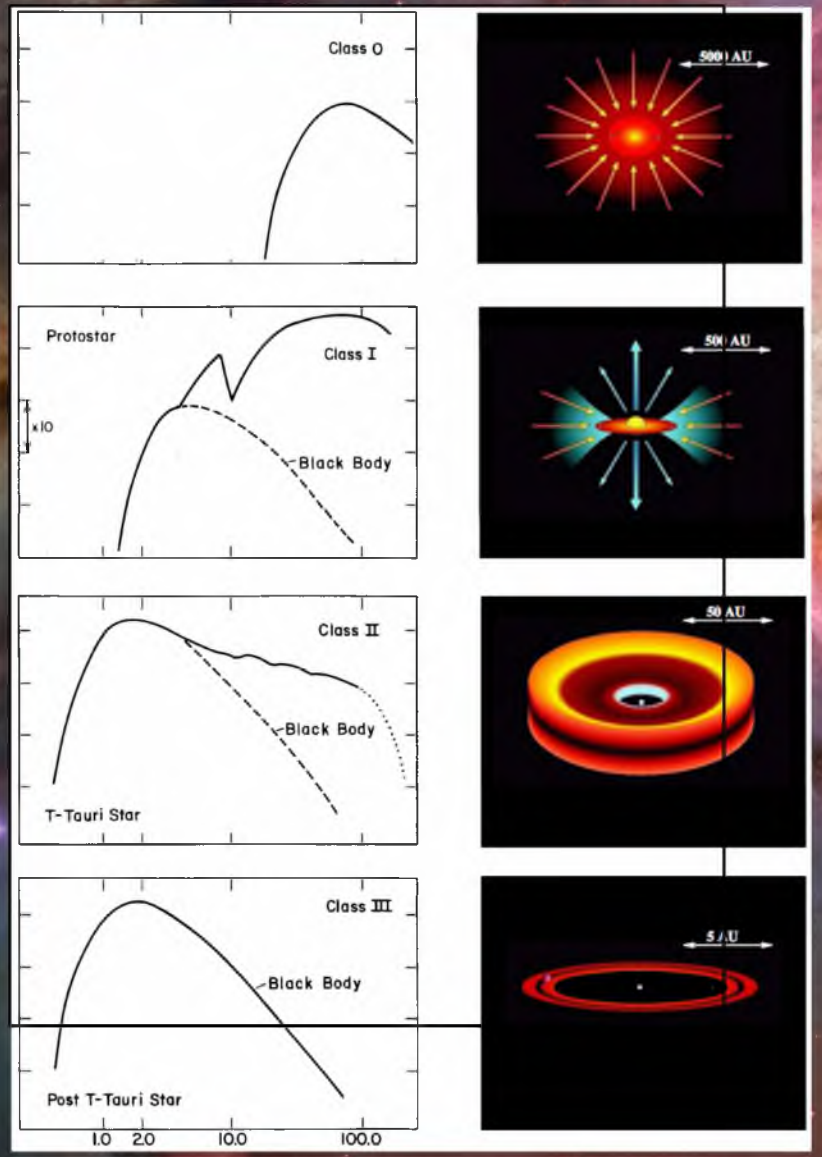
Herbig Ae/Be stars

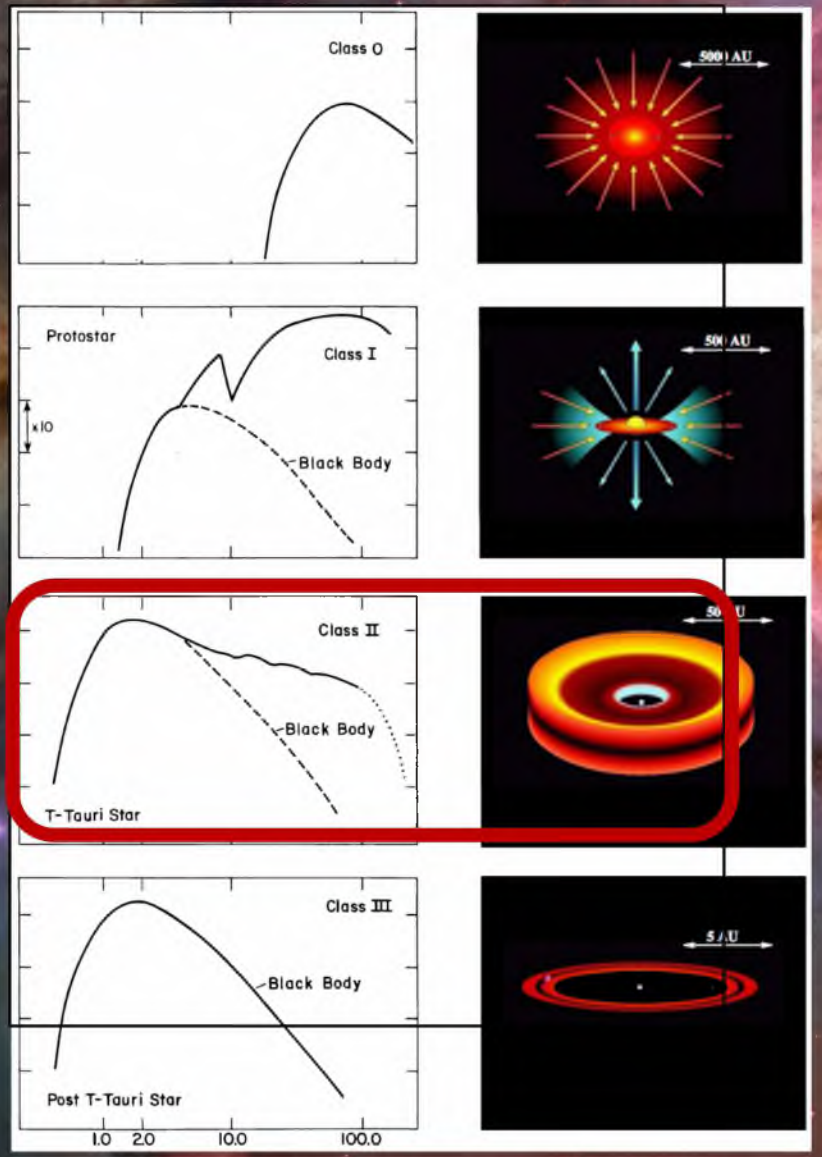


$Log(\lambda F_\lambda) \rightarrow$

$\lambda(\mu m)$

Fairlamb J.R. thesis. 2015

