

Tracking the Yeti in the snow

Looking for metal-poor massive stars in
and around the Milky Way

Dorottya Szécsi

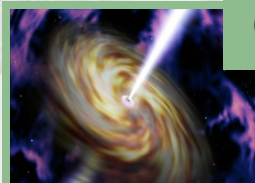


Jan Frič Premium Talk
Ondřejov
29th January 2018

Massive stars with $Z < 0.1 Z_{\odot}$



Hubble deep field



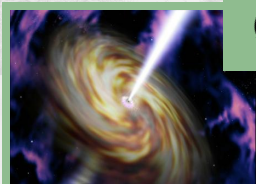
Cosmic explosions (GRBs, SNe, GW...)



Massive stars with $Z < 0.1 Z_{\odot}$

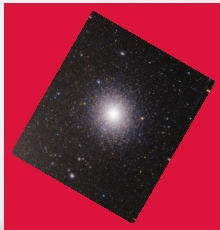


Hubble deep field



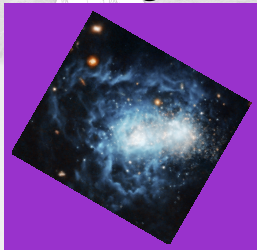
Cosmic explosions (GRBs, SNe, GW...)

In the Milky Way...



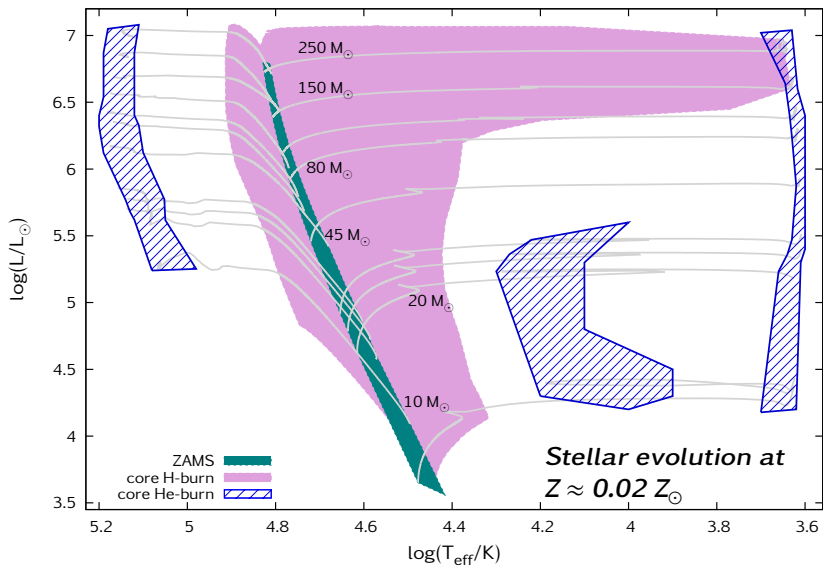
47 Tucanae (Globular Cluster)

Close enough...

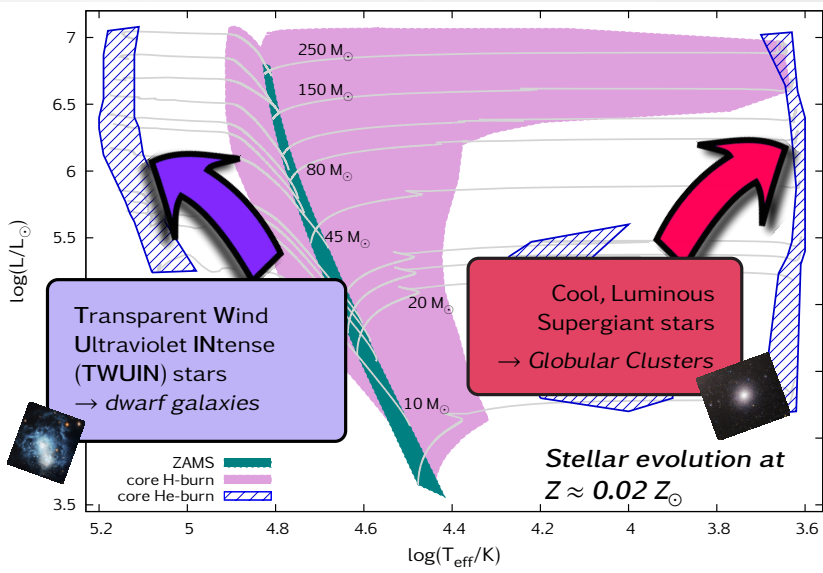


I Zwicky 18 (dwarf galaxy)

The theory of the Yeti...



