Diagrama de Hertzsprung-Russell

Brevísima historia de la historia...

Ejnar Hertzsprung (1873 – 1967)

~ 1905 Relación entre “color” y magnitud absoluta de las estrellas de las Hyades.

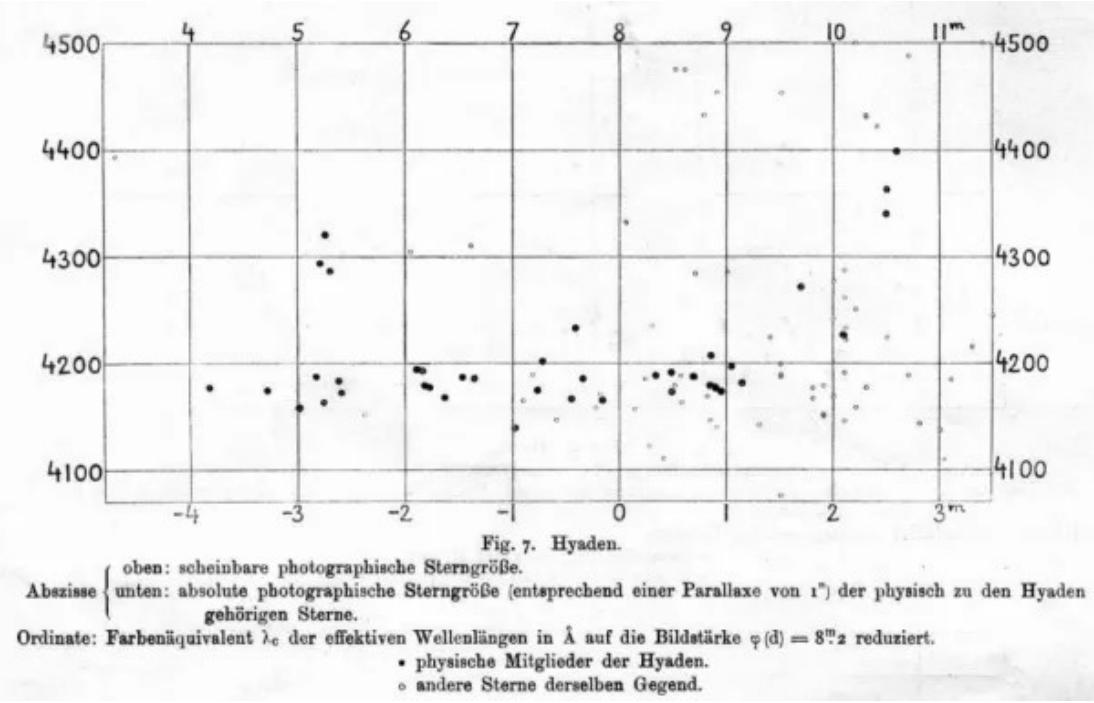


Fig. 7. Hyaden.

Abszisse { oben: scheinbare photographische Sterngröße.
unten: absolute photographische Sterngröße (entsprechend einer Parallaxe von 1") der physisch zu den Hyaden gehörigen Sterne.