Herbig Ae/Be stars

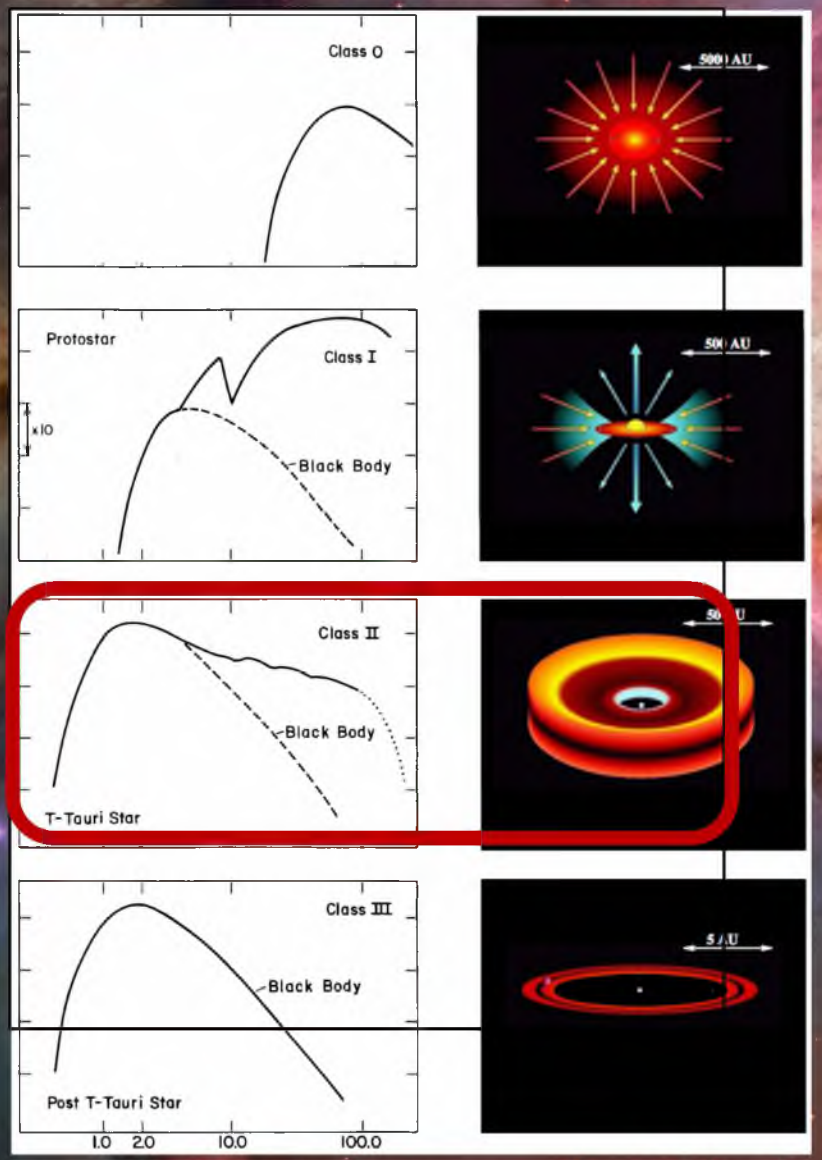


$Log(\lambda F_\lambda) \rightarrow$

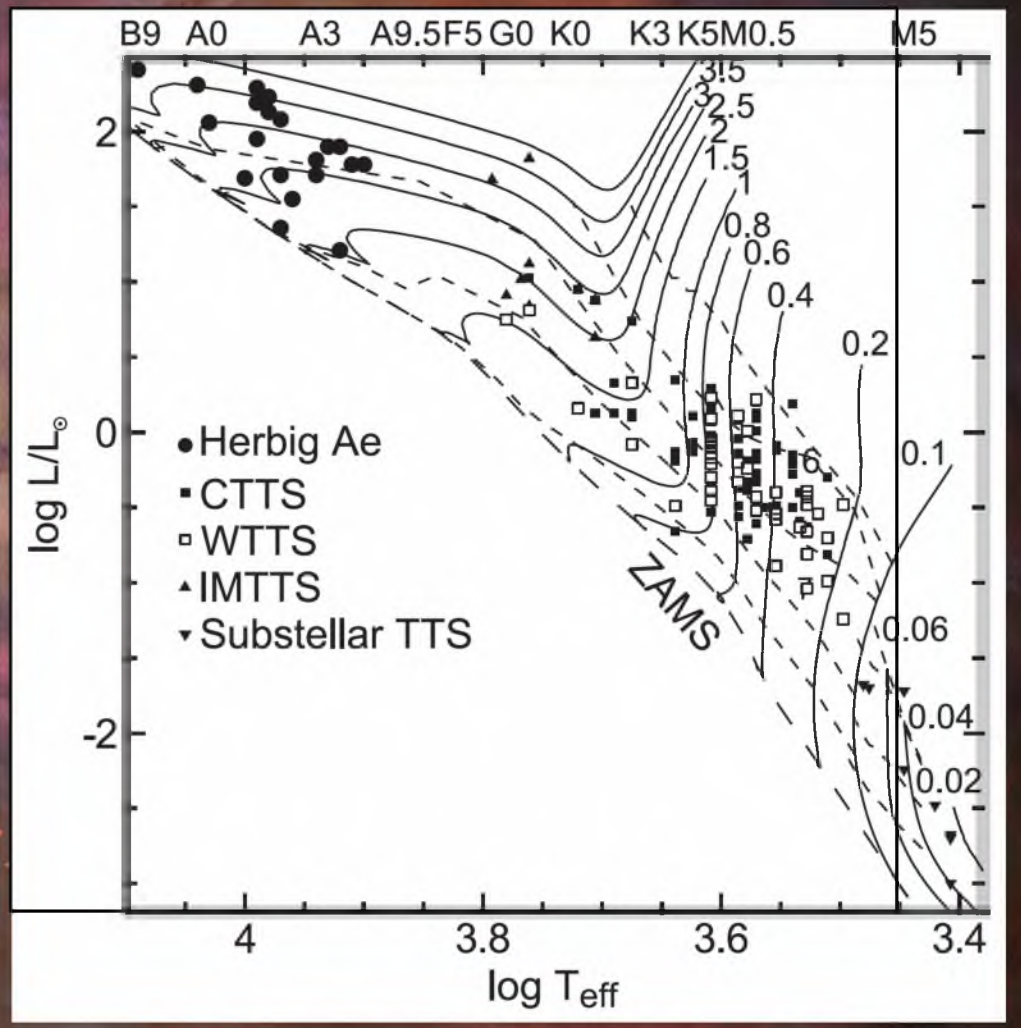
$\lambda(\mu m)$

Fairlamb J.R. thesis. 2015