The theory of the Yeti...



The theory of the Yeti...



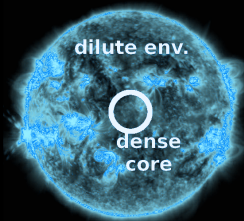
TWUIN star:



no
core-
env.
structure

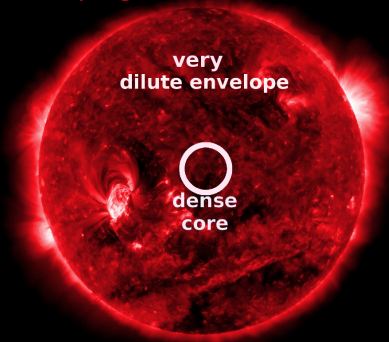
$T \sim 80\,000\text{ K}$

Normal OB-star:



$T \sim 15\,000\text{ K}$

Red supergiant:



$T \sim 4000\text{ K}$

5.2

5

4.8

4.6

4.4

4.2

4

3.8

3.6

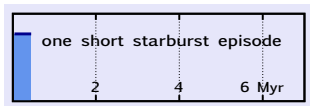
$\log(T_{\text{eff}}/\text{K})$

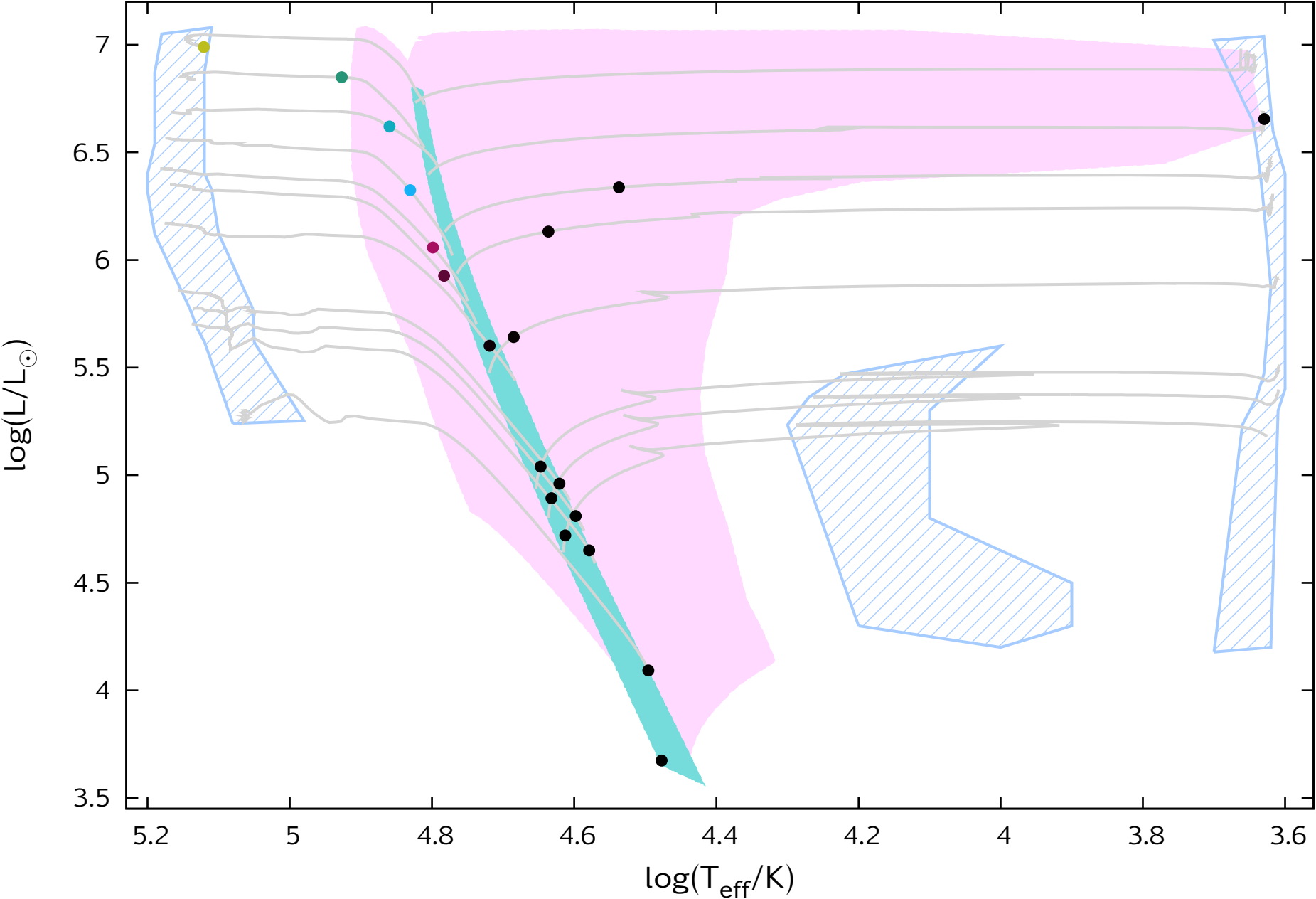
Transparent Wind
Ultraviolet INTense stars
(TWUIN stars)

