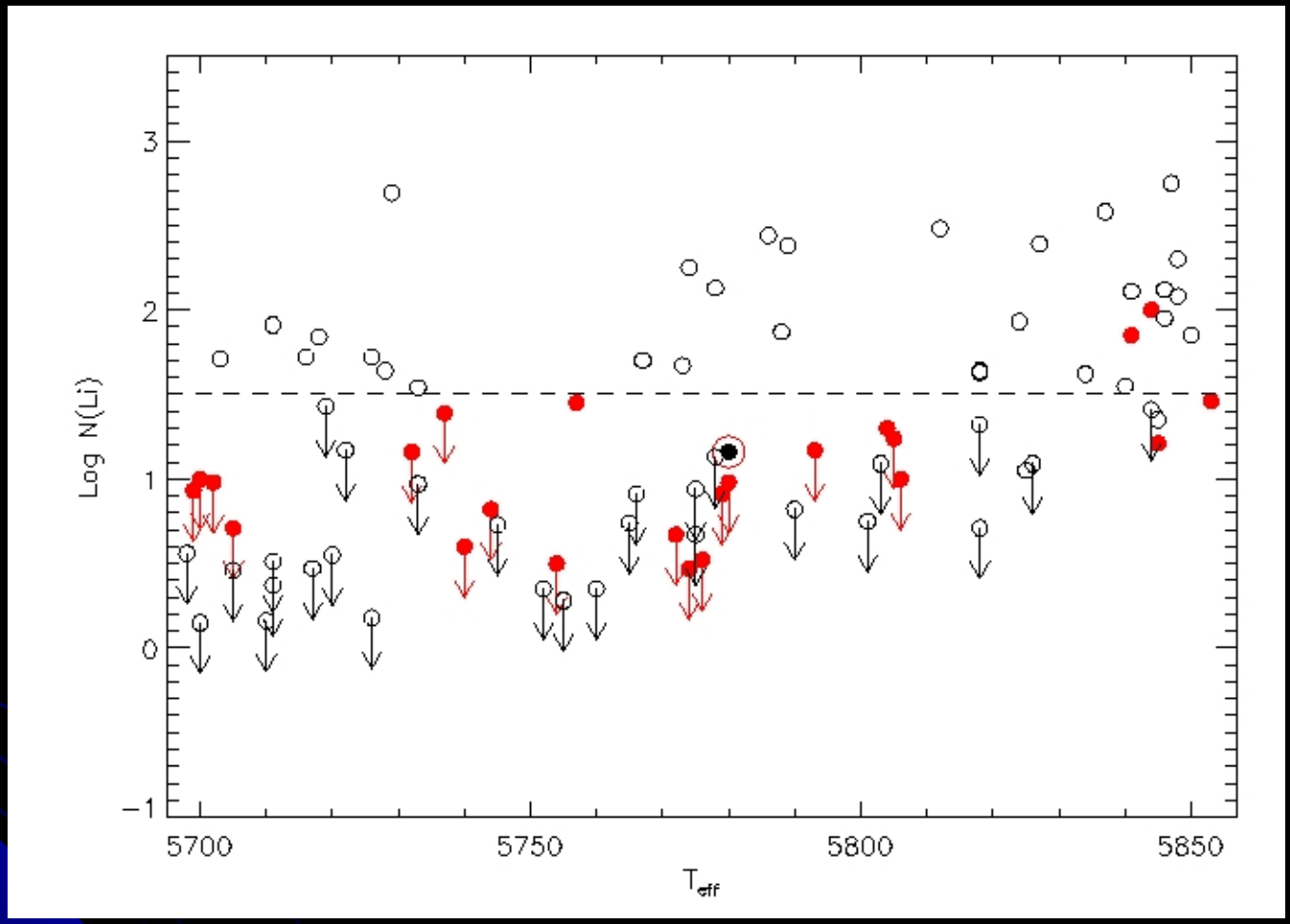
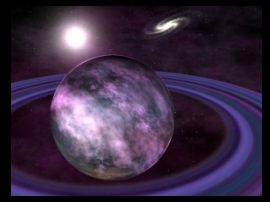
Li versus T_{eff}