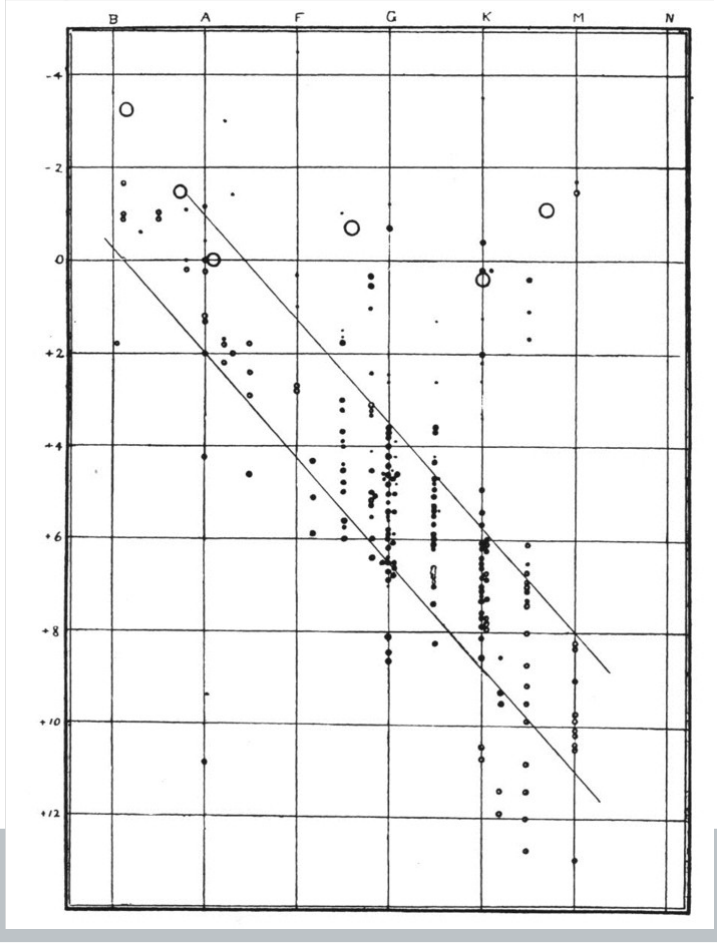
Ordinate: Farbenäquivalent λ_e der effektiven Wellenlängen in Å auf die Bildstärke $\varphi(d) = 8^m.2$ reduziert.

• physische Mitglieder der Hyaden.
◦ andere Sterne derselben Gegend.

Brevísima historia de la historia...

Henry Norris Russell (1877 – 1957)

~ 1913 Relación entre tipo espectral y magnitud absoluta de las estrellas de las Hyades.



Eje X

- Tipo espectral;

- Temperatura;

- Índice de color.

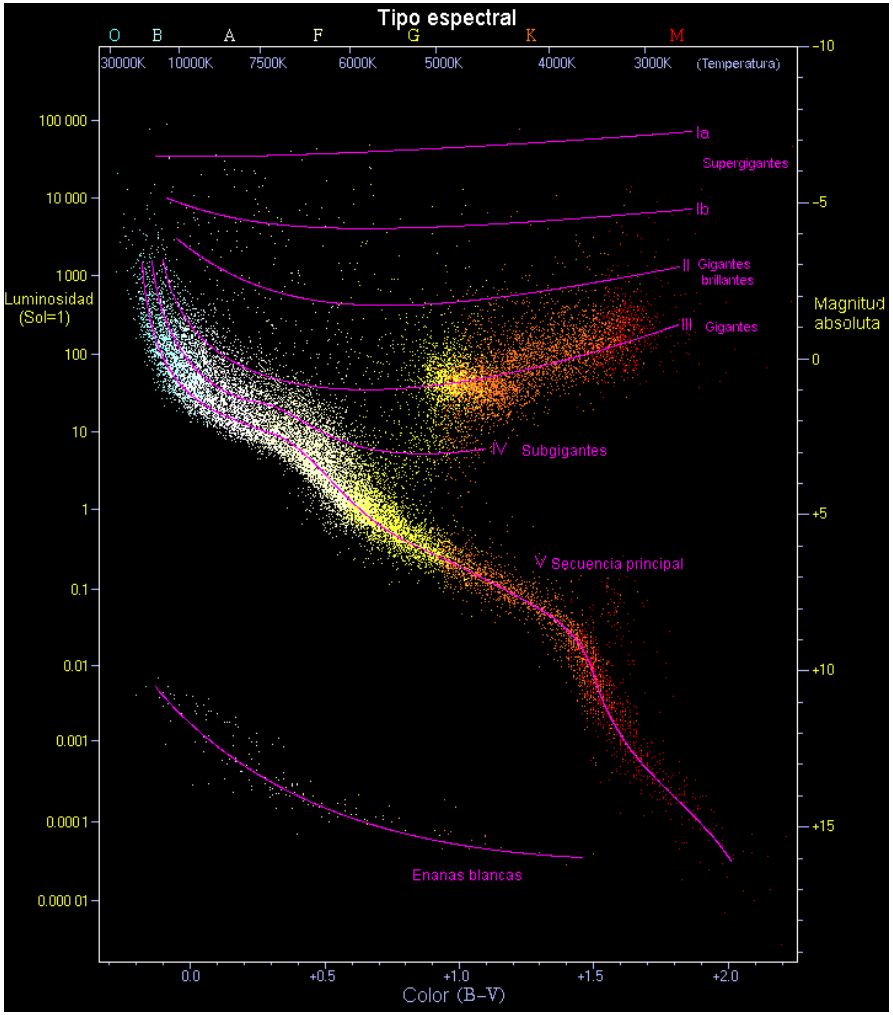
Eje Y

- Magnitud absoluta;