– and the
TWUIN collaboration

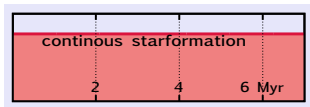


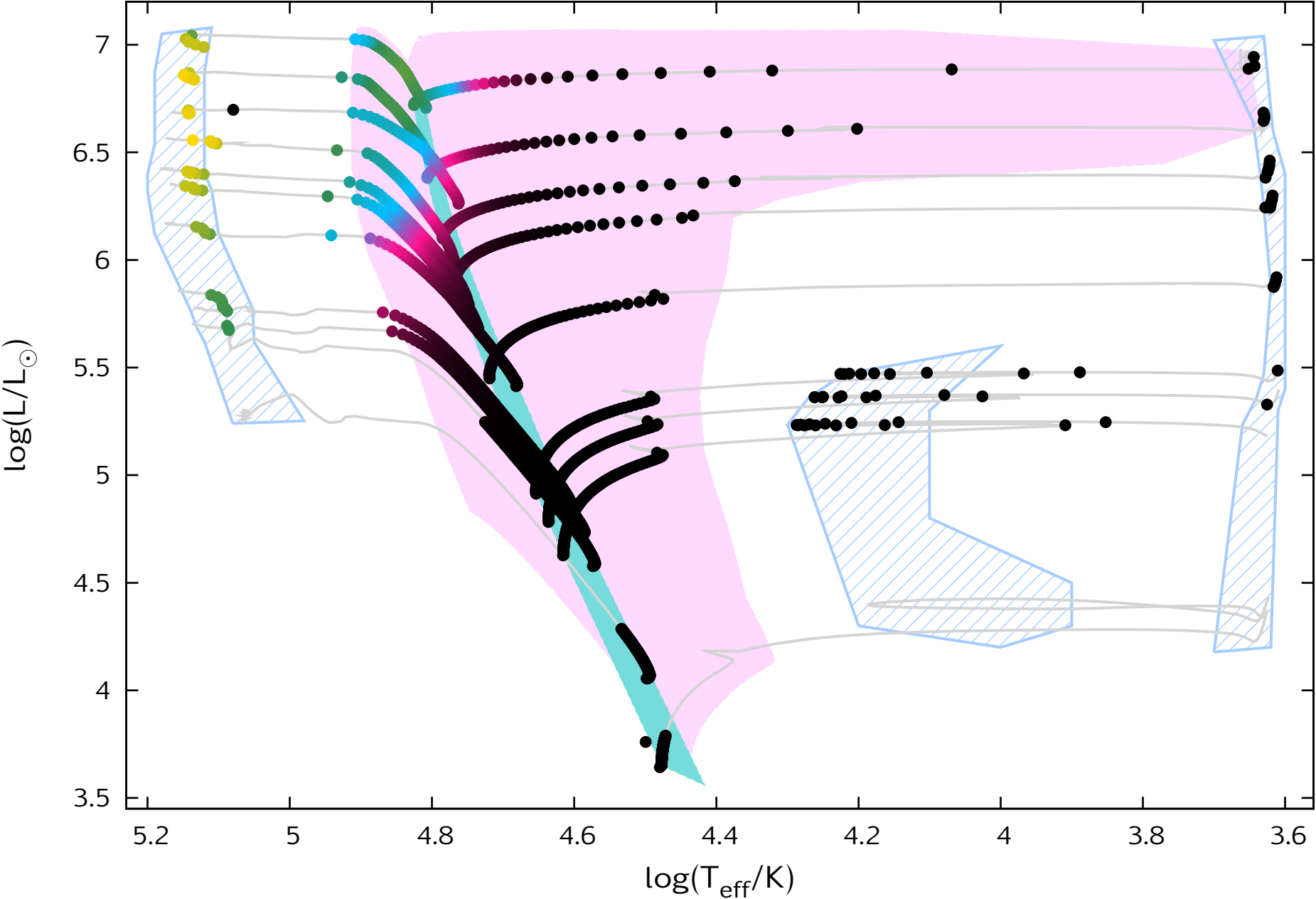
Simulating a galaxy...