Herbig Ae/Be stars

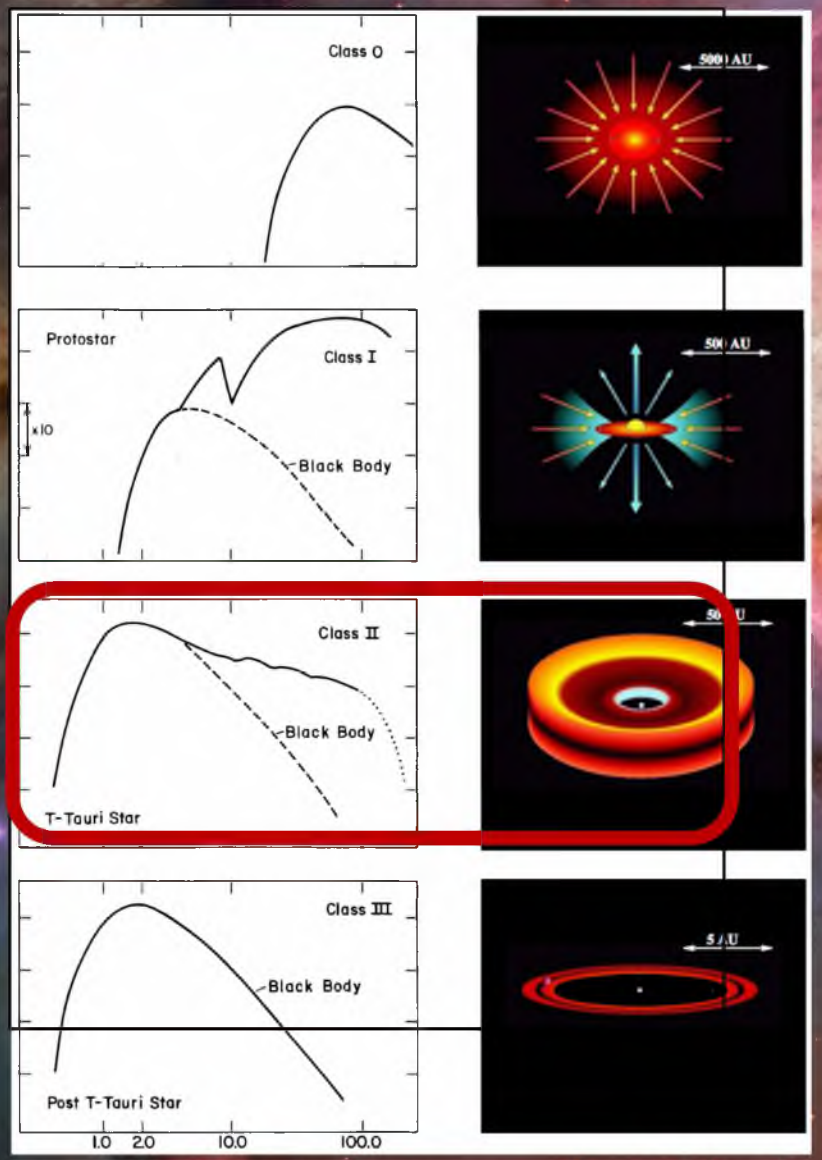


Fairlamb J.R. thesis. 2015

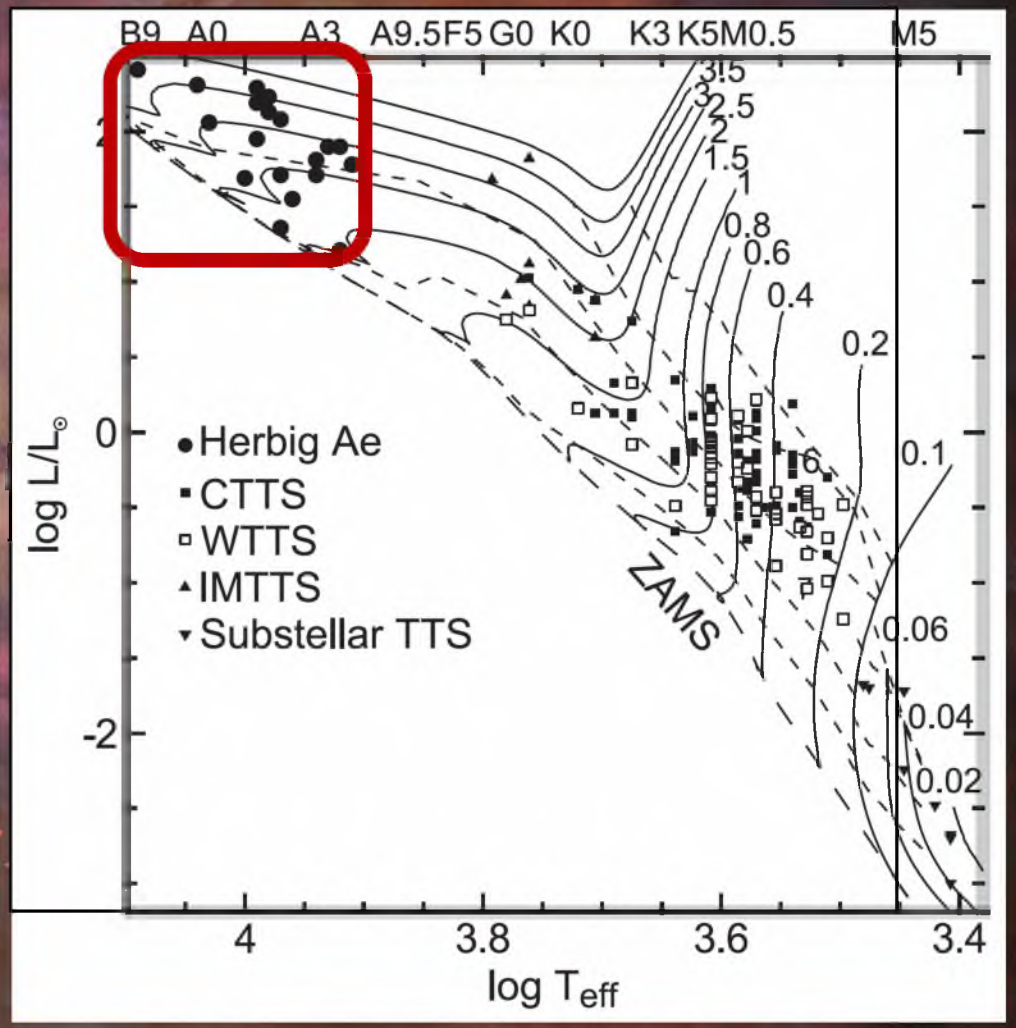


Paulo J. V. Garcia. 2011. ISBN: 9780226282299