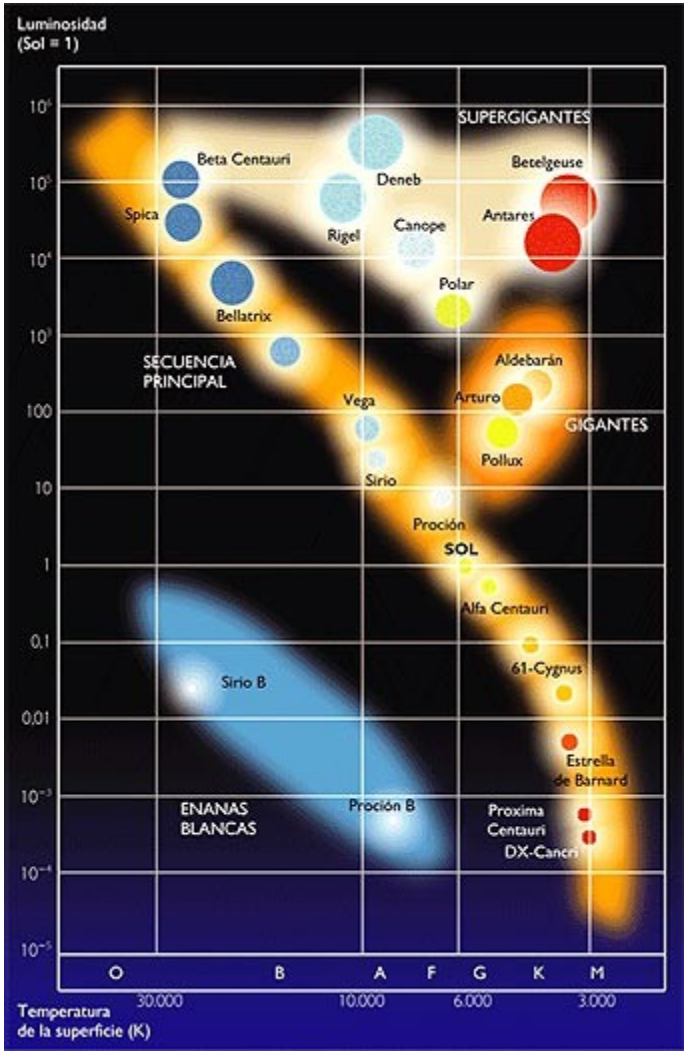
- Luminosidad.

"Giant" and "Dwarf" Stars
1913

Diagrama H-R y Clases de luminosidad



Ejemplos de estrellas



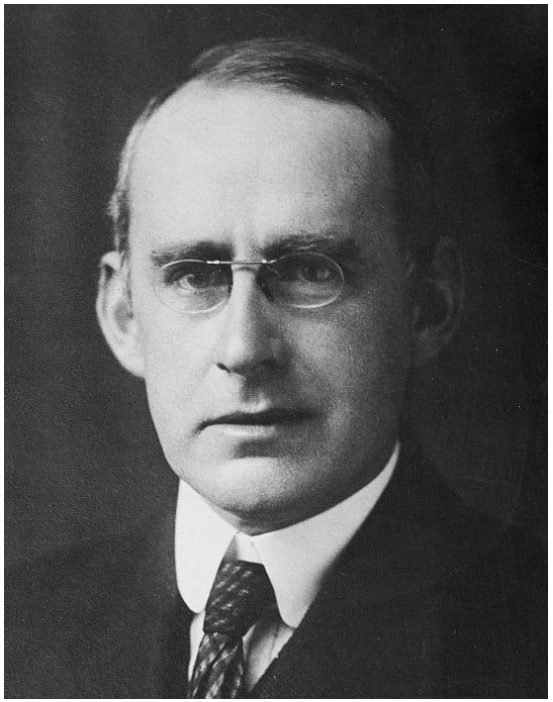
Aplicaciones y resultados anexos

sir Arthur Eddington (1882 – 1944)

