

Stellar parameters for solar-type stars with rotation

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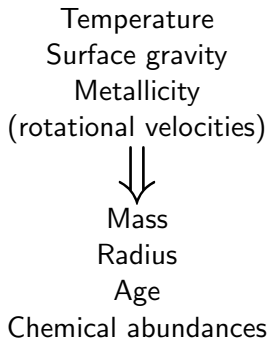
November 10, 2014



Outline

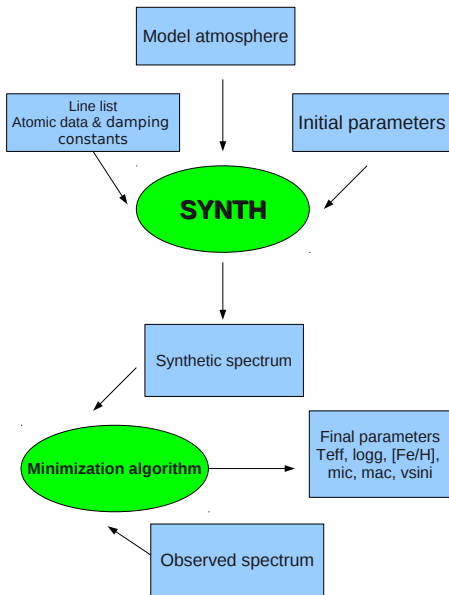
- Methods: Spectral synthesis technique
- Problem with fast rotators
- Comparison of methods
- GAIA-ESO methods

Fundamental atmospheric stellar parameters



2 main spectroscopic techniques: EW method & spectral synthesis technique

Spectral synthesis (SME, Valenti & Piskunov 1996)



Methodology

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 - $\log g$: parallax, T_{eff}
 - v_{mic} : $T_{eff}, \log g, [Fe/H]$ (Tsantaki+ 2013, Mortier+ 2013)
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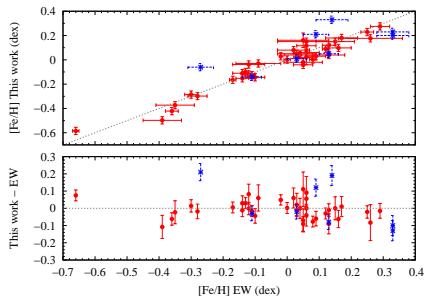
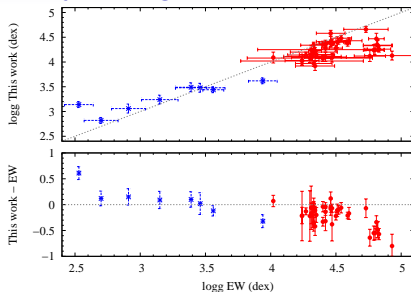
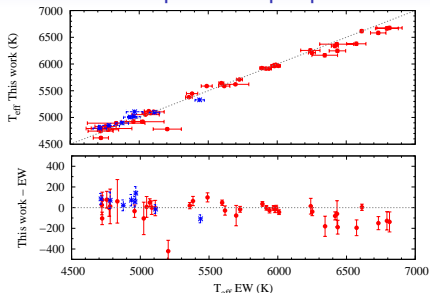
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- errors
 - number of intervals
 - initial values

Spectroscopic parameters for slowly rotating FGK stars



48 stars

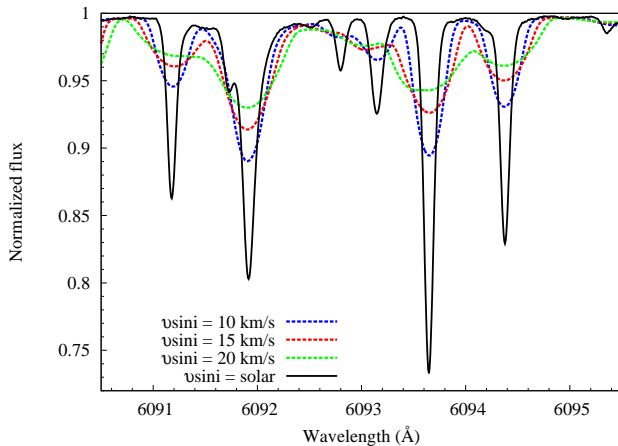
$$\Delta T_{\text{eff}} = -26 \pm 55 \text{ K}$$