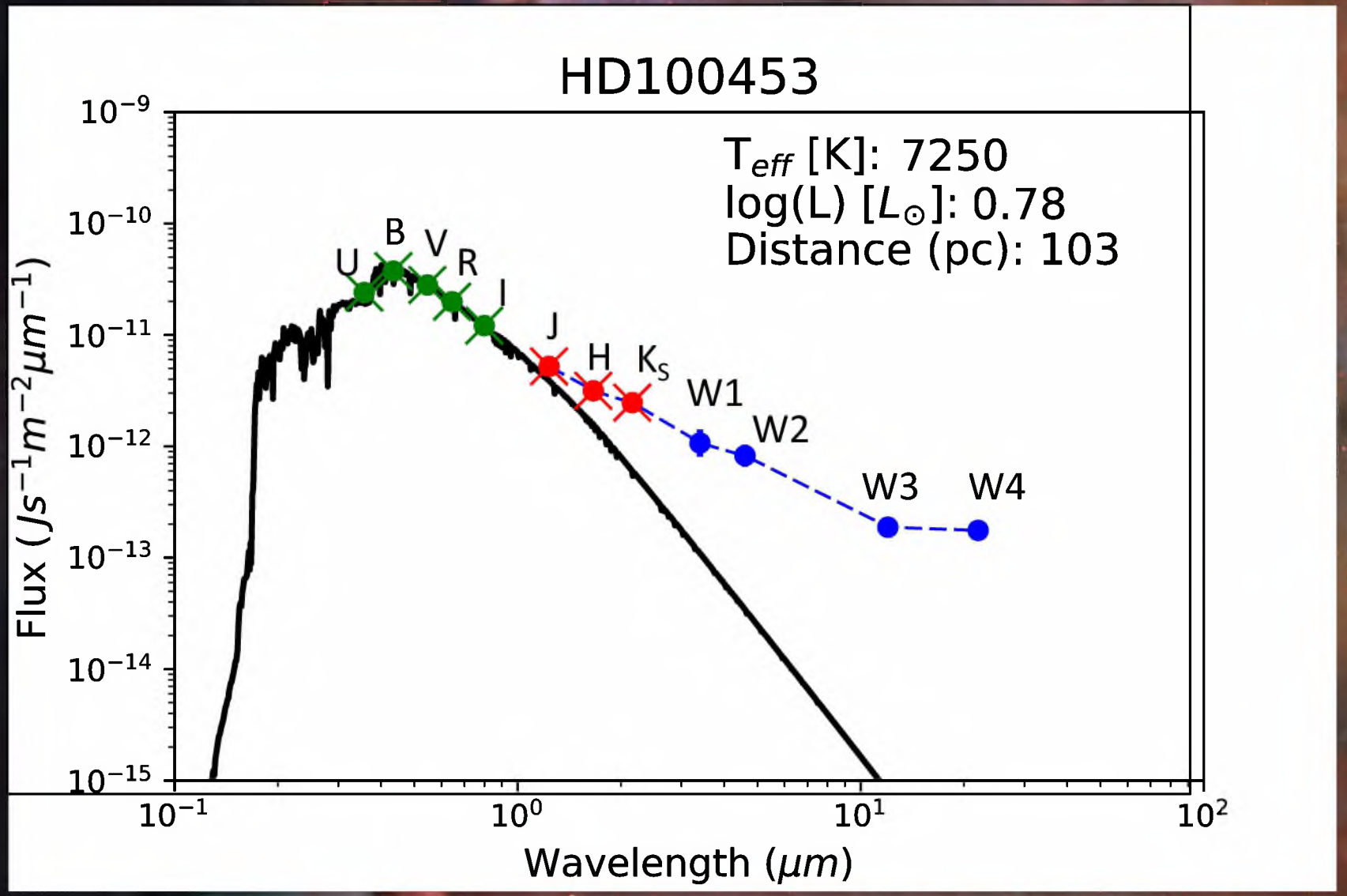
Herbig Ae/Be stars



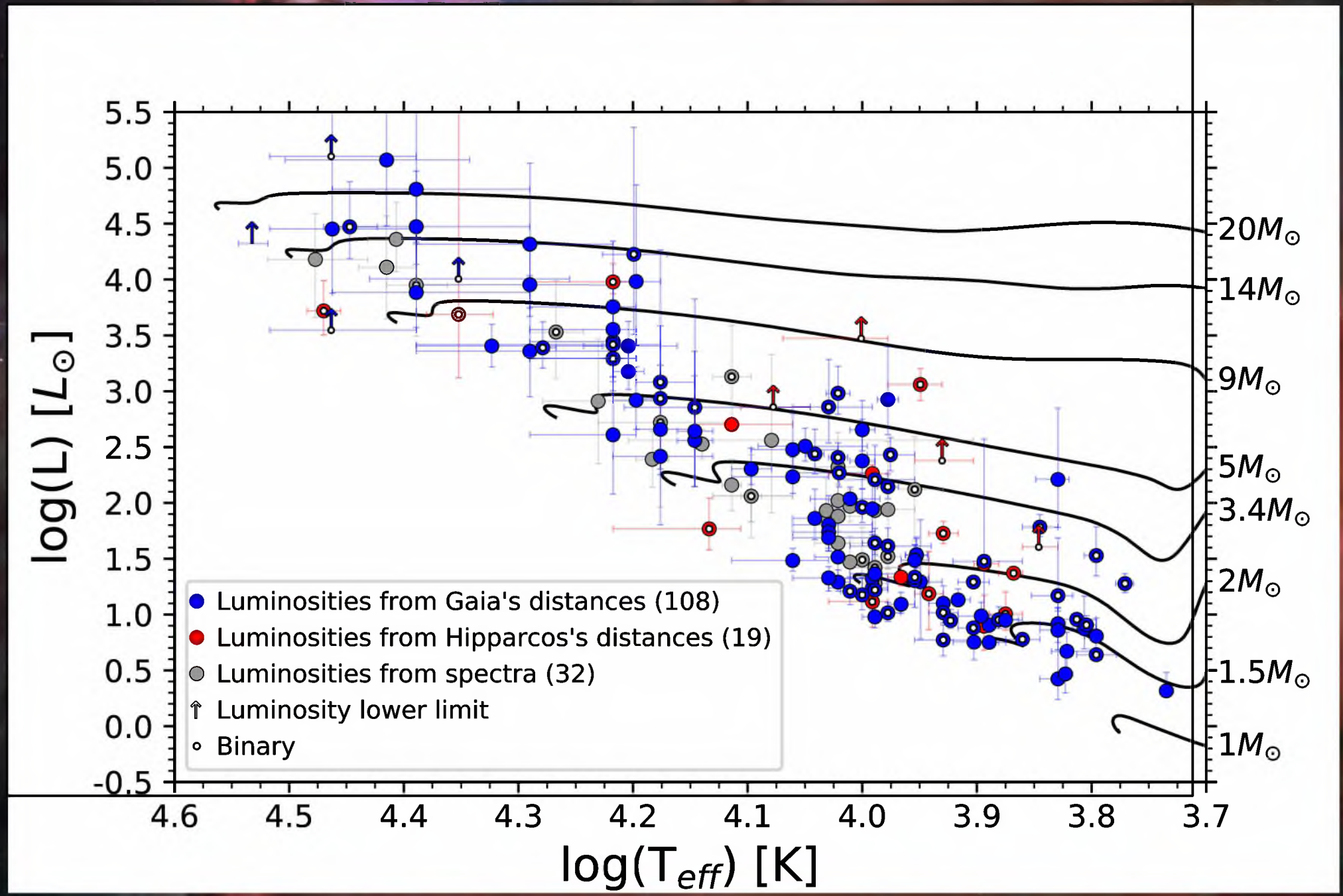
Fairlamb J.R. thesis. 2015

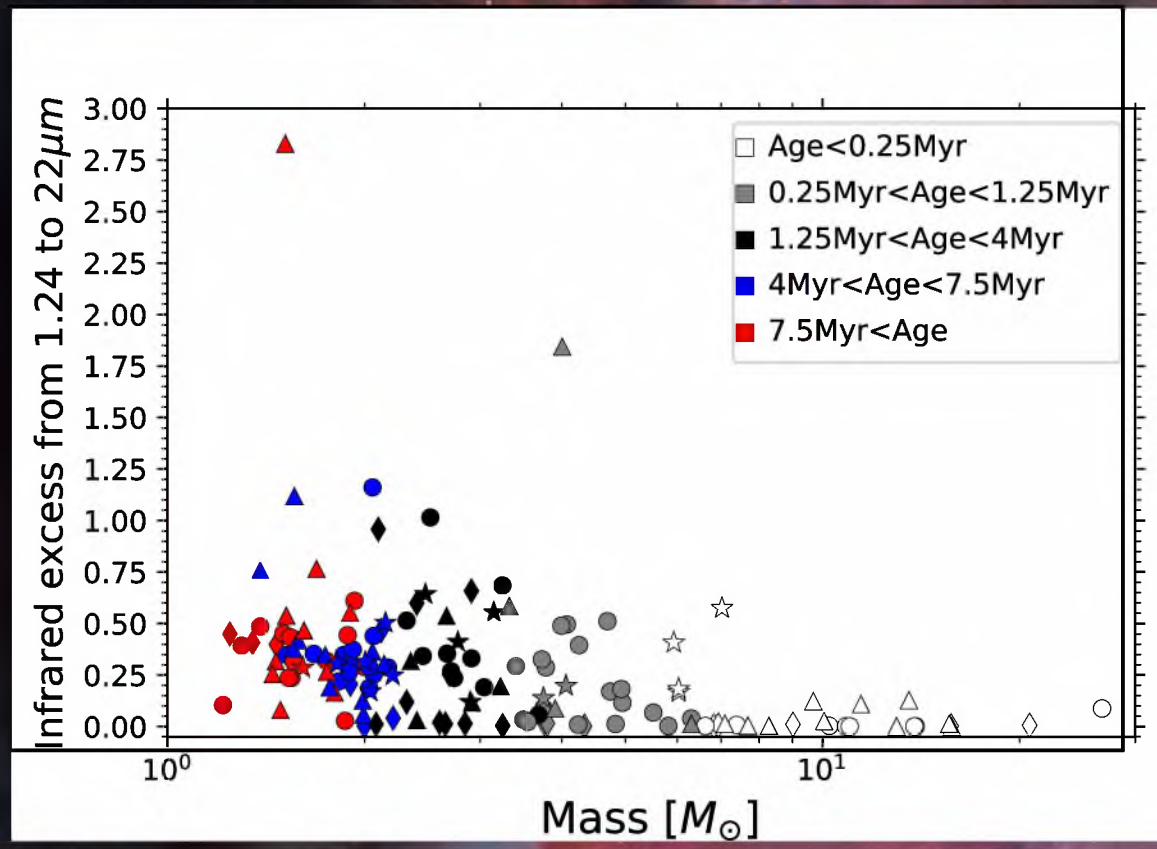