~ 1920 Fusión nuclear del H y He → Bethe (1938,1939);

~ 1921 Equilibrio radiativo y relación M-L de estrellas de MS;

$$L_{\text{Eddington}} = 33.000 \frac{M}{M_\odot} L_\odot$$



Aplicaciones y resultados anexos

where n_i and σ_i are the relative numbers and capture cross sections for the nuclei of atomic weight i, and where $f(t)$ is a factor characterizing the decrease of the density with time.

803

FIG. 1.

Log of relative abundance

Atomic weight

Aplicaciones y resultados anexos

Cecilia Payne-Gaposchkin (1900 – 1979)

~ 1868 Jules Janssen detecta el helio en la cromósfera solar;

~ 1925 Las estrellas y el "universo" están formadas mayormente de H; relacionó tipo espectral con temperaturas absolutas.

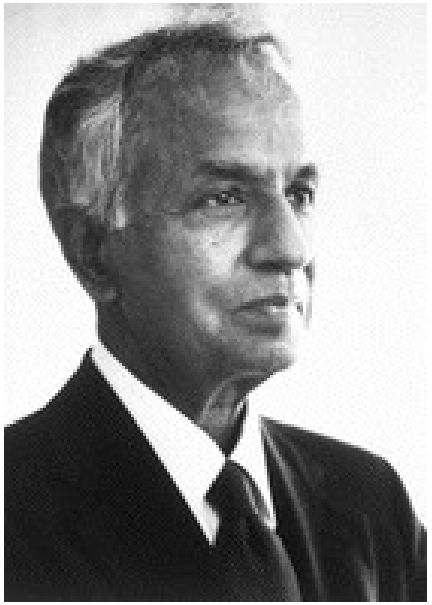
- Russell se opuso a su descubrimiento, aunque años más tarde se "convirtió" en su mayor defensor;

- Strömgren (1933) "...the position of a star in the HRD is determined by its mass and hydrogen content." Se refiere a otros tópicos.

"Your reward will be the widening of the horizon as you climb. And if you achieve that reward, you will ask no other."

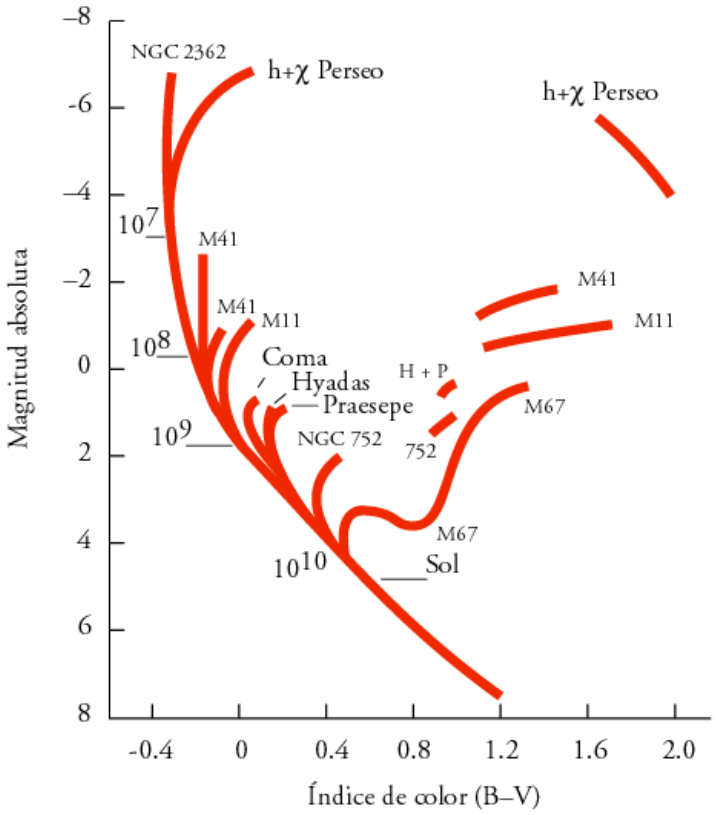
Aplicaciones y resultados anexos

Subrahmanyan Chandrasekhar (1910 – 1995)