$$\Delta \log g = -0.19 \pm 0.14 \text{ dex}$$

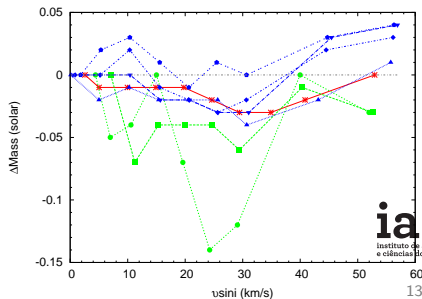
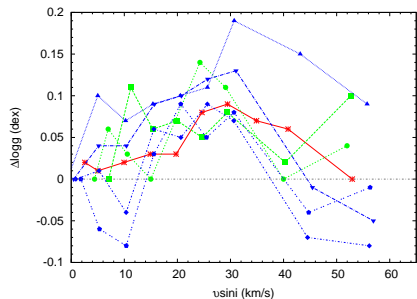
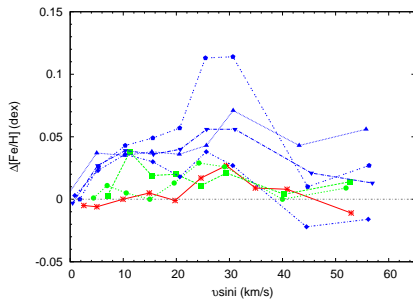
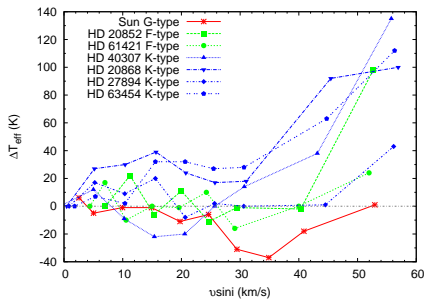
$$\Delta [\text{Fe}/\text{H}] = 0.00 \pm 0.04 \text{ dex}$$

Rotation

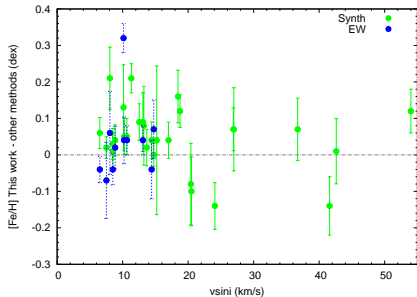
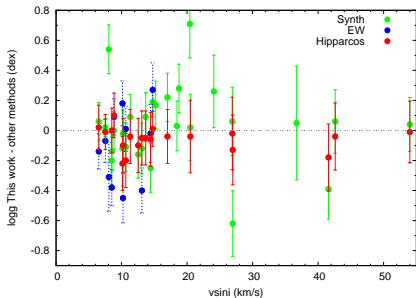
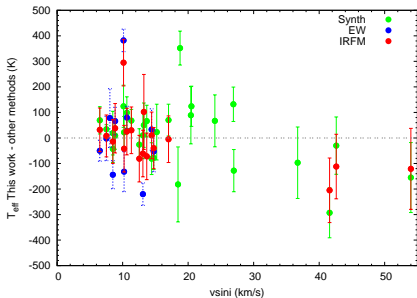
Blending, no proper continuum estimation



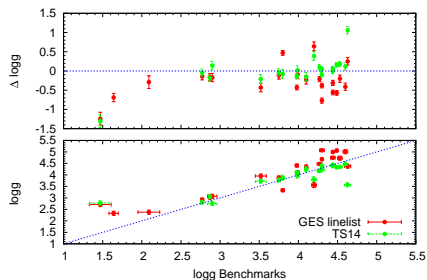
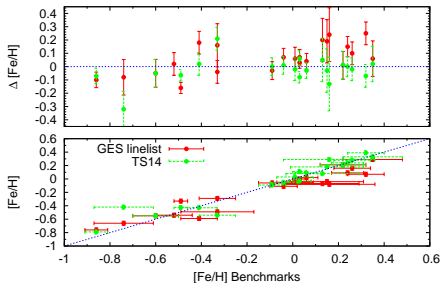
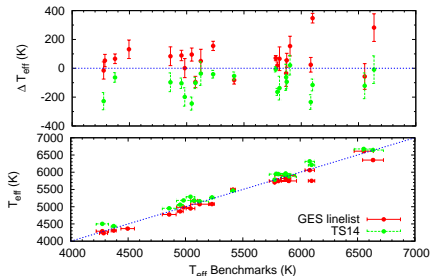
Calculating the limits of rotation



Results for moderate/high rotating FGK stars



The GAIA-ESO linelist v4



Marc's models, same intervals but different lines

34 Benchmark stars (Jofré+ 2014)

Obrigada!