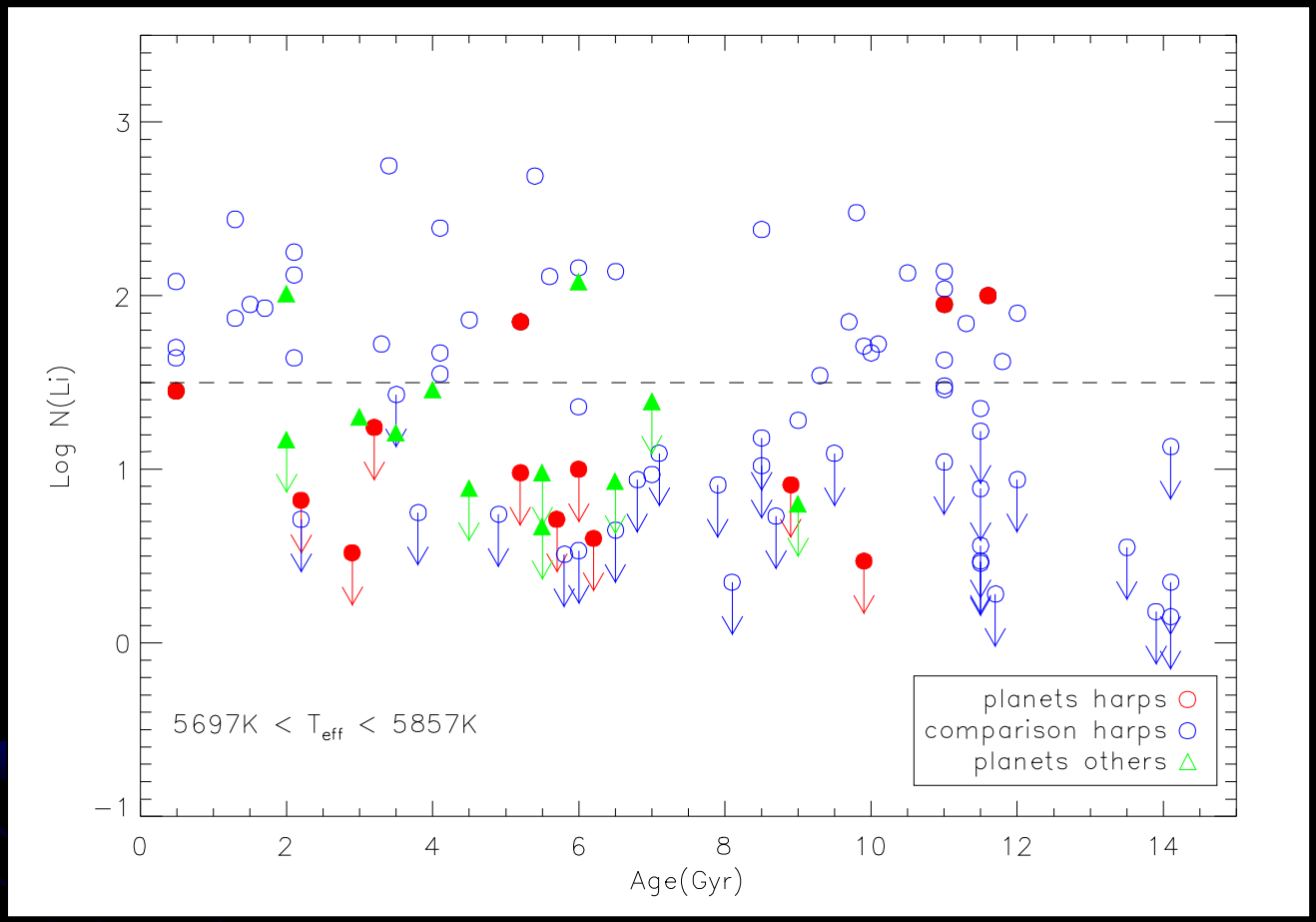


Li abundances for 23 planet-host stars and 60 stars without planets from HARPS GTO program and CORALIE program