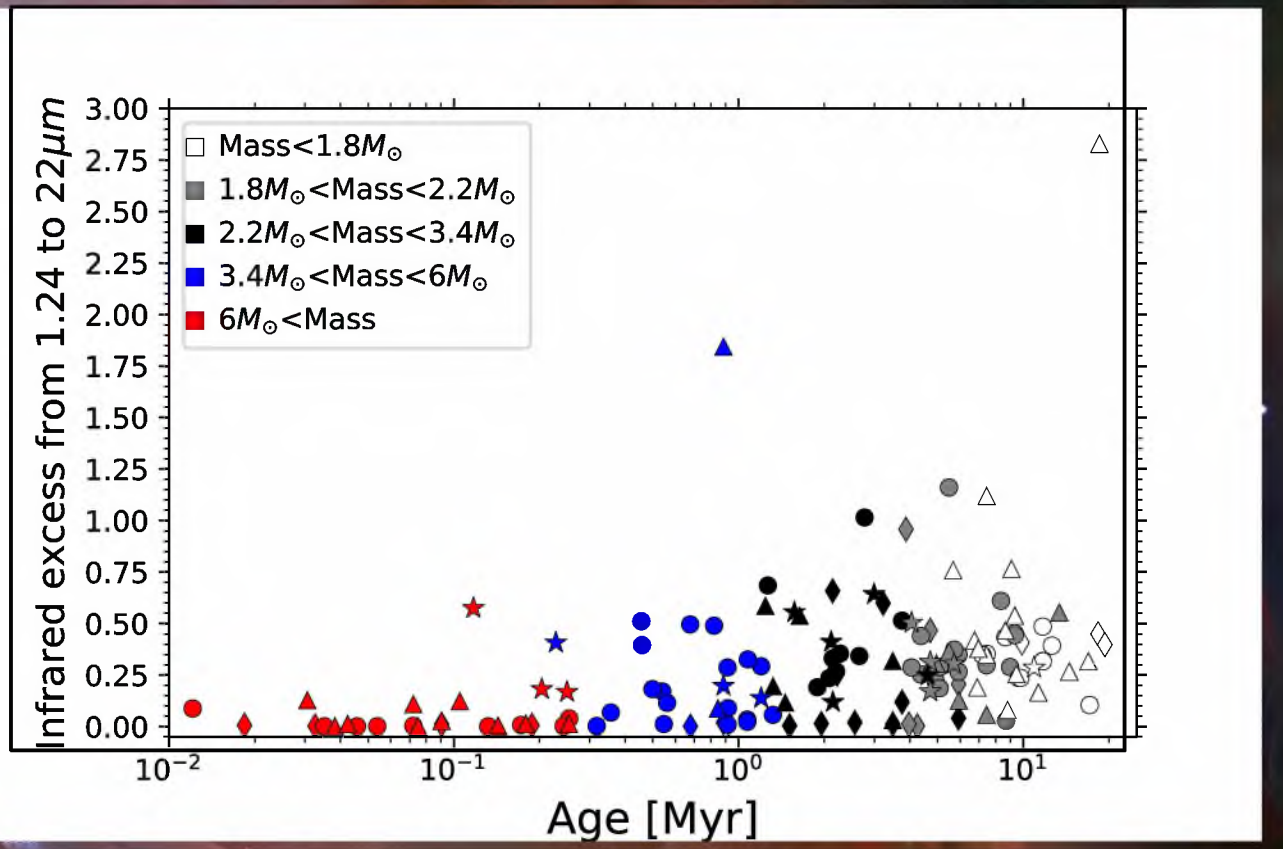
Paulo J. V. Garcia. 2011. ISBN: 9780226282299



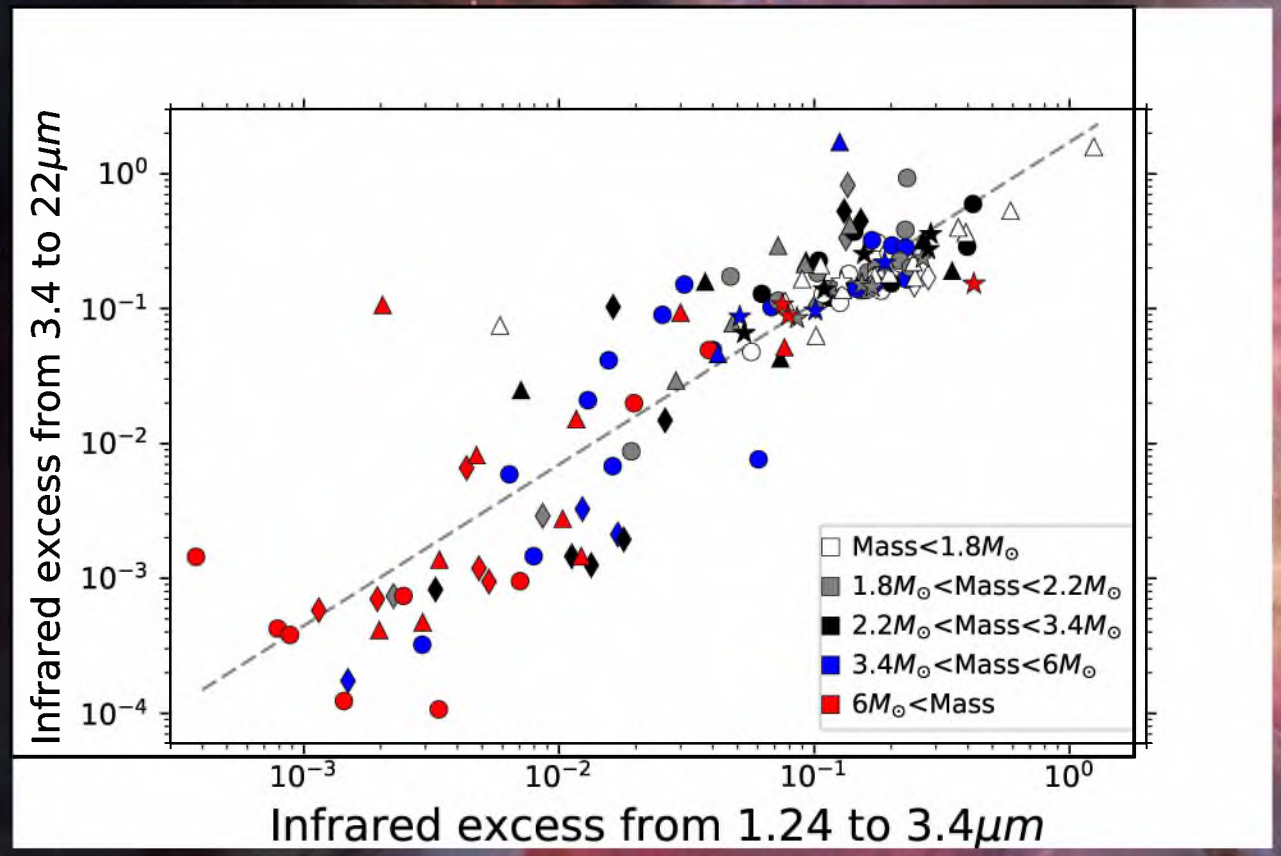
Infrared Excess
Variability
$H\alpha$ emission