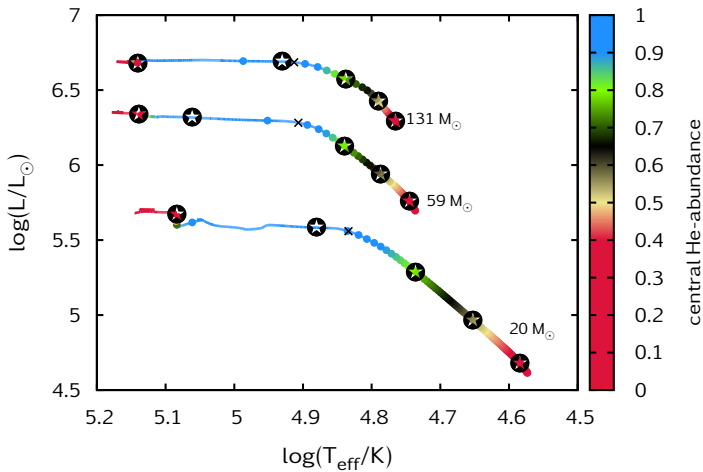


Simulating a galaxy...

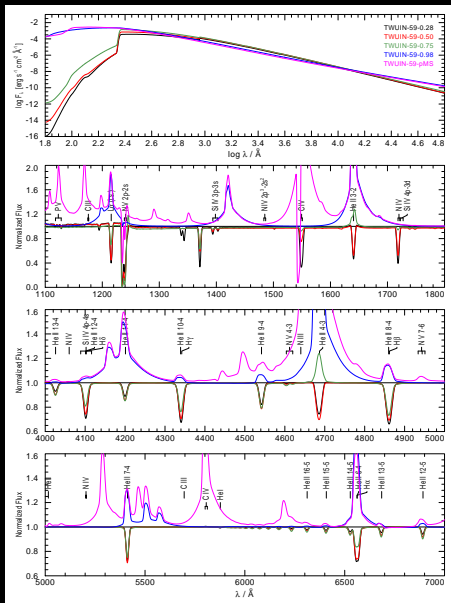
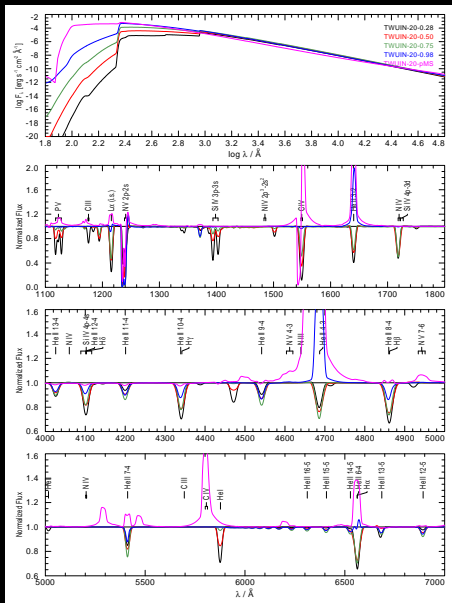