Israelian et al. (2009, Nature, 462, 189)

Li versus age





Li abundances for 23 planet-host stars and 60 stars without planets from HARPS GTO program and CORALIE program

Sousa et al. (2010, A&A, 512, L5),

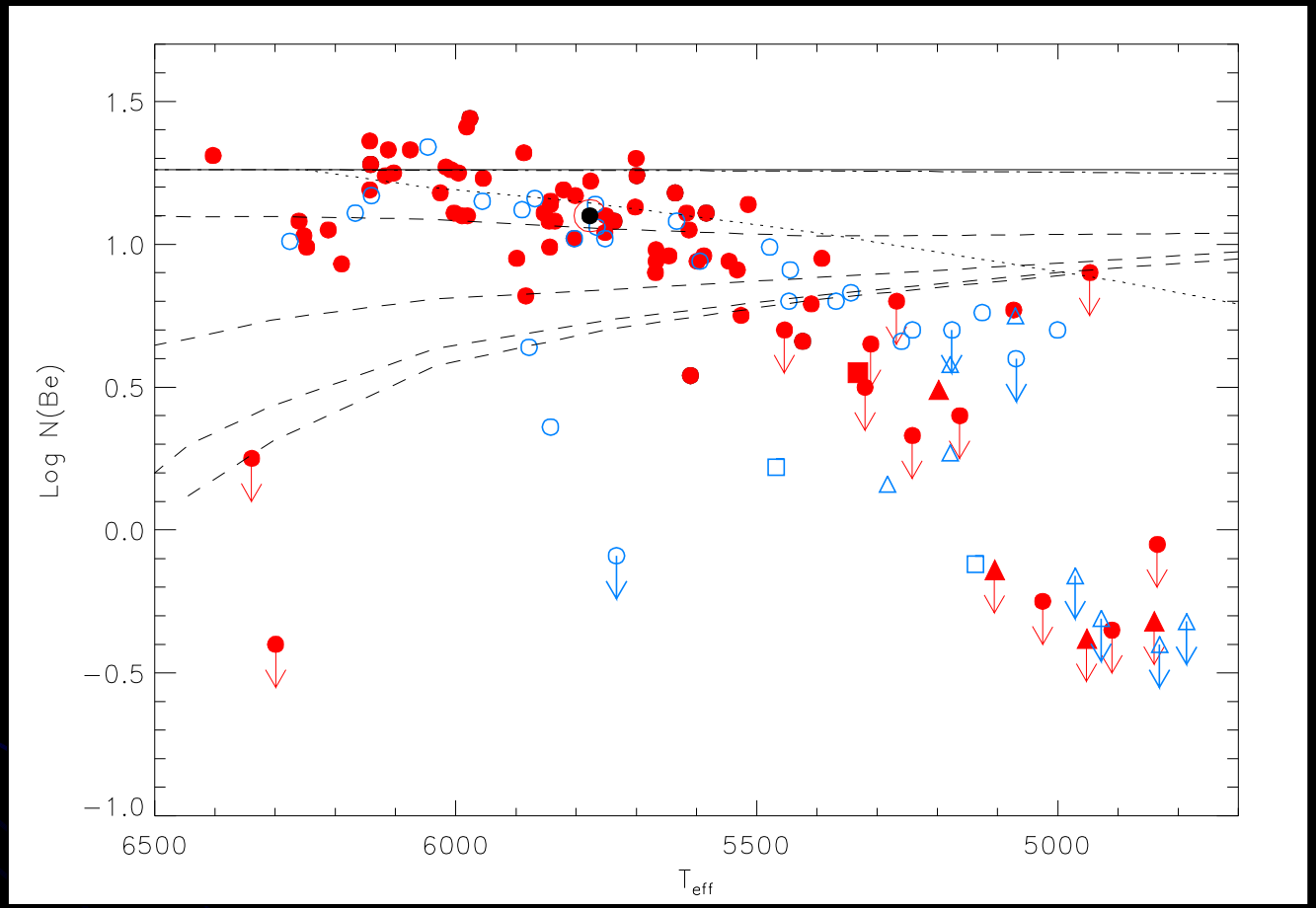
Delgado-Mena et al. (2011c, in preparation)