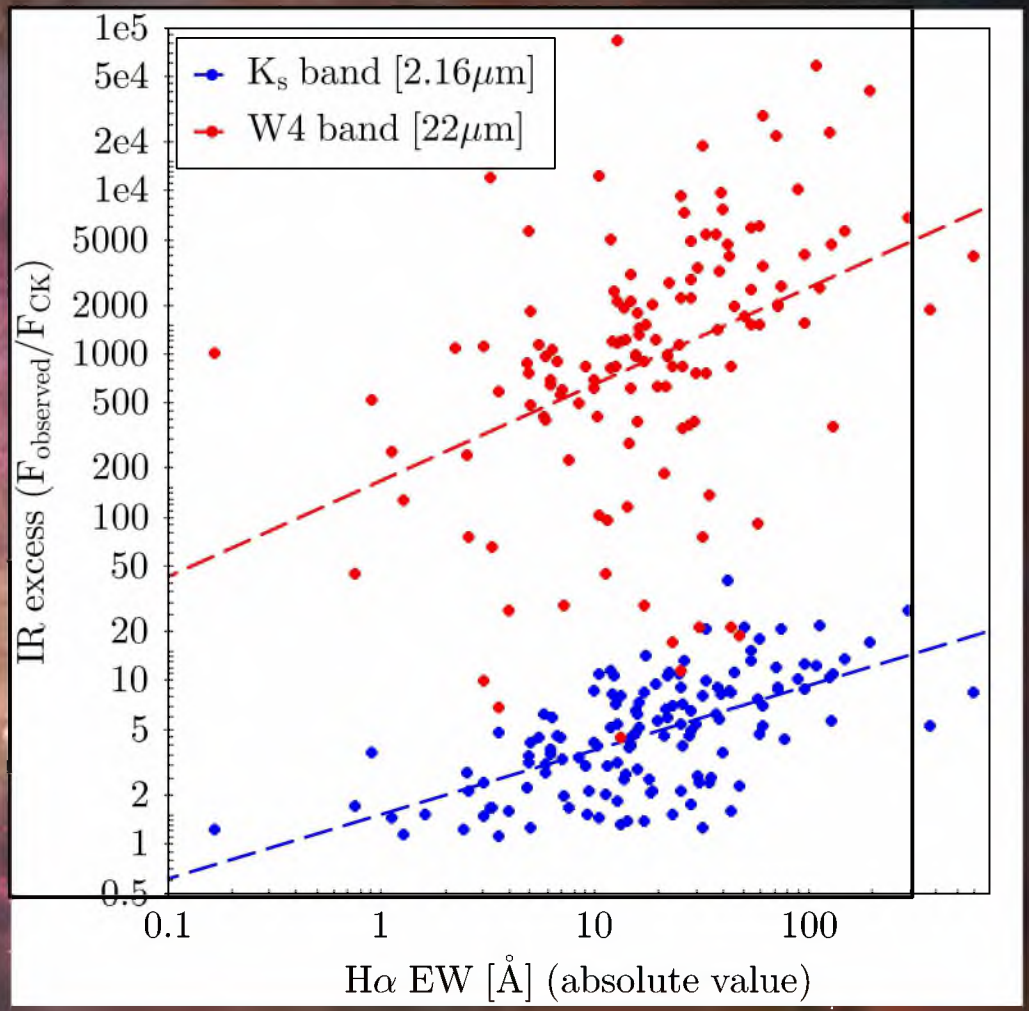

log(L) [$L_\odot$]
log(T_{eff}) [K]
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
4.6
4.5
4.4
4.3
4.2
4.1
4.0
3.9
3.8
3.7
20$M_\odot$
14$M_\odot$
9$M_\odot$
5$M_\odot$
3.4$M_\odot$
2$M_\odot$
1.5$M_\odot$
1$M_\odot$
Luminosities from Gaia's distances (108)
Luminosities from Hipparcos's distances (19)
Luminosities from spectra (32)
Luminosity lower limit
Binary





The symbols stand for the $H\alpha$ line profiles: circles (double peaked), triangles (single peaked), stars (P-Cygni profile) and diamonds (no information).





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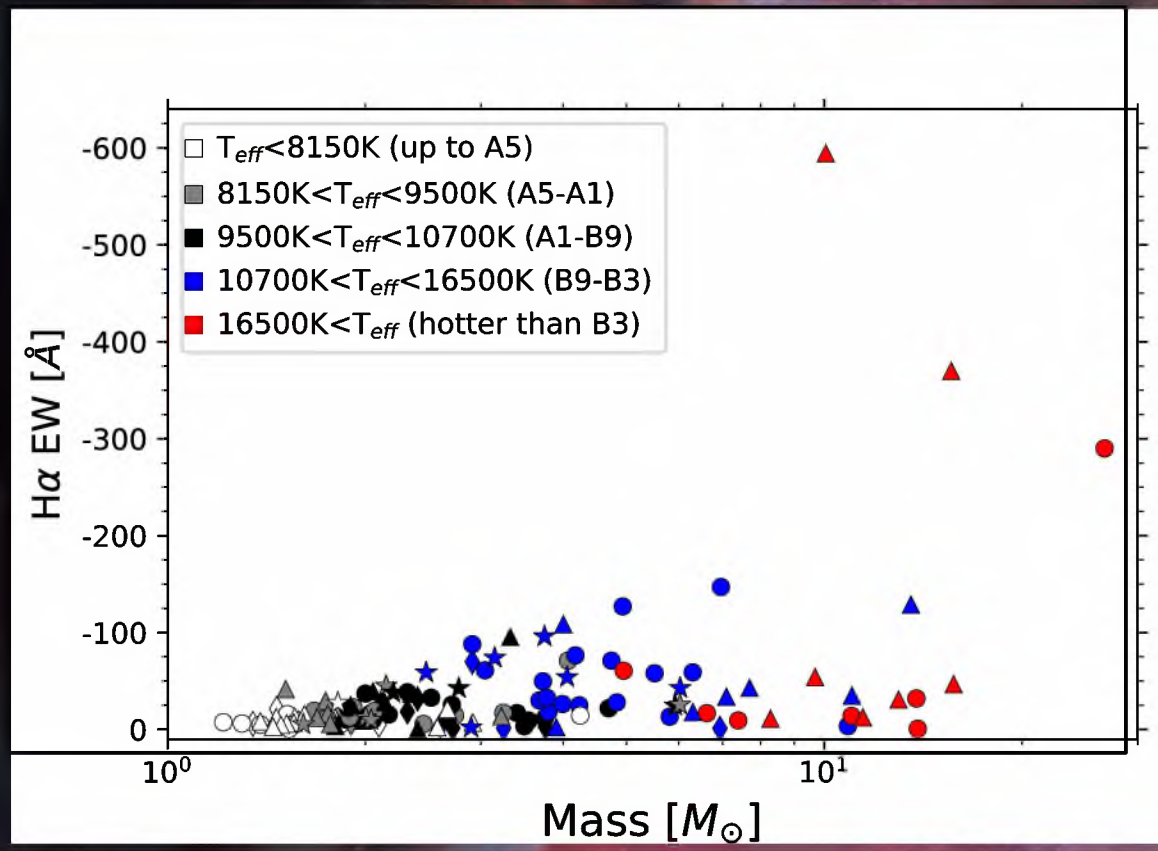