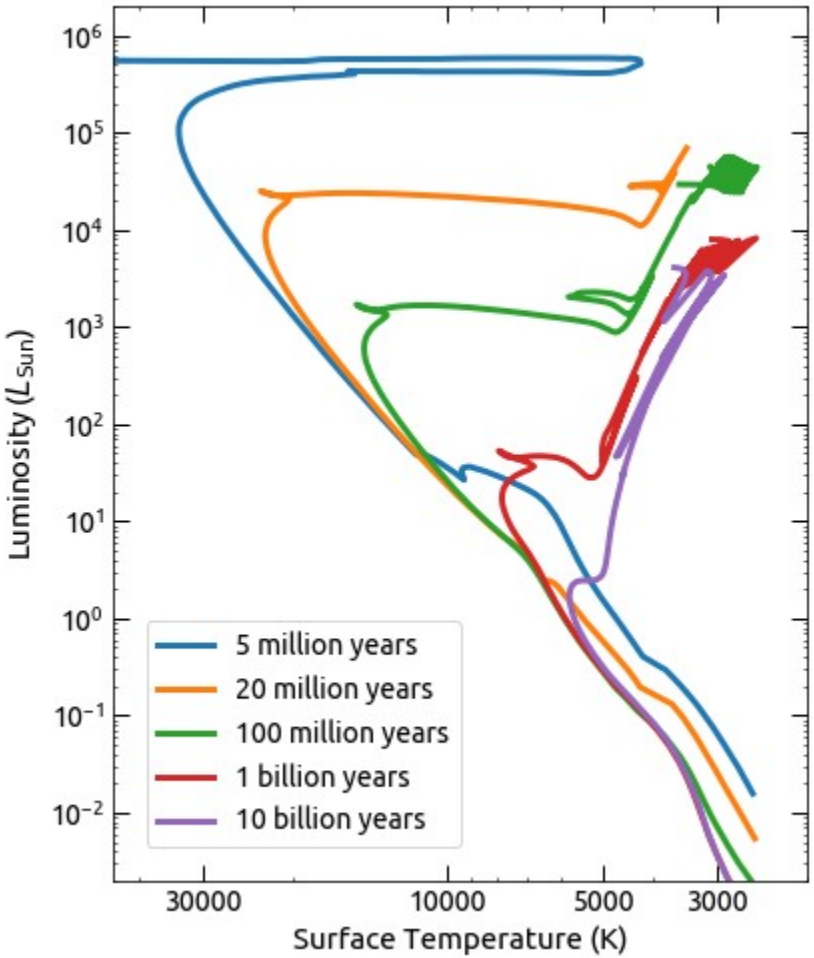


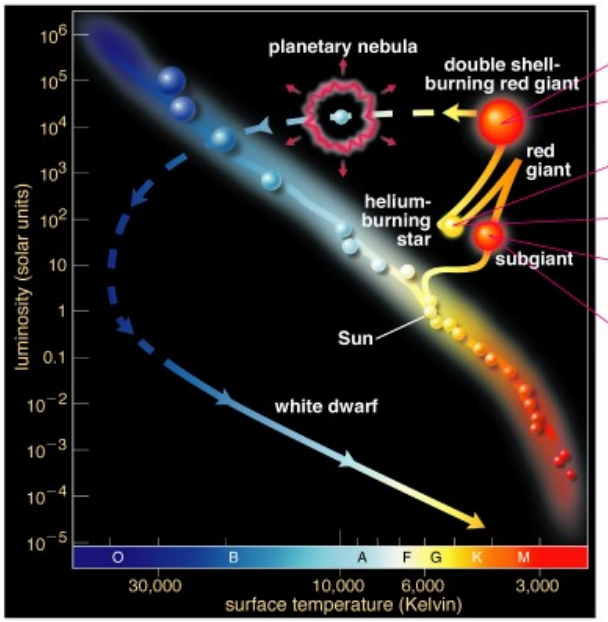
~ 1930 Límite de C. = 1.44 $M_{\odot}$

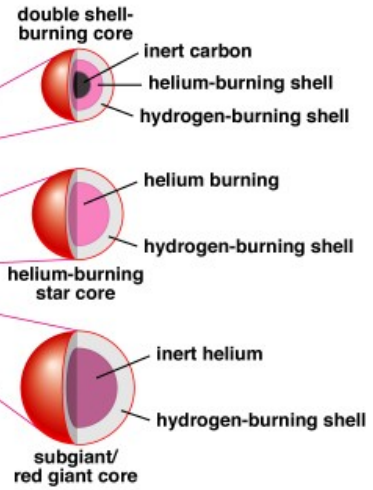