Li extra depletion in almost all solar analogue stars with planets while 50% of comparison sample stars present log(Li) > 1.5

This behaviour is not caused by age or metallicity for stars older than 2 Gyr

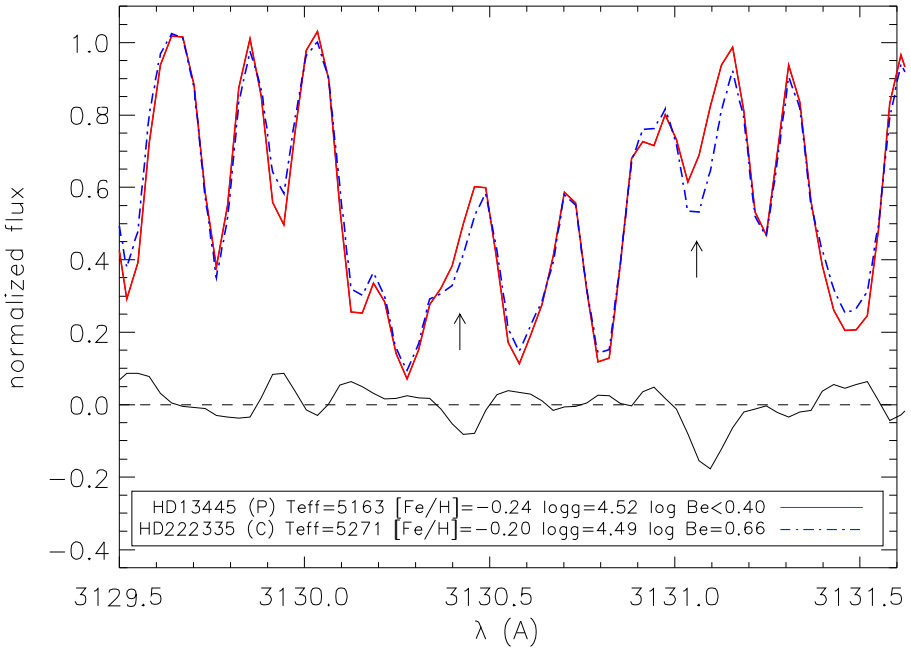
It seems that Li extra mixing is caused by the influence of planet formation on the angular momentum evolution of the stars and their convective enevelopes

