THEORETICAL CALIBRATIONS OF IMF-SENSITIVE INDICES
Maia Orsi
Liverpool John Moores University

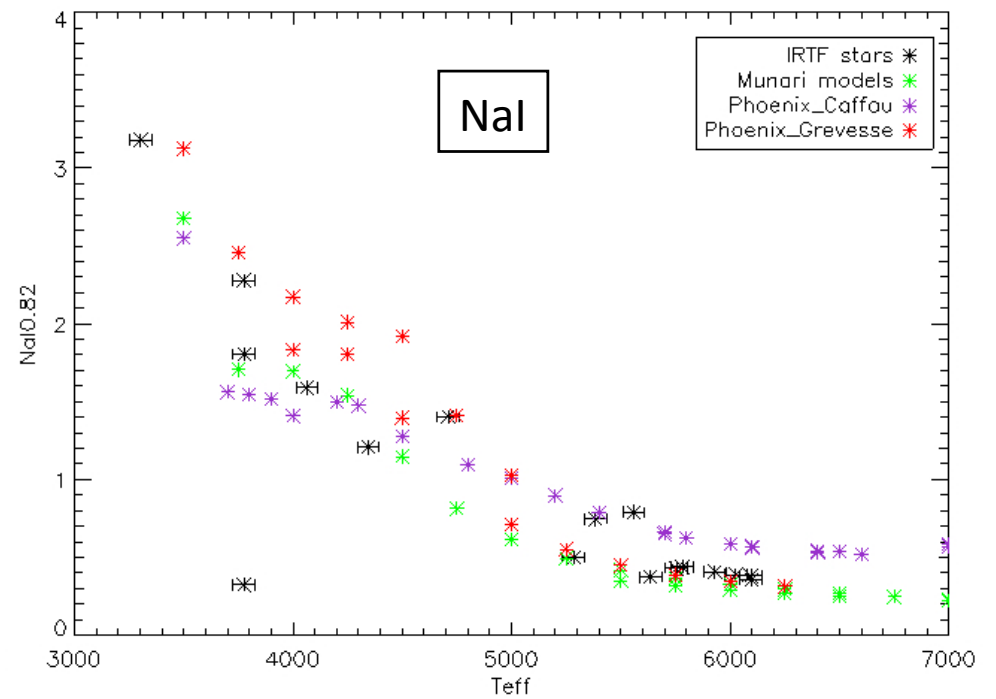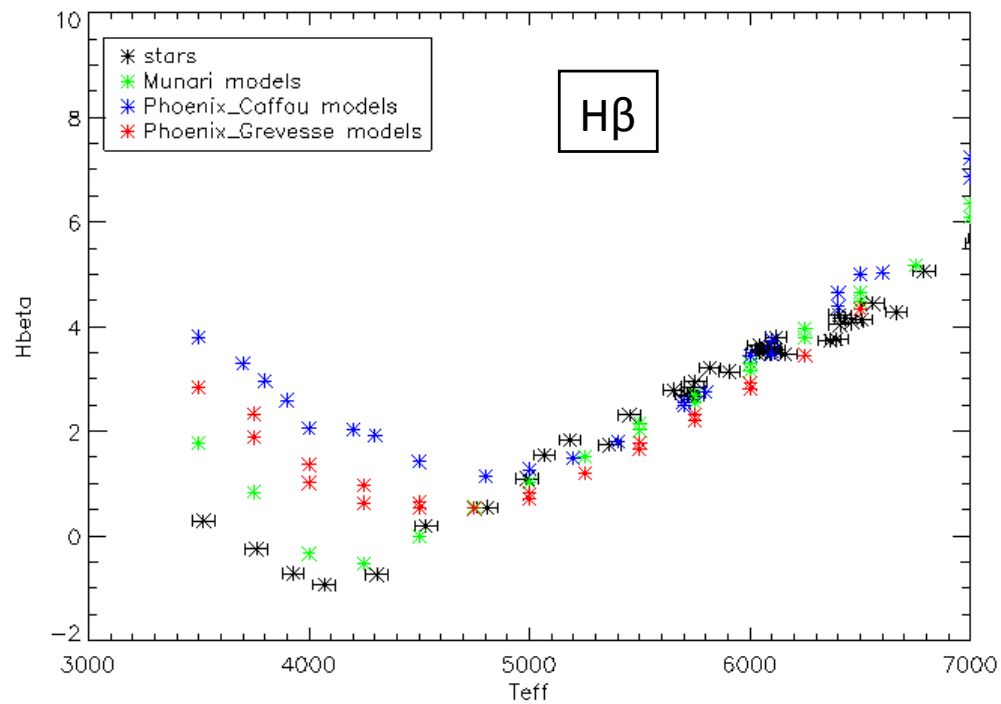| Spectral Library	Solar abundances	Coverage
Munari (2005)[1]	Grevesse & Sauval (1998)	$0.0 \leq \text{Log } g \leq 5.0$
Phoenix (BT-Settl) [2]	Grevesse+ (1993)	$-0.5 \leq \text{Log } g \leq 5.5$
	Caffau+ (2011)	$0.5 \leq \text{Log } g \leq 6.0$