- Evolución estelar



Aplicaciones y resultados anexos







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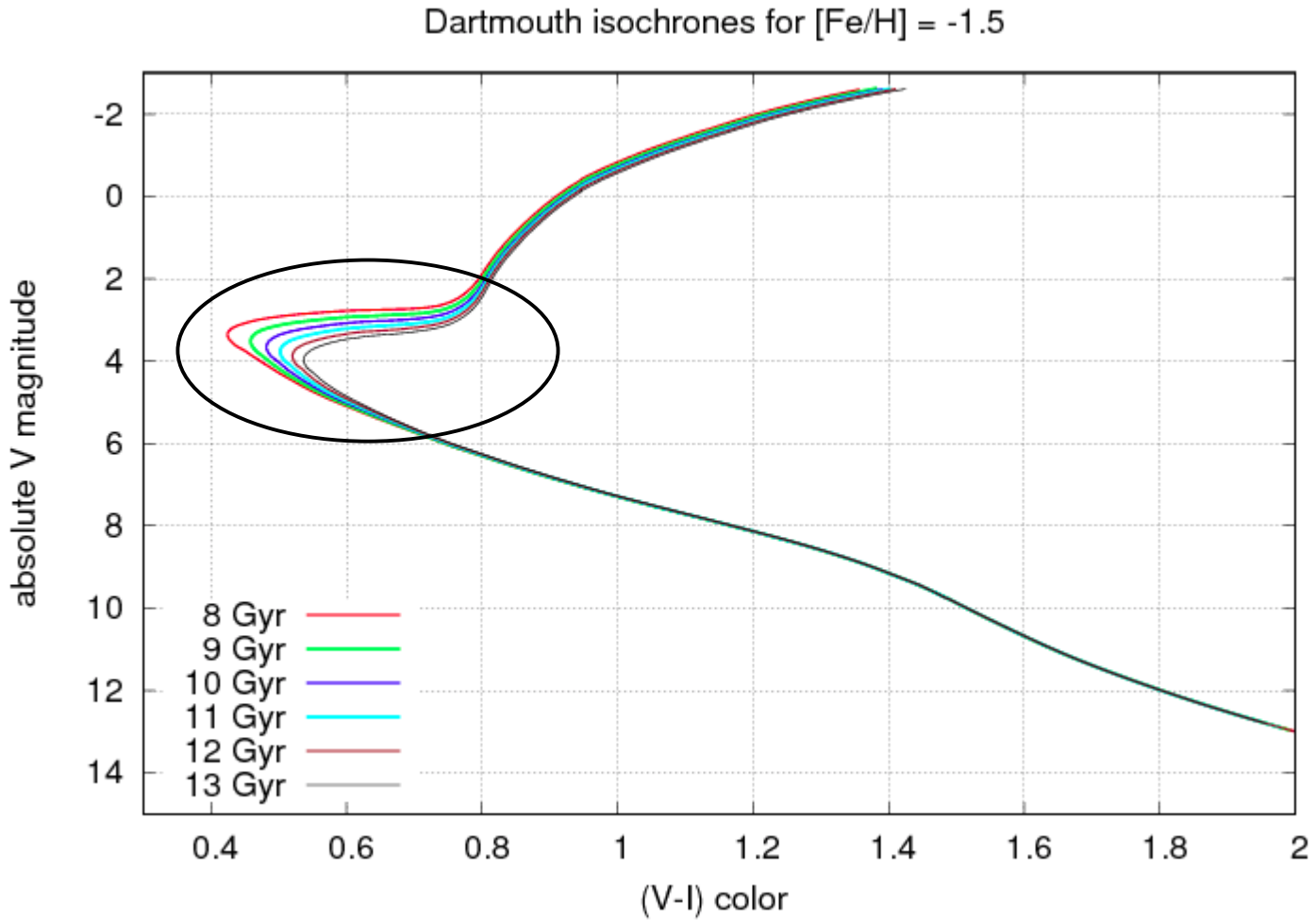