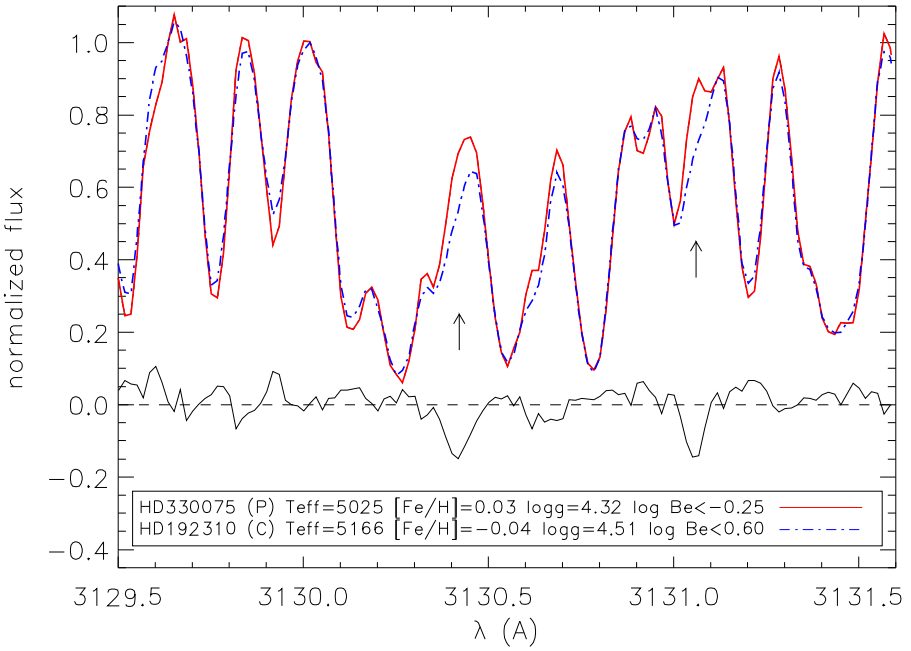
Be versus T_{eff}

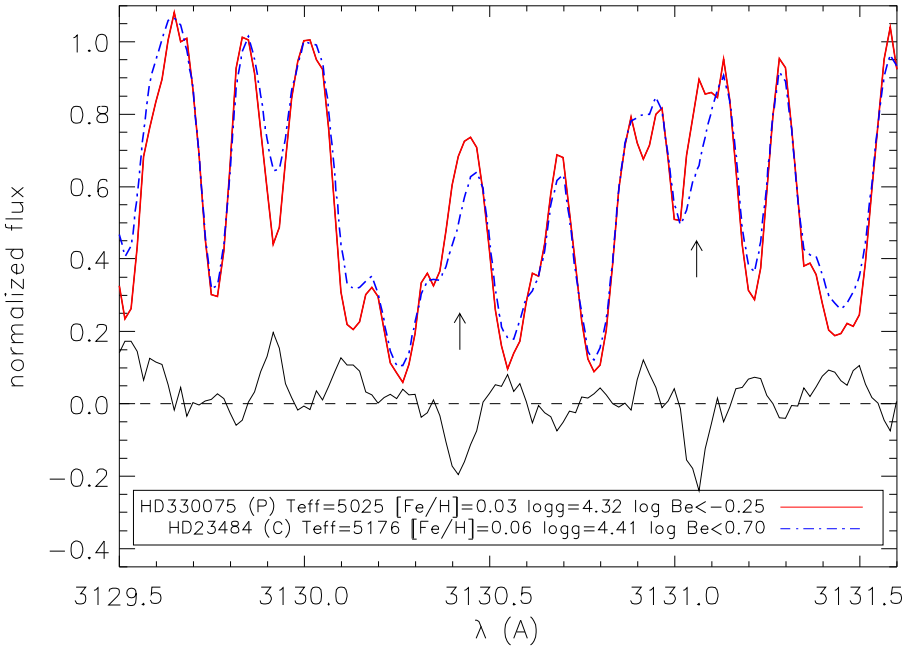


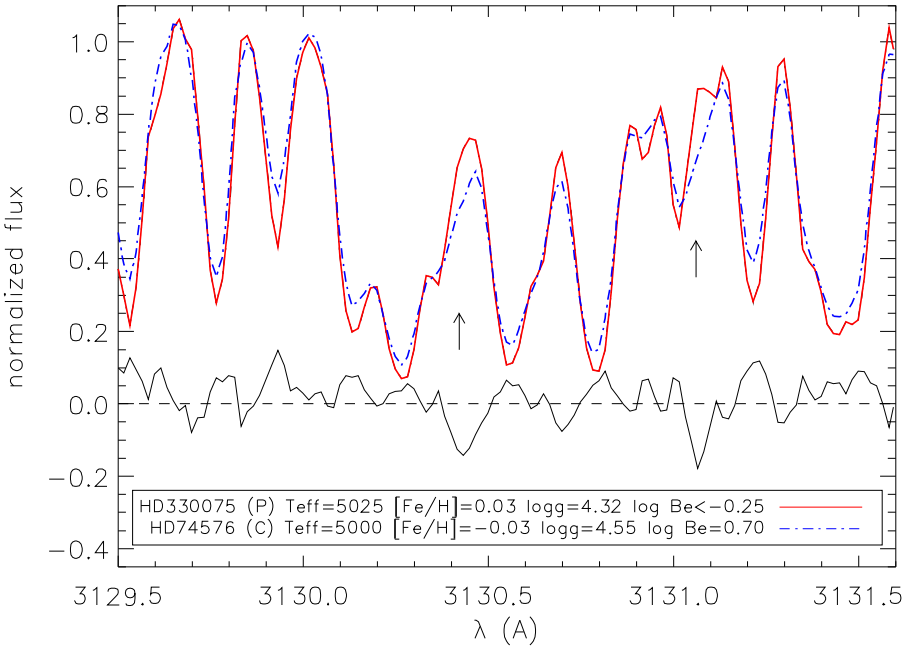
Be abundances of 89 planet-host stars (red symbols) and 40 stars without planets (blue symbols)