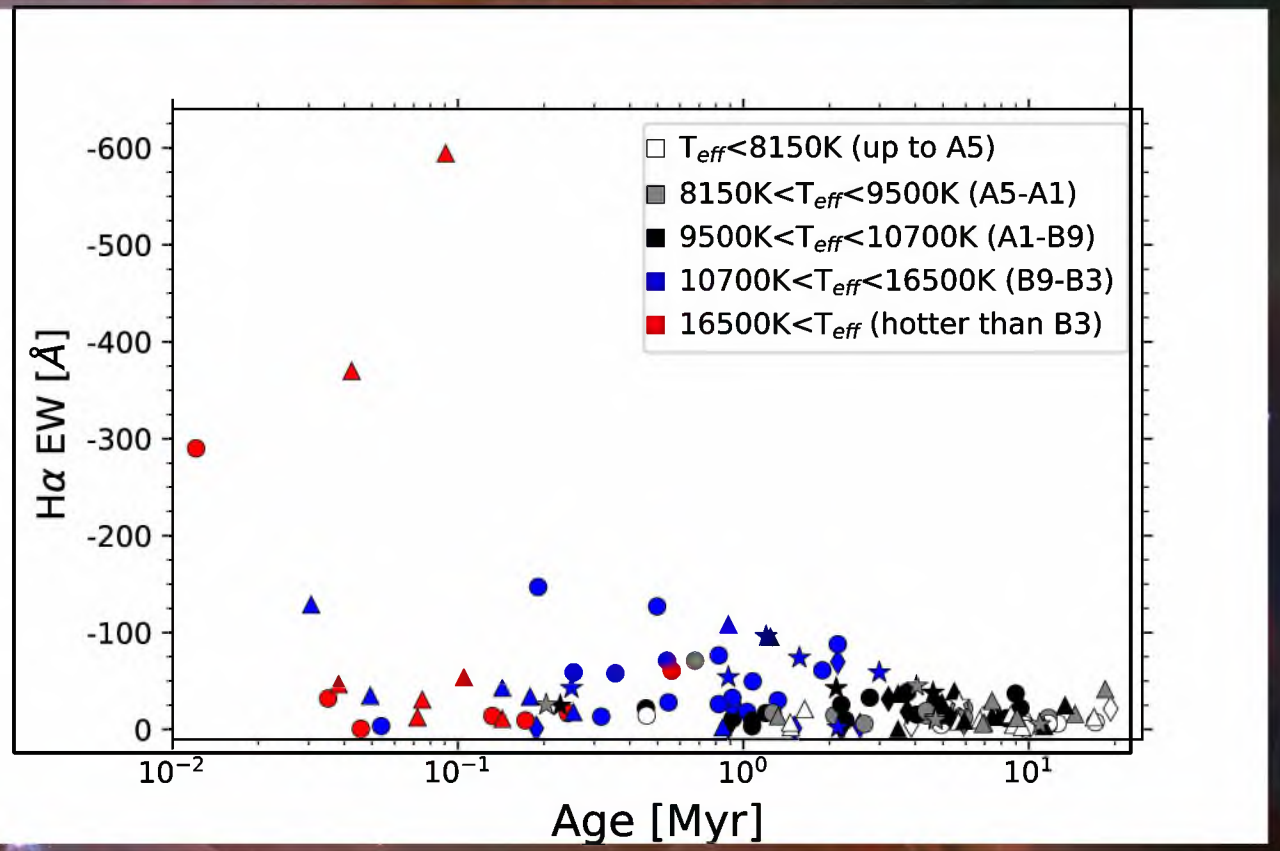

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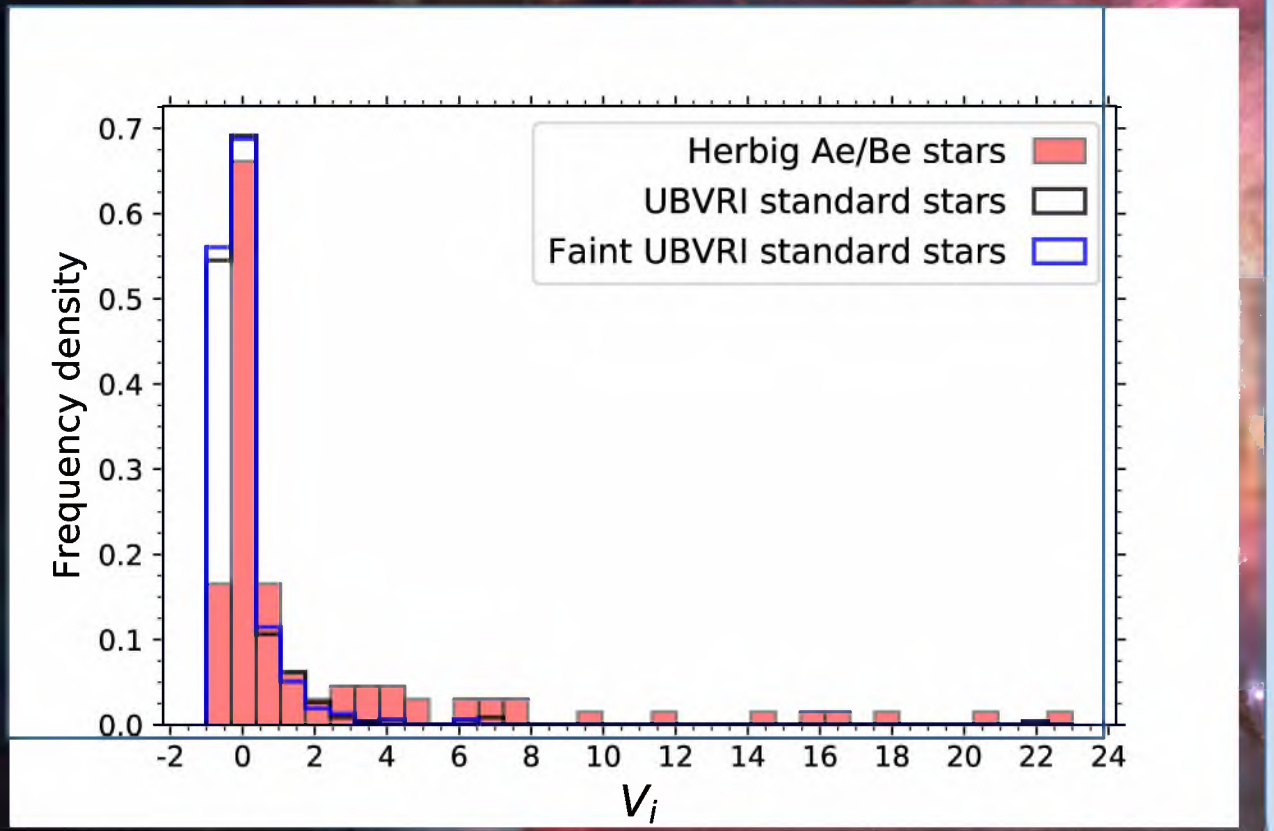
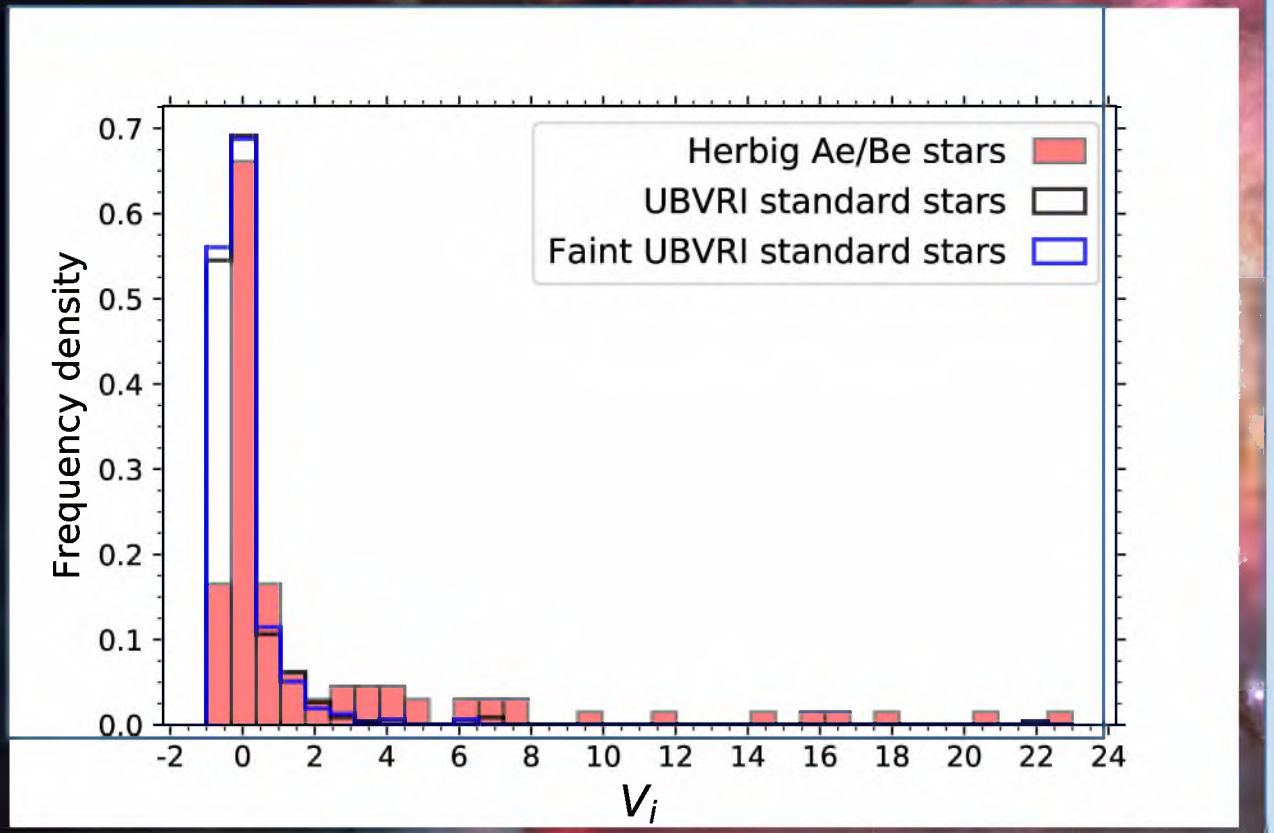