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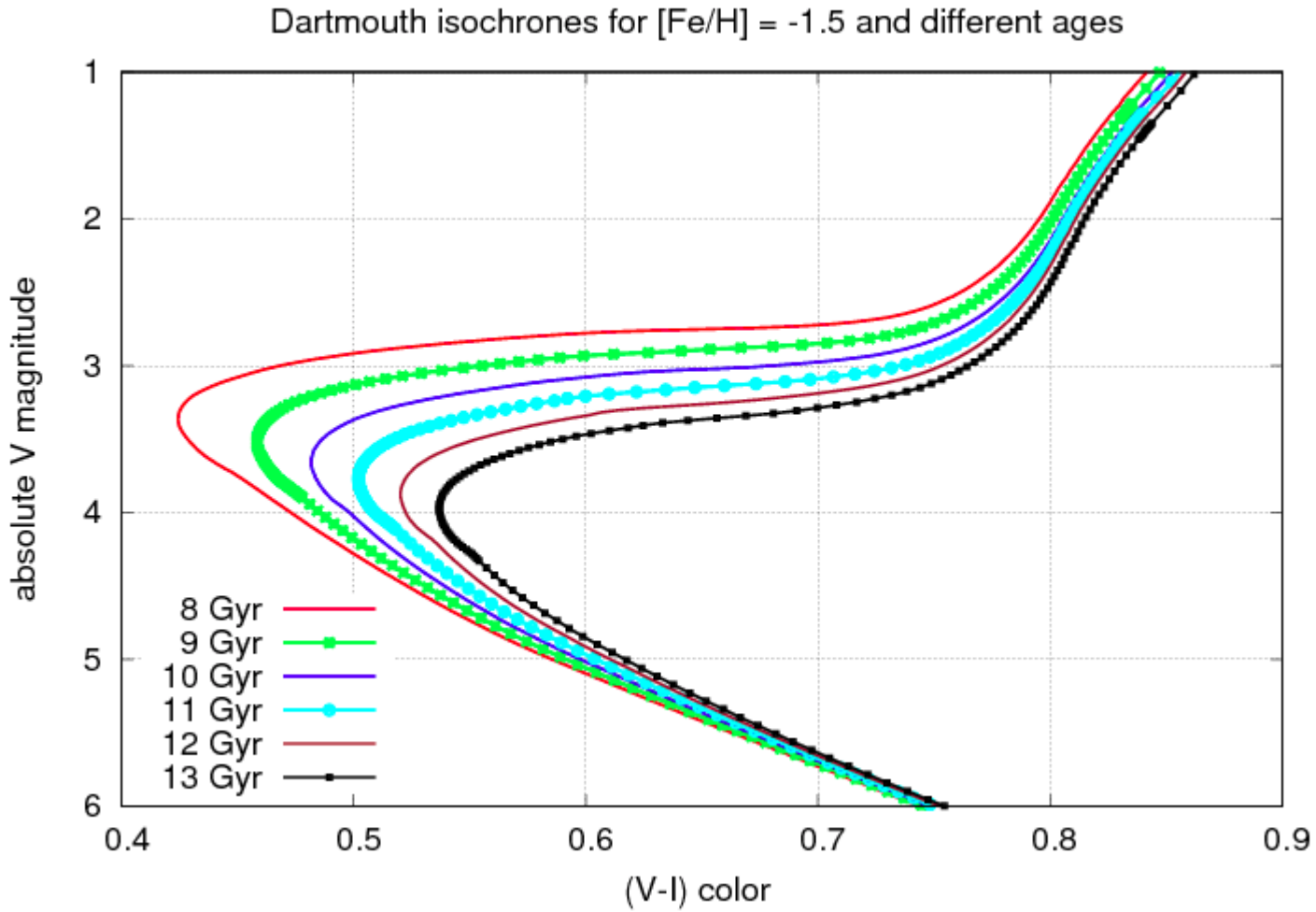