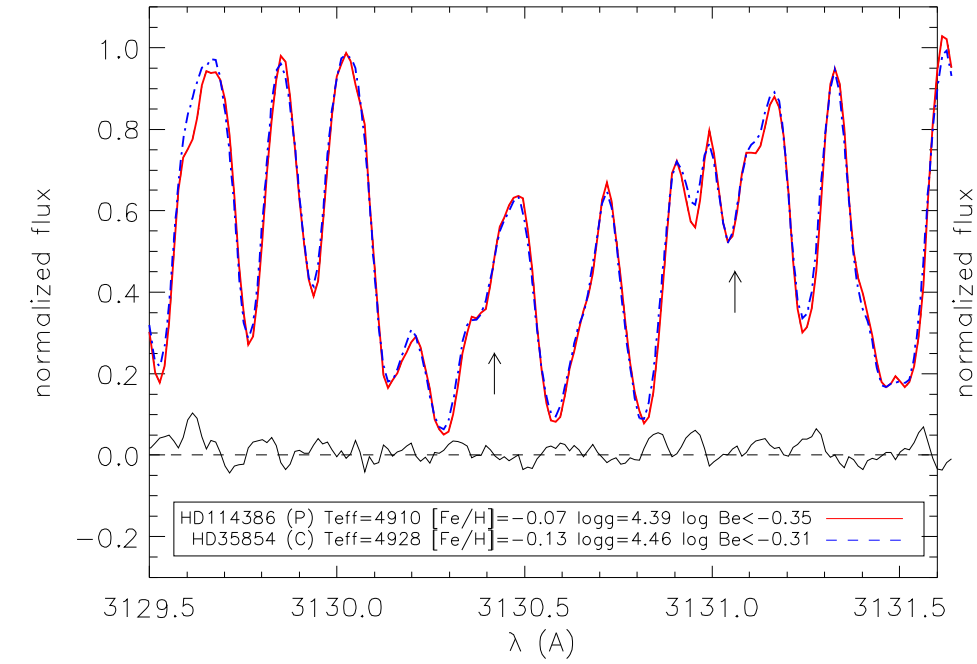
Delgado-Mena et al. (2011, ApJ, 728, 148), Gálvez-Ortiz et al. (2011, A&A, 530, A66), Delgado-Mena et al. (2011b,in preparation)