[1] ATLAS9 line-lists + model atmospheres (Castelli & Kurucz, 2003)
[2] (Plez, 1998) & (Barber+ 2006) line-lists + Phoenix model atmospheres (Allard+ 2012)

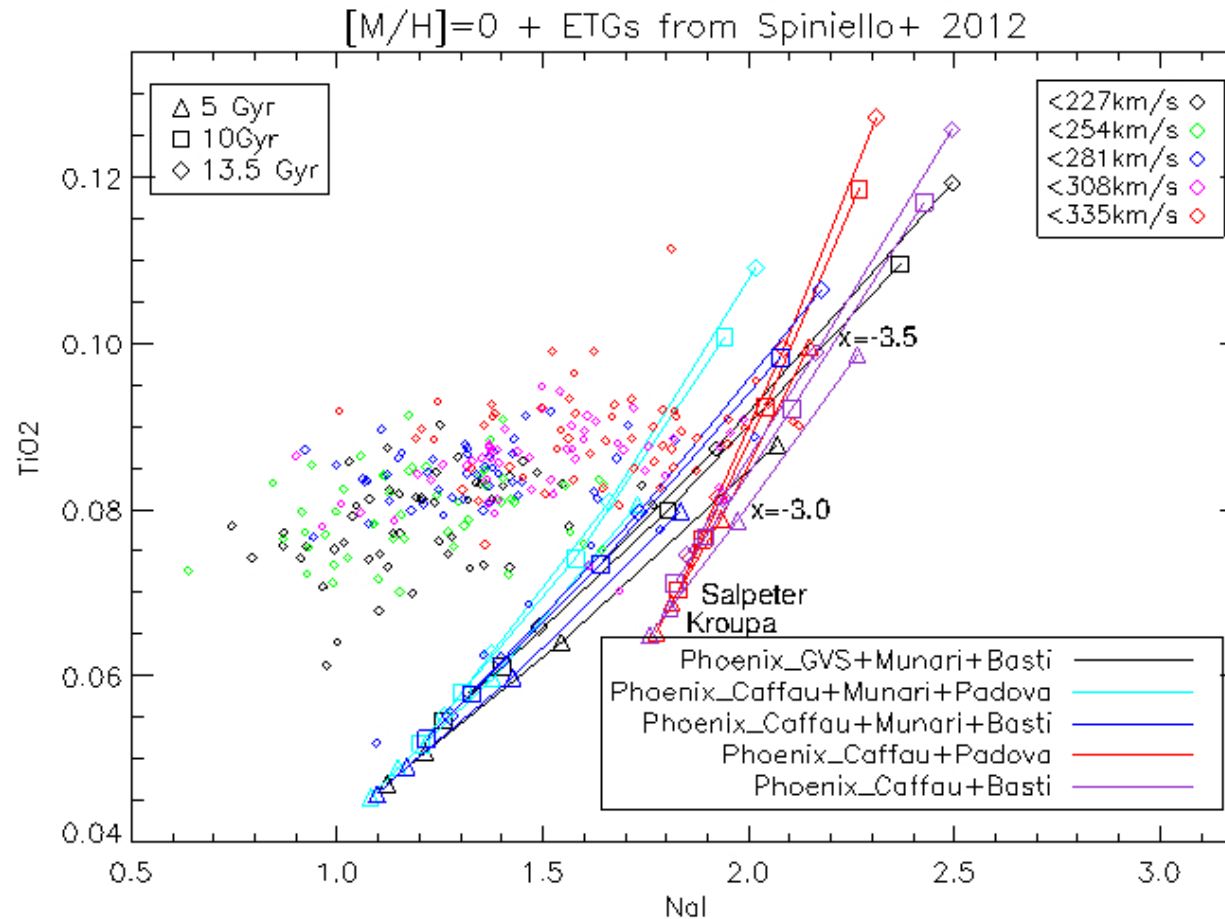| Stellar Isochrones	Solar abundances
BaSTI – (Pietrinferni+ 2004)	Grevesse & Sauval (1998)
PARSEC – (Girardi+ 2012)	Caffau+ (2011)