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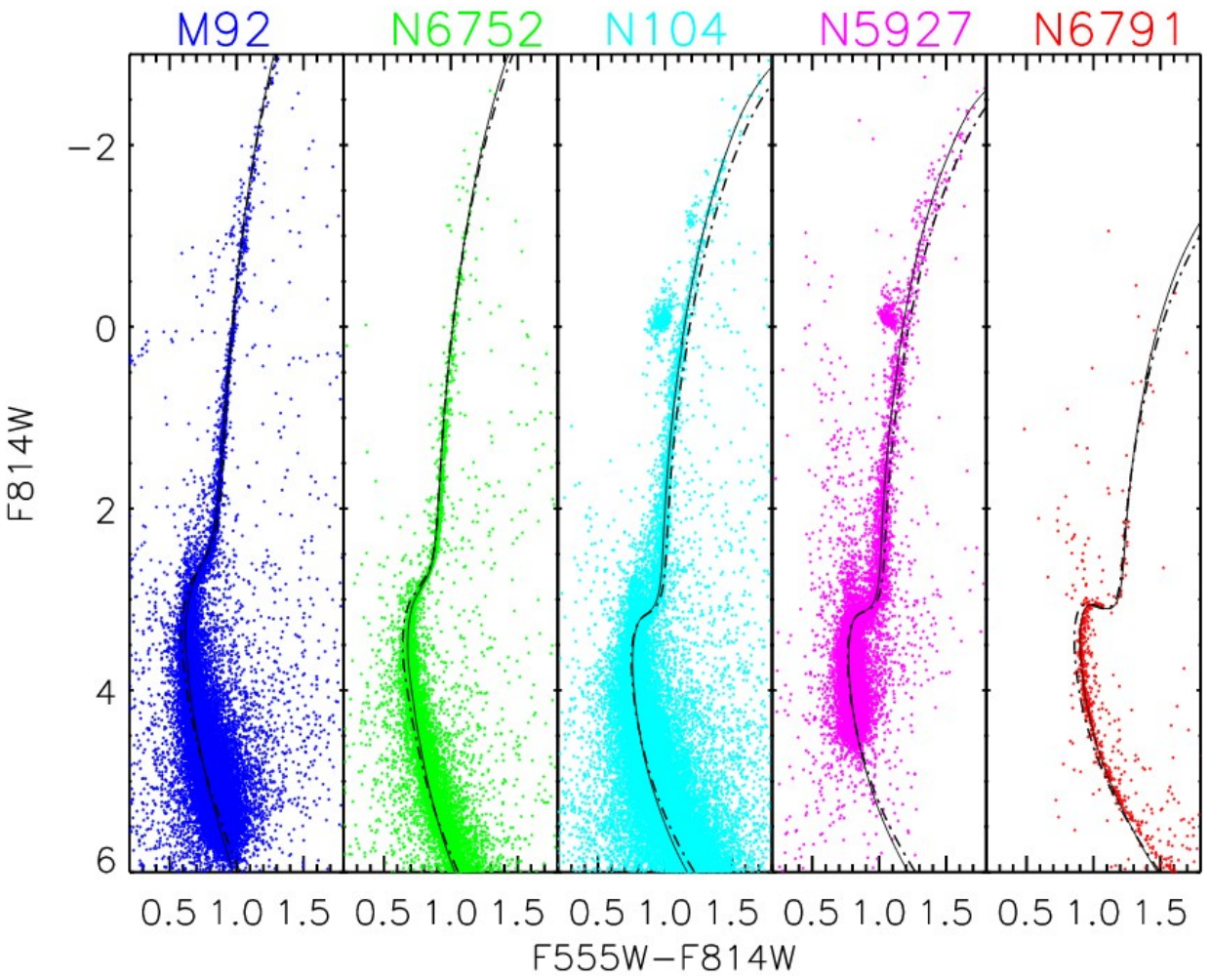