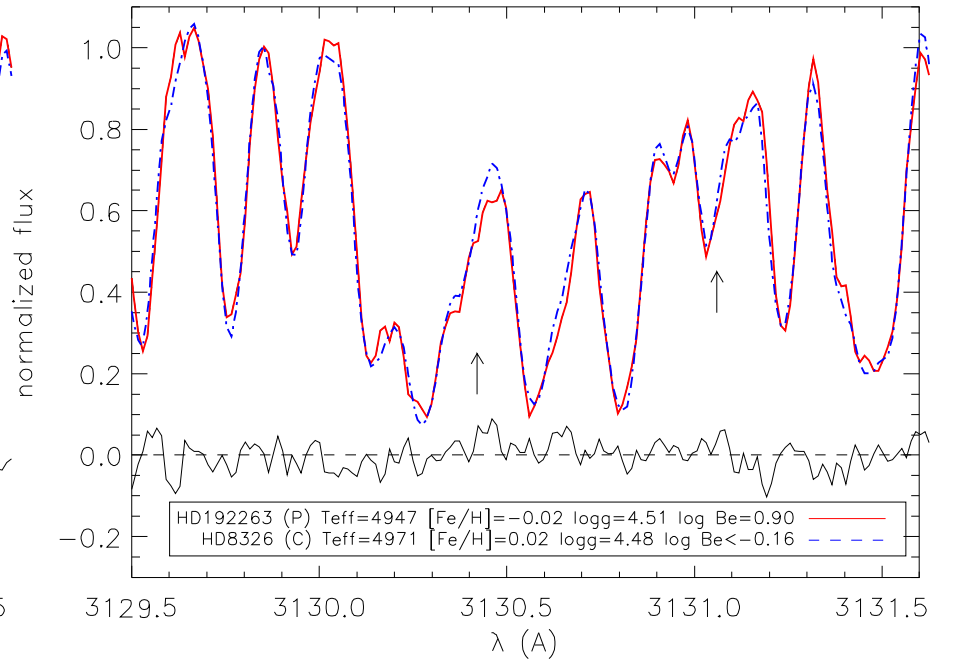

normalized flux
λ (A)
HD13445 (P) Teff=5163 [Fe/H]=−0.24 logg=4.52 log Be<0.40
HD222335 (C) Teff=5271 [Fe/H]=−0.20 logg=4.49 log Be=0.66

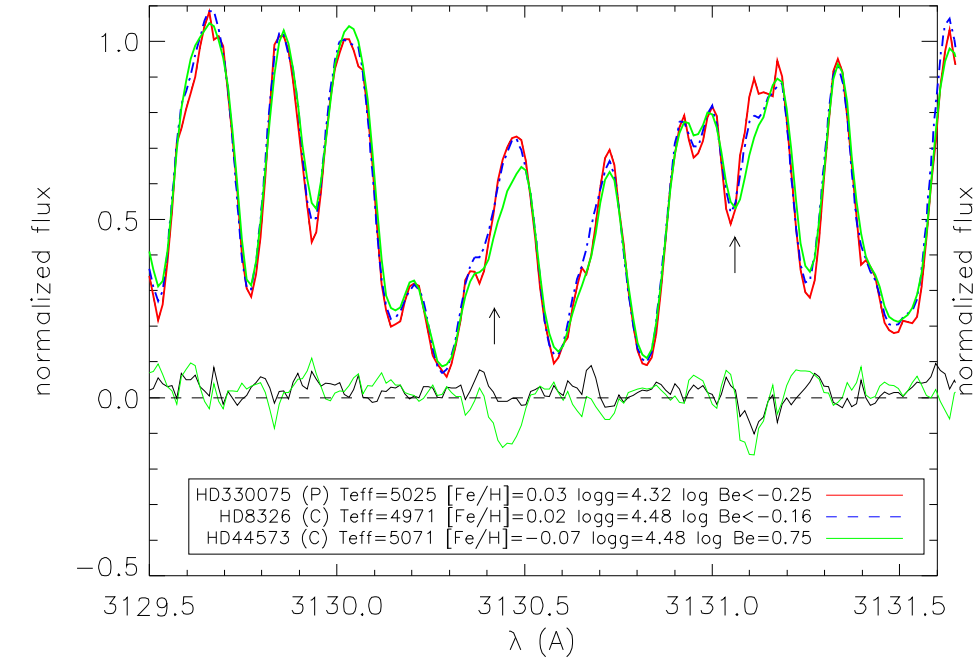

normalized flux
λ (A)
HD330075 (P) Teff=5025 [Fe/H]=0.03 logg=4.32 log Be<−0.25
HD192310 (C) Teff=5166 [Fe/H]=−0.04 logg=4.51 log Be<0.60