Deason et al. 2017 variability amplitude:

$$A_i = \sqrt{N_{obs,i}}e(F_i)/F_i$$



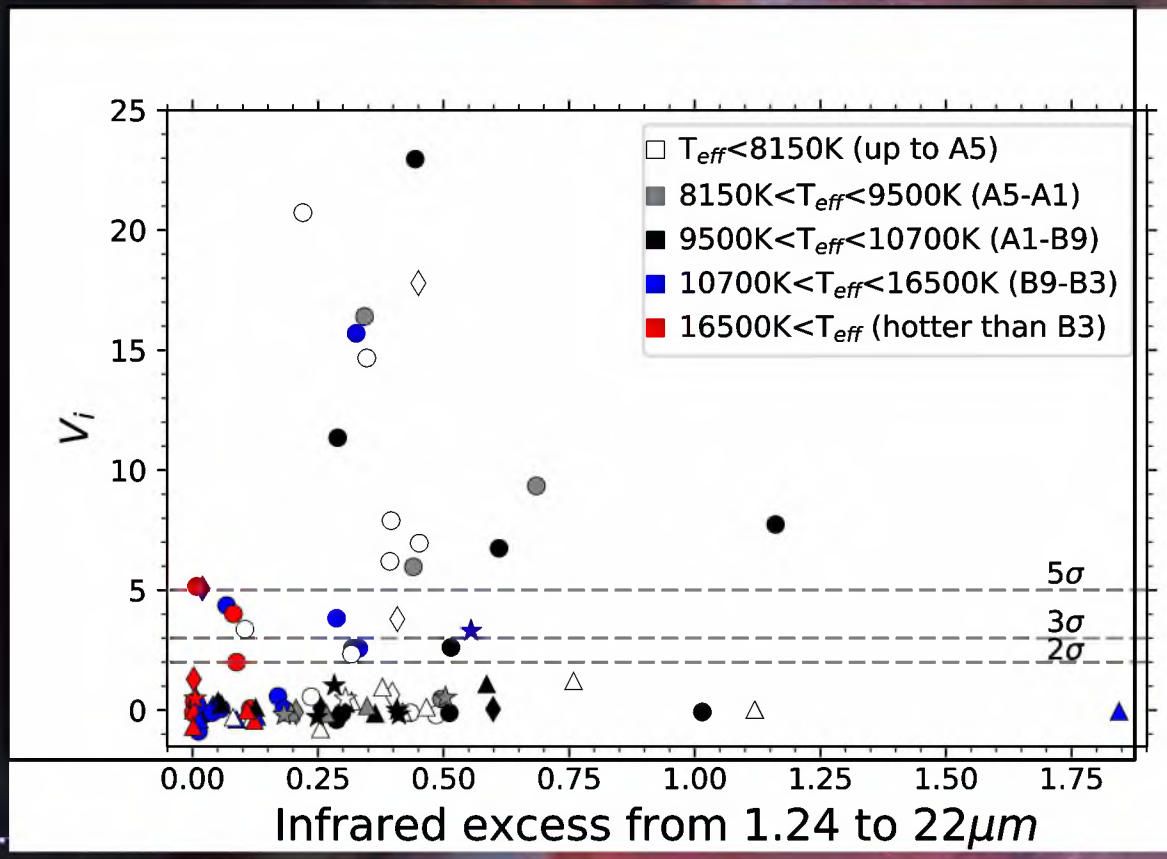
Deason et al. 2017 variability amplitude:

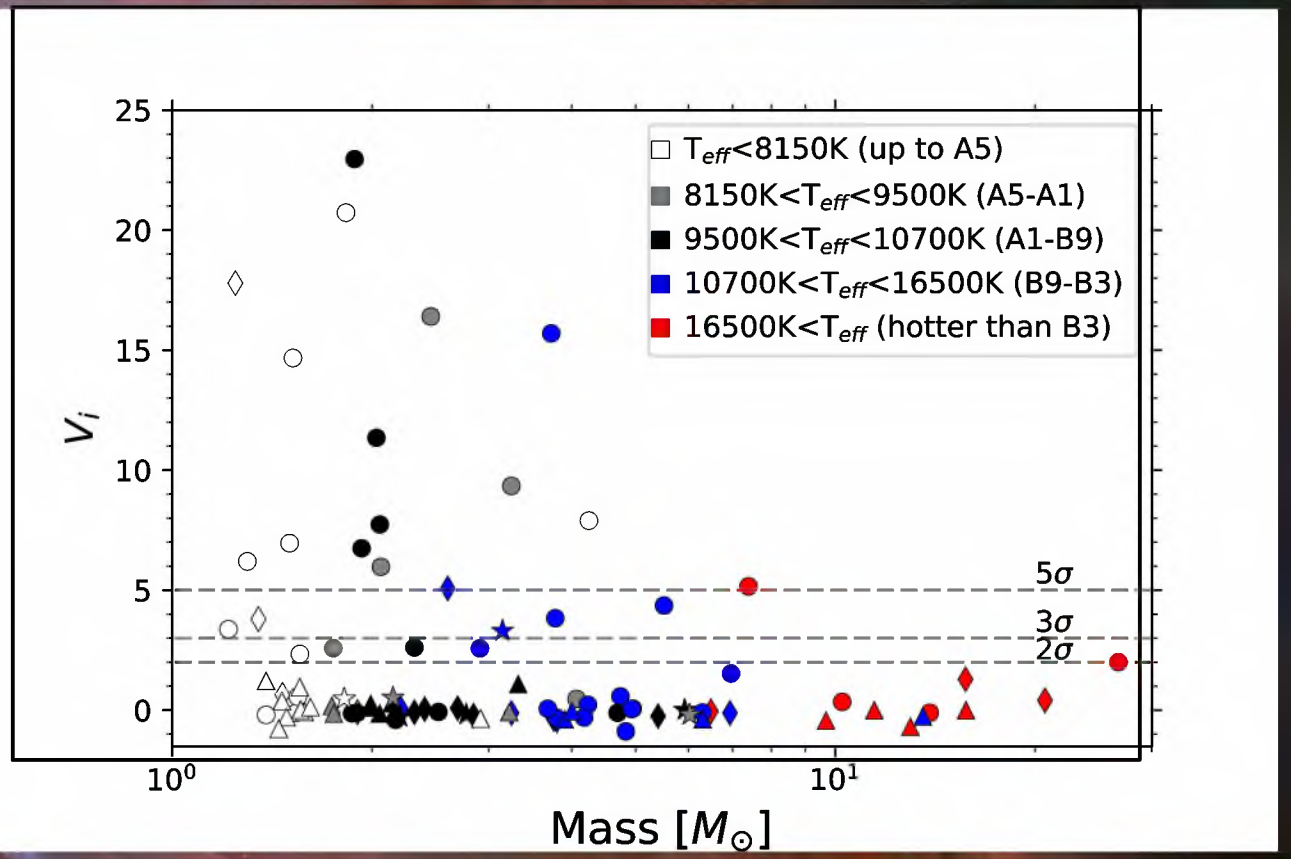
$$A_i = \sqrt{N_{obs,i}}e(F_i)/F_i$$

Variability indicator:

$$a_1 = G_i - 0.1mag, a_2 = G_i + 0.1mag$$

$$V_i = \frac{A_i - \bar{A}_{a,G_a \in (a_1,a_2)}}{\sigma[A_a]_{G_a \in (a_1,a_2)}}$$





The symbols stand for the $H\alpha$ line profiles: circles (double peaked), triangles (single peaked), stars (P-Cygni profile) and diamonds (no information).

Conclusions:

- High mass stars do not display an infrared excess or photometric variability. The break is around $8M_{\odot}$. No evolutionary changes in infrared excess found.

- 23% of all Herbig Ae/Be stars are strongly variable. We find that the presence of variability correlates very well with the $H\alpha$ line profile. The variable objects display doubly peaked profiles, indicating an edge-on disk.

- Missing the pre-Herbig Be stars.