THEORETICAL CALIBRATIONS OF IMF-SENSITIVE INDICES
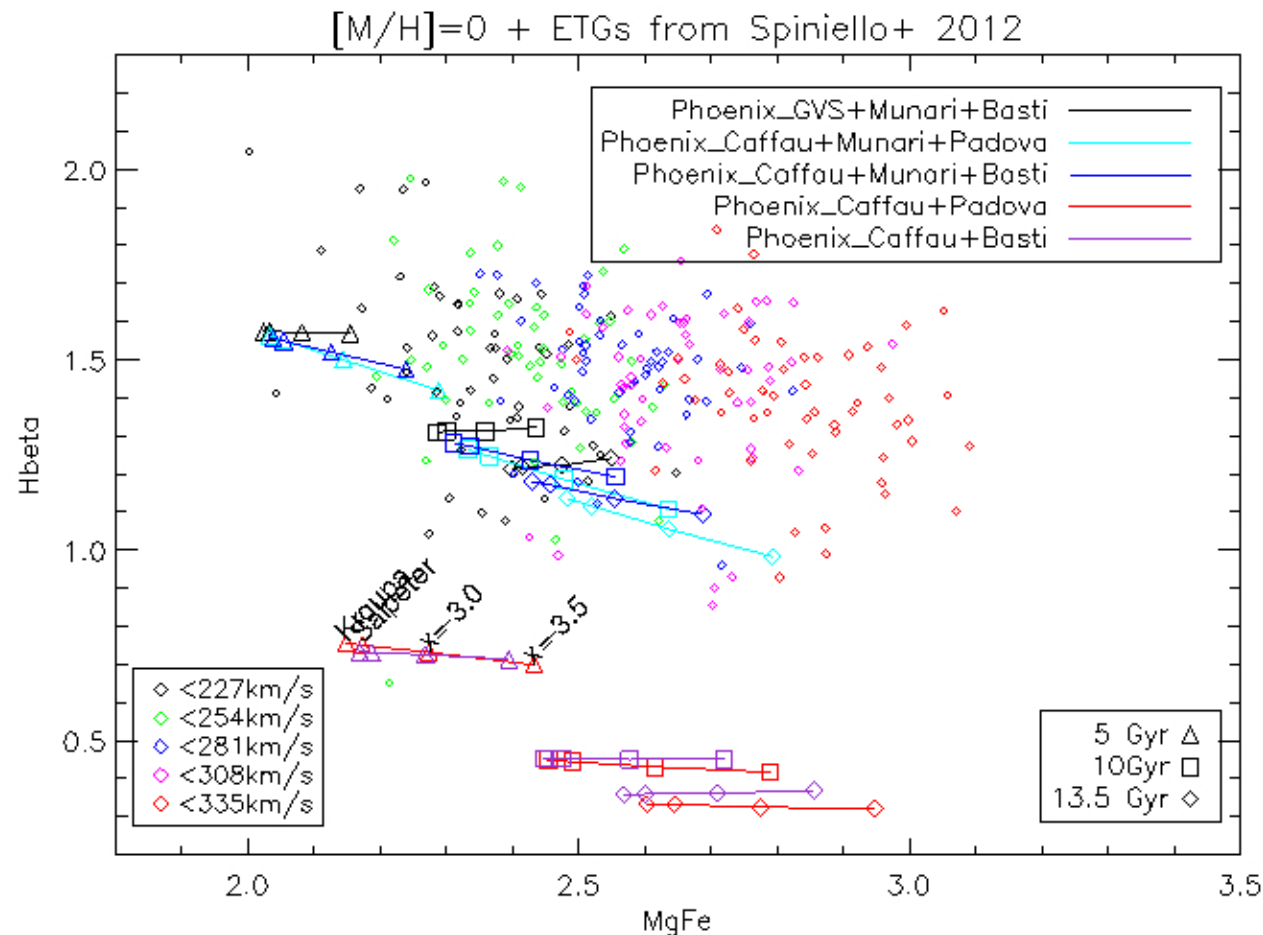
Comparison of index strengths in synthetic spectra and stars

- Change the solar abundances of the isochrones (blue & cyan)
- Change the solar abundances of the low-mass stars spectra (black & blue)
- Change the spectral library (black & purple)

[M/H]=0 + ETGs from Spiniello+ 2012

- Solar abundances of the isochrones (blue & cyan) Larger effect towards bottom-heavy IMF
- Solar abundances of the low-mass stars spectra (black & blue) Less O ➜ weaker NIR indices, *strange* Hβ dependence on the IMF
- Spectral library (black & purple) Changes the slope of IMF-sensitive indices, unrealistic values of Hβ

[M/H]=0 + ETGs from Spiniello+ 2012

THEORETICAL CALIBRATIONS OF IMF-SENSITIVE INDICES

Conclusions

• The choice of the spectral library is crucial to the PSM while changing the metal mixture of the isochrones has a negligible impact (especially at Kroupa, Salpeter IMF)

• Changing the solar abundances in the spectra of the low mass stars affects the total predictions for the IMF and the optical indices

• Phoenix models are the best to sample the low Main Sequence where the main contribution is in the IR and should be used with caution along the turn off and the Red Giant Branch where the optical emission in stronger