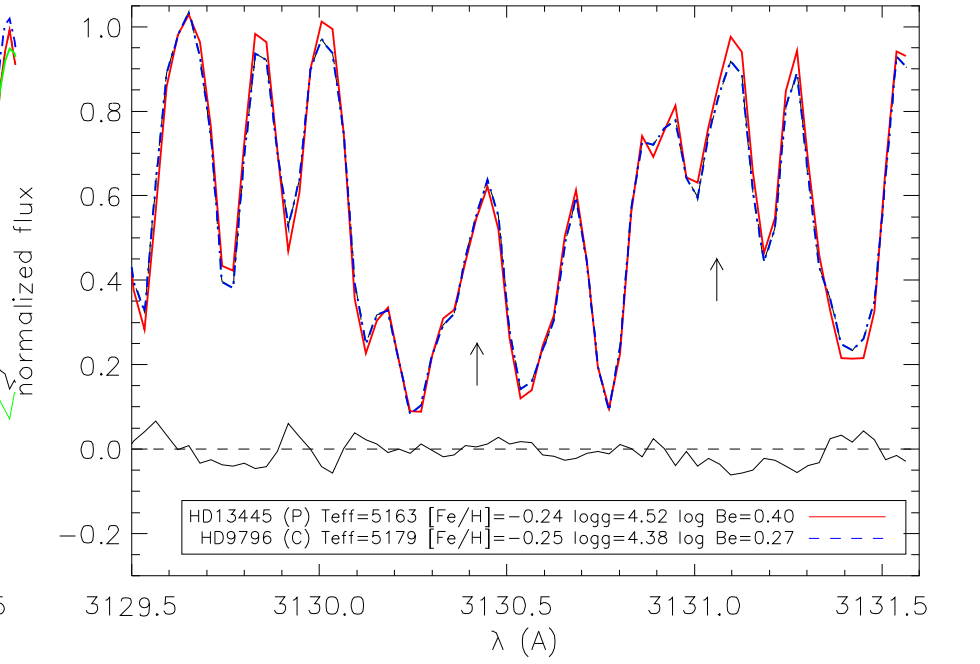

normalized flux
λ (A)
HD330075 (P) Teff=5025 [Fe/H]=0.03 logg=4.32 log Be<−0.25
HD23484 (C) Teff=5176 [Fe/H]=0.06 logg=4.41 log Be<0.70


normalized flux
λ (A)
HD330075 (P) Teff=5025 [Fe/H]=0.03 logg=4.32 log Be<−0.25
HD74576 (C) Teff=5000 [Fe/H]=−0.03 logg=4.55 log Be=0.70


normalized flux
λ (A)
HD114386 (P) Teff=4910 [Fe/H]=−0.07 logg=4.39 log Be<−0.35
HD35854 (C) Teff=4928 [Fe/H]=−0.13 logg=4.46 log Be<−0.31


normalized flux
λ (A)
HD192263 (P) Teff=4947 [Fe/H]=−0.02 logg=4.51 log Be=0.90
HD8326 (C) Teff=4971 [Fe/H]=0.02 logg=4.48 log Be<−0.16


normalized flux
λ (A)
HD330075 (P) Teff=5025 [Fe/H]=0.03 logg=4.32 log Be<−0.25
HD8326 (C) Teff=4971 [Fe/H]=0.02 logg=4.48 log Be<−0.16
HD44573 (C) Teff=5071 [Fe/H]=−0.07 logg=4.48 log Be=0.75


normalized flux
λ (A)
HD13445 (P) Teff=5163 [Fe/H]=−0.24 logg=4.52 log Be=0.40
HD9796 (C) Teff=5179 [Fe/H]=−0.25 logg=4.38 log Be=0.27

Be abundances determination is very difficult for stars cooler than 5300 K

We find two planet-host stars which present Be depletion when compared with analogue comparison stars but most cool main sequence stars seem to have their Be depleted, regardless of the presence of planets

However, the sample of stars with and without exoplanets with Be abundance measurements at Teff~5200K is still small, and we think we need more observational data

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