

Colour-Magnitude diagram for the α Persei Cluster

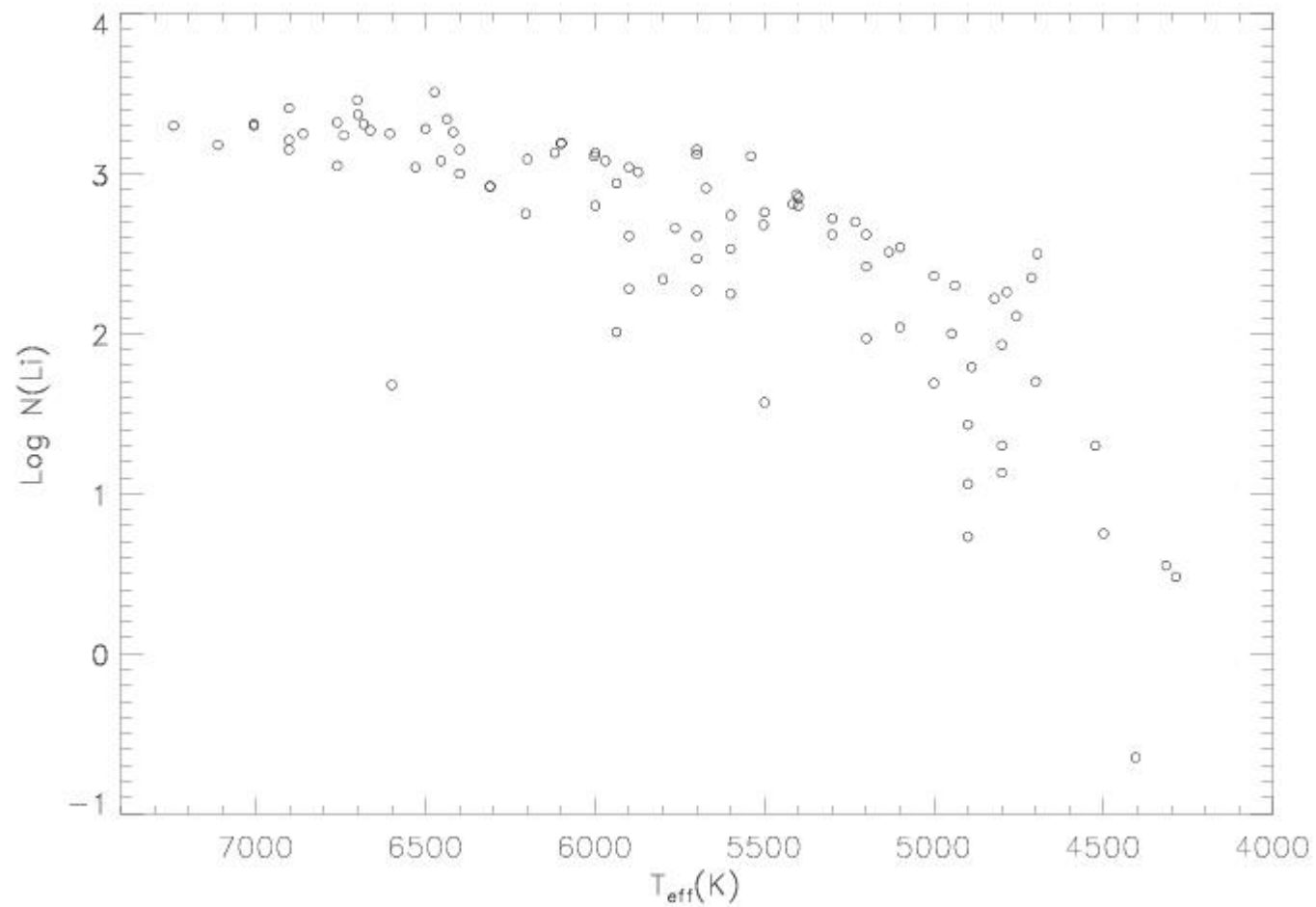
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&

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(now at ARIES)