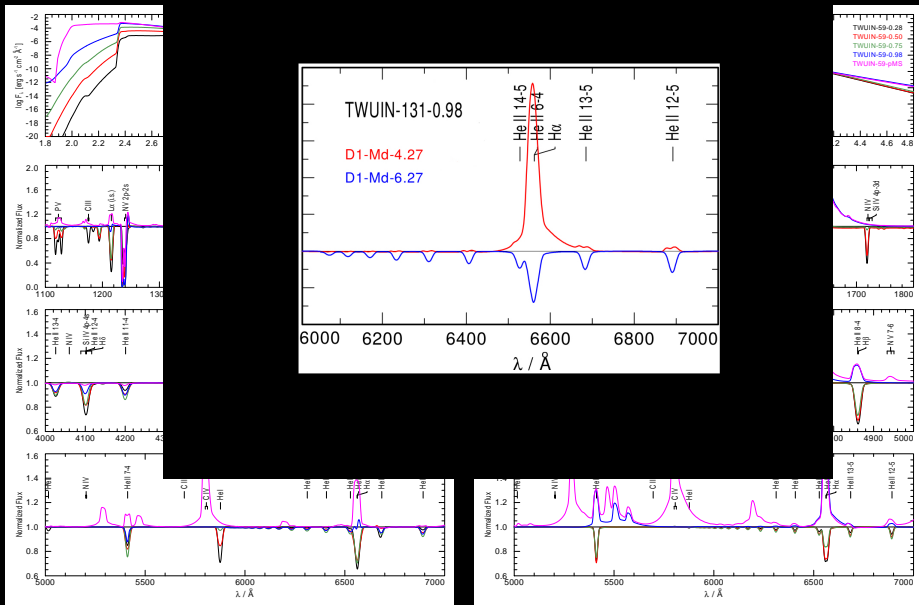
TWUIN spectra modelling



TWUIN spectra modelling



TWUIN spectra modelling

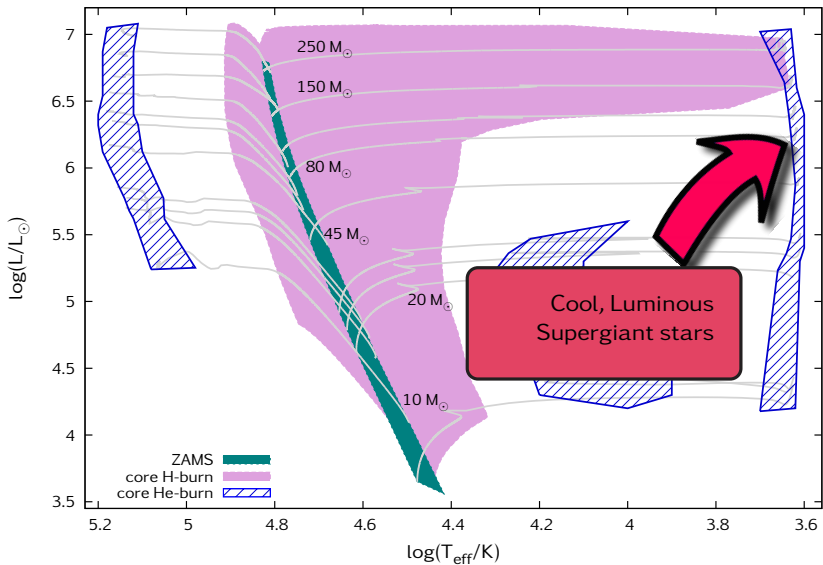


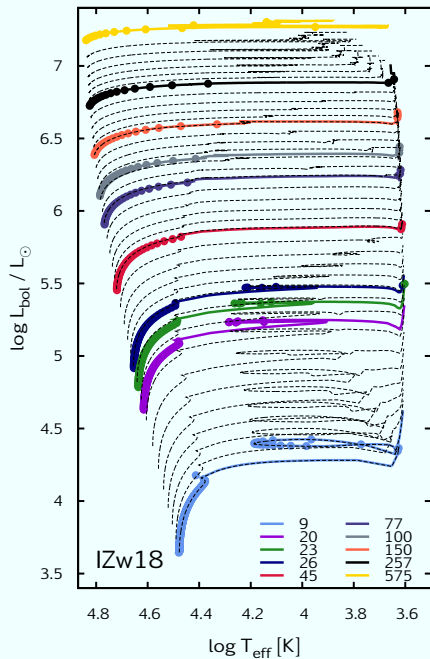
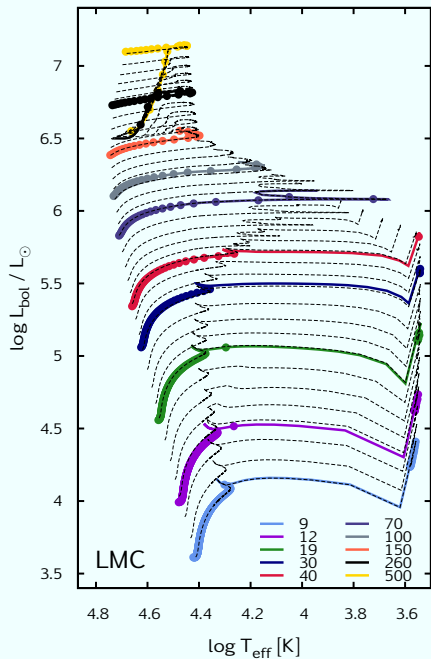
Cool, Luminous
Supergiant stars

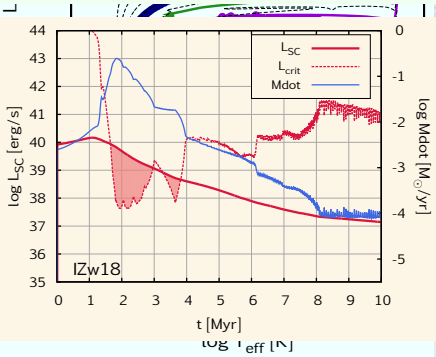
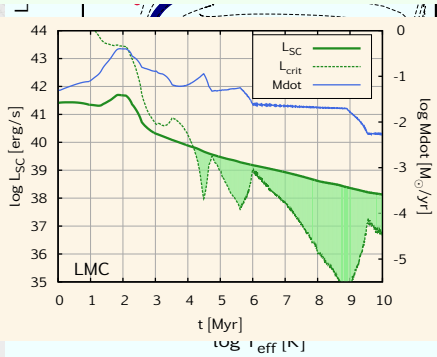
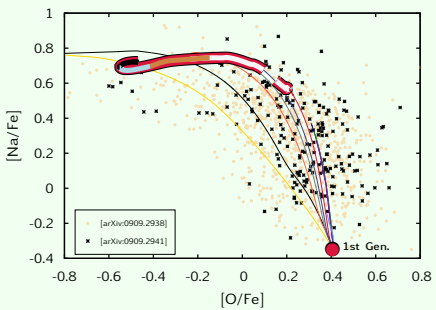
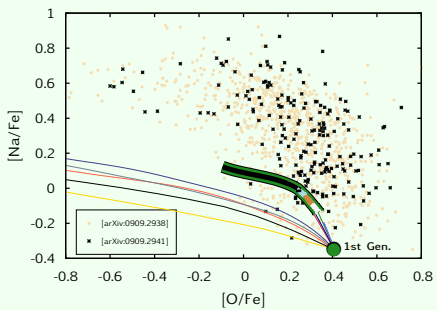
– and

Young Stellar Clusters









On the personal side...

Huge thanks to

- Jiří & Brankica Kubát(ová)
- Hot stars group
- Stellar Department in Ondřejov
- Richard Wünsch & galaxy group in Spořilov
- TWUIN collaboration
 - Carolina Kehrig,
Jiří Krticka,
Andreas Sander,
Frank Tramper,
Wolf-Rainer Hamann
- Áron Szabó :)





Thank you
for your
attention!

Credit for Chilali, the Yeti girl's design: AskTheWerewolfPrince
(askthewerewolfprince.deviantart.com)