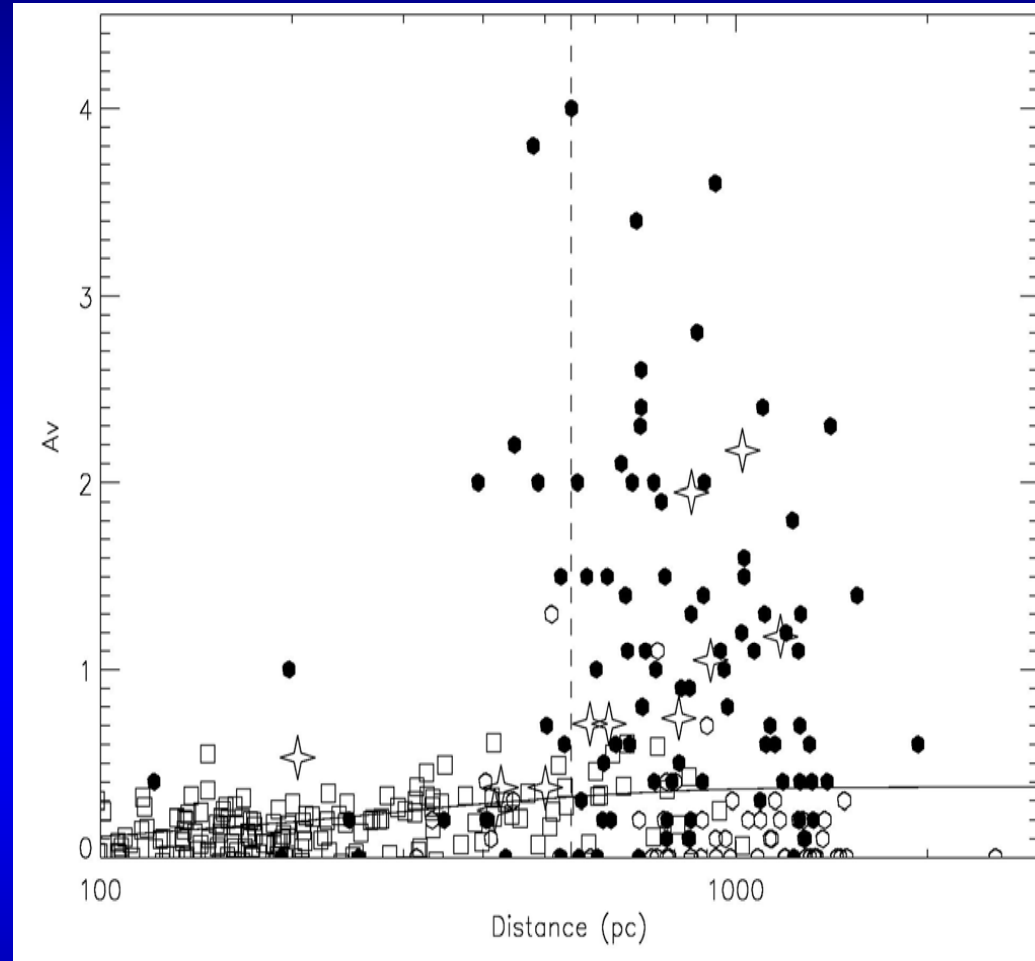
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$$\begin{aligned}
(V - R)_{\text{int}} &= (V - R)_{\text{obs}} - 0.252 \times A_V \\
(V - I)_{\text{int}} &= (V - I)_{\text{obs}} - 0.518 \times A_V \\
(V - J)_{\text{int}} &= (V - J)_{\text{obs}} - 0.718 \times A_V \\
(V - H)_{\text{int}} &= (V - H)_{\text{obs}} - 0.825 \times A_V \\
(V - K)_{\text{int}} &= (V - K)_{\text{obs}} - 0.888 \times A_V
\end{aligned}$$

$$\chi^2 = \sum_{\lambda} \frac{[(V - \lambda)_{\text{int}} - (V - \lambda)_{\text{ms}}]^2}{(V - \lambda)_{\text{ms}}^2}$$

$$\log d = \frac{V - M_V + 5 - A_V}{5}$$



- α Persei : a young, nearby open cluster at ~ 185 pc ($V - M_V = 6.33$)
- age : 50-80 Myr
- not a visually striking cluster, $b = -7^\circ$; low relative proper motion
- a spatially elongated cluster:

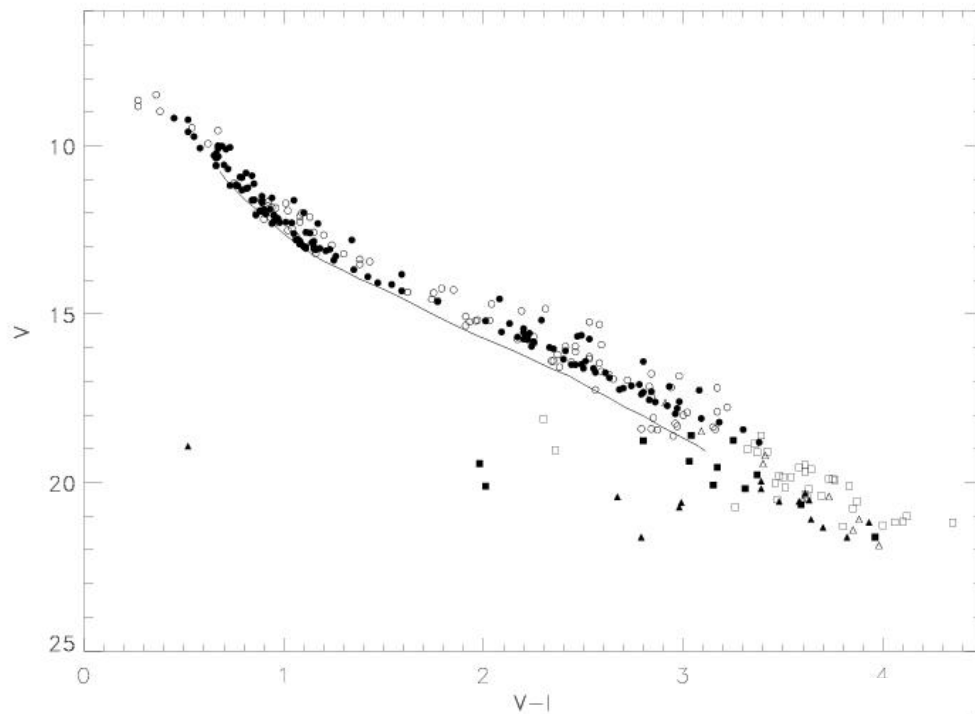
$$\text{spread in RA} \approx 2^{\text{h}}50^{\text{m}} - 4^{\text{h}}00^{\text{m}}$$

$$\text{Dec} \approx +46^\circ - +52^\circ$$

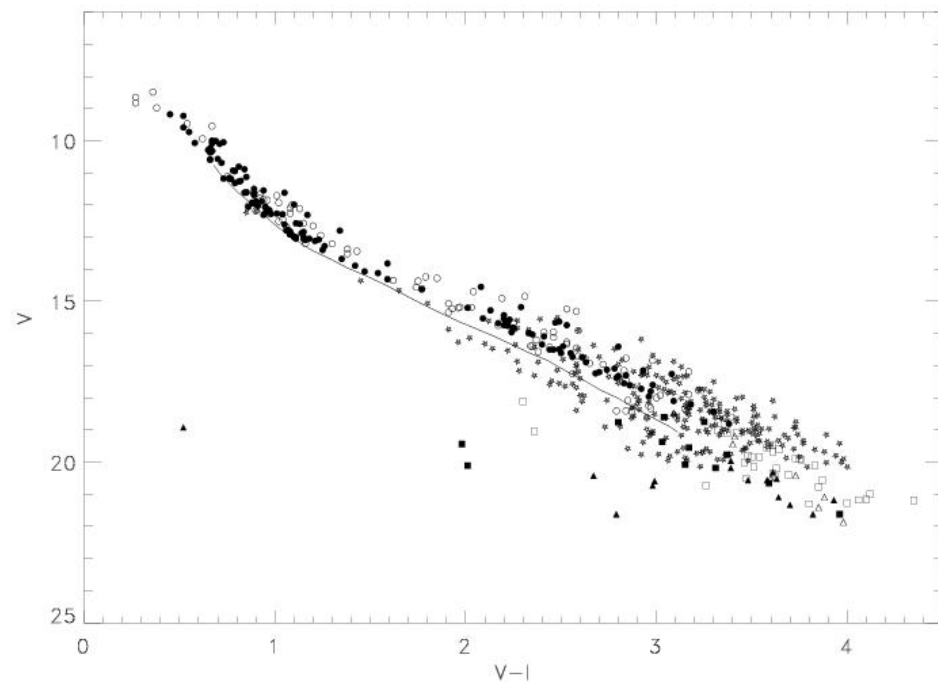
This translates to 15-20 pc at its distance which implies dispersion in distance moduli from 6.22 to 6.45.

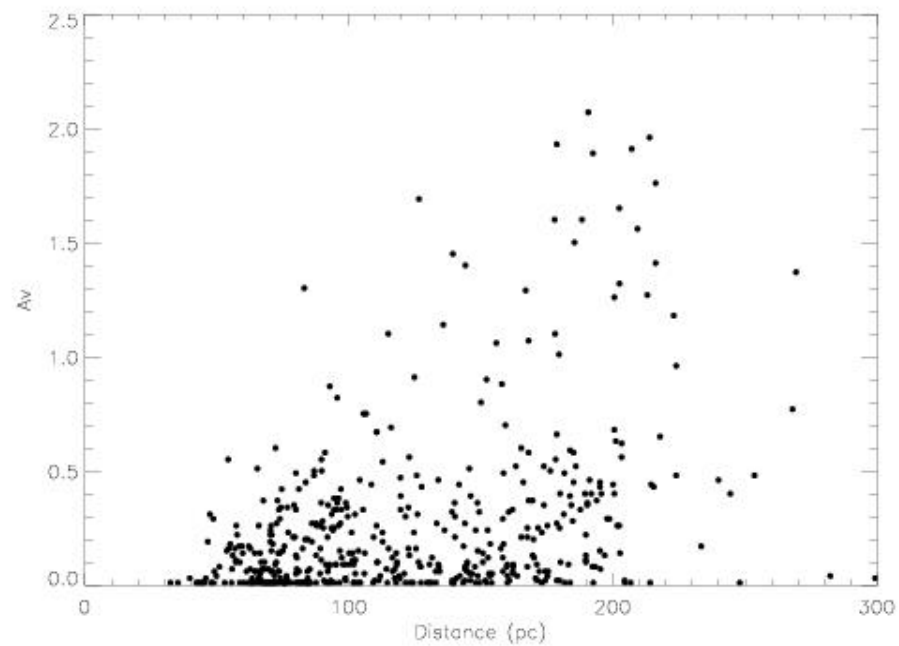
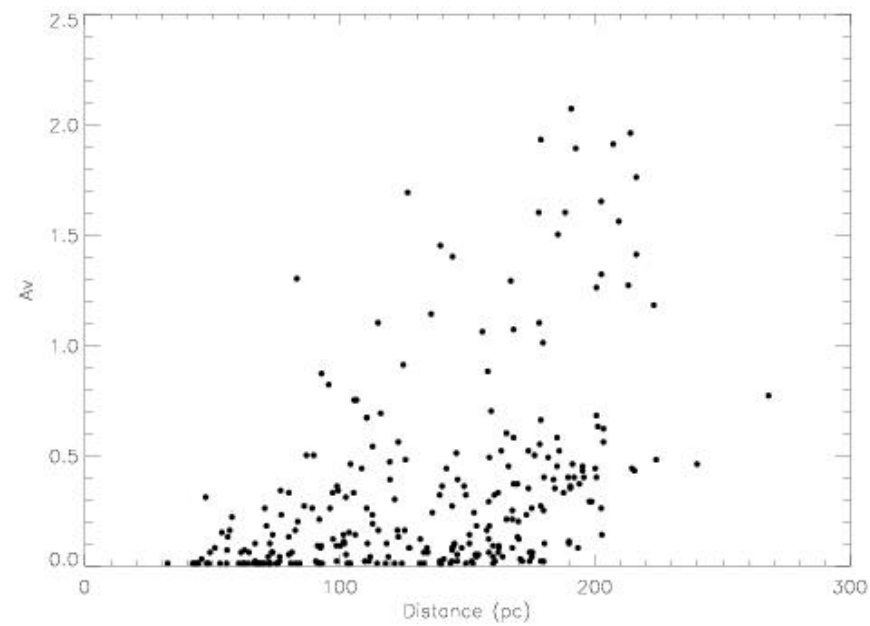
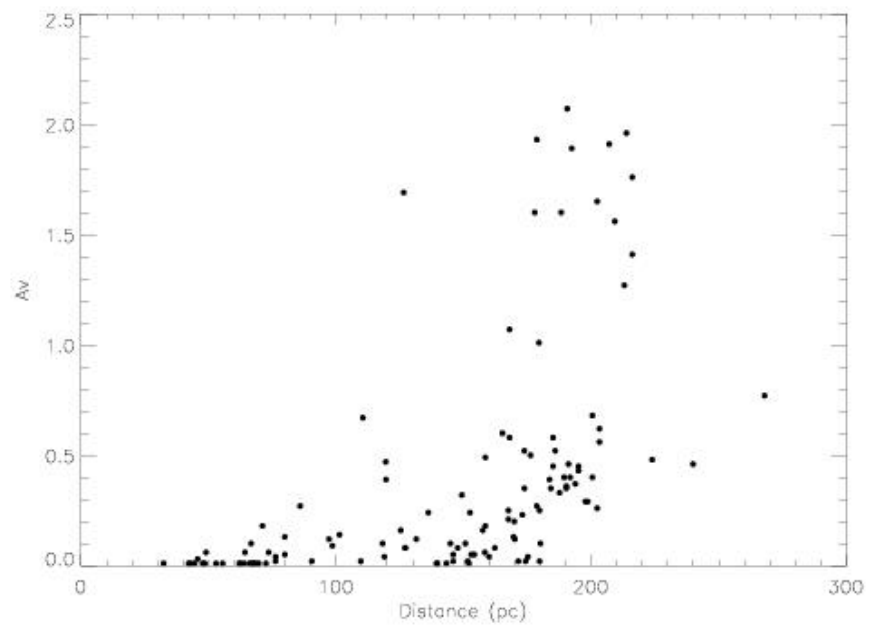
- variable reddening as found from uvby β photometry of 40 stars-
further spread in $V - M_V$.

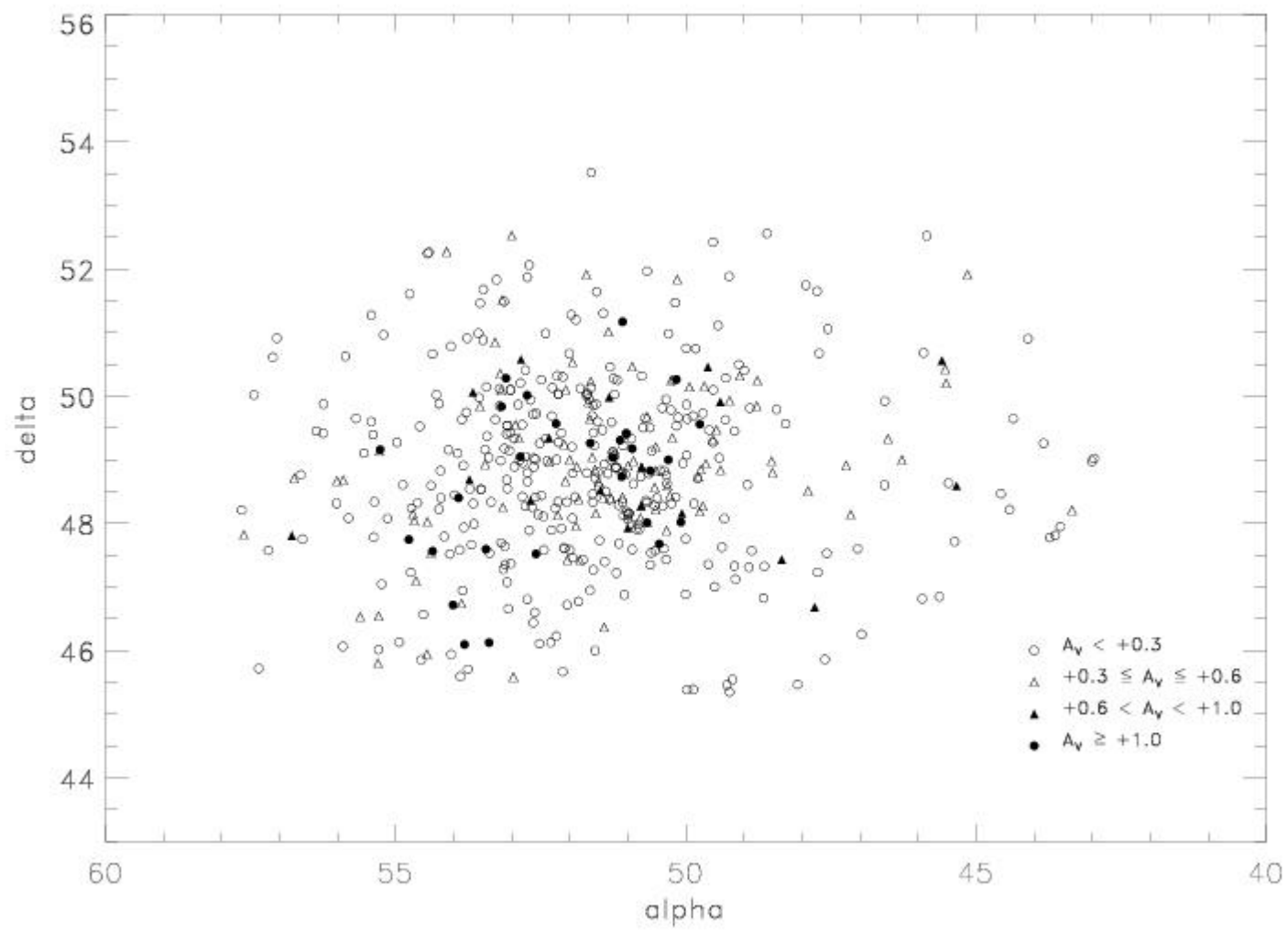
V-R, V-I, V-J, V-H, V-K for 500 stars

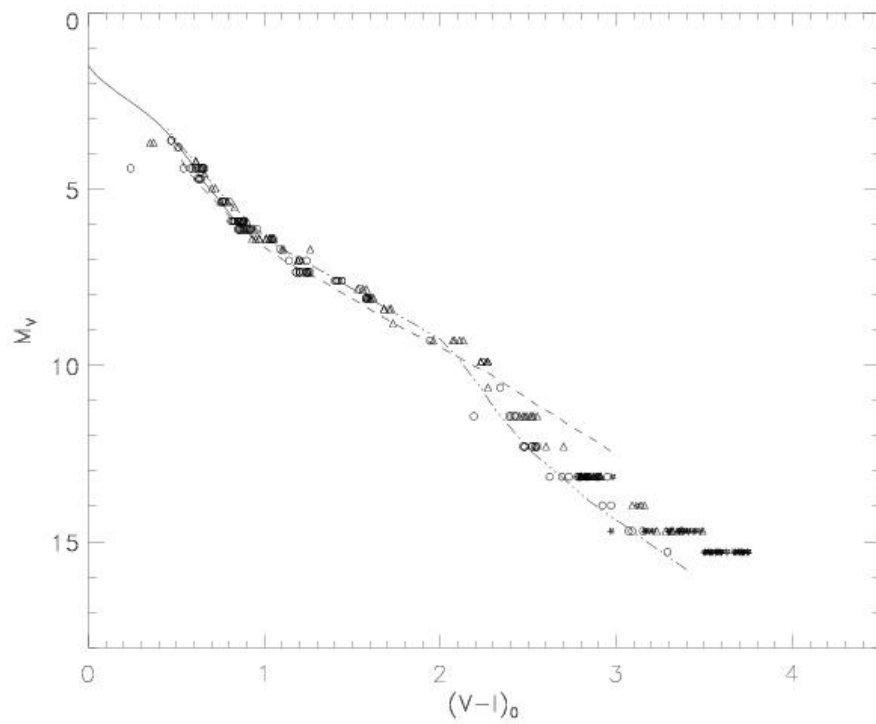


- observational errors
- binaries
- stellar variability
- variable reddening
- membership
- very low mass stars yet to arrive on the MS









$M_v = 15.295$ for M9
 $= 14.700$ for M8
 $= 13.973$ for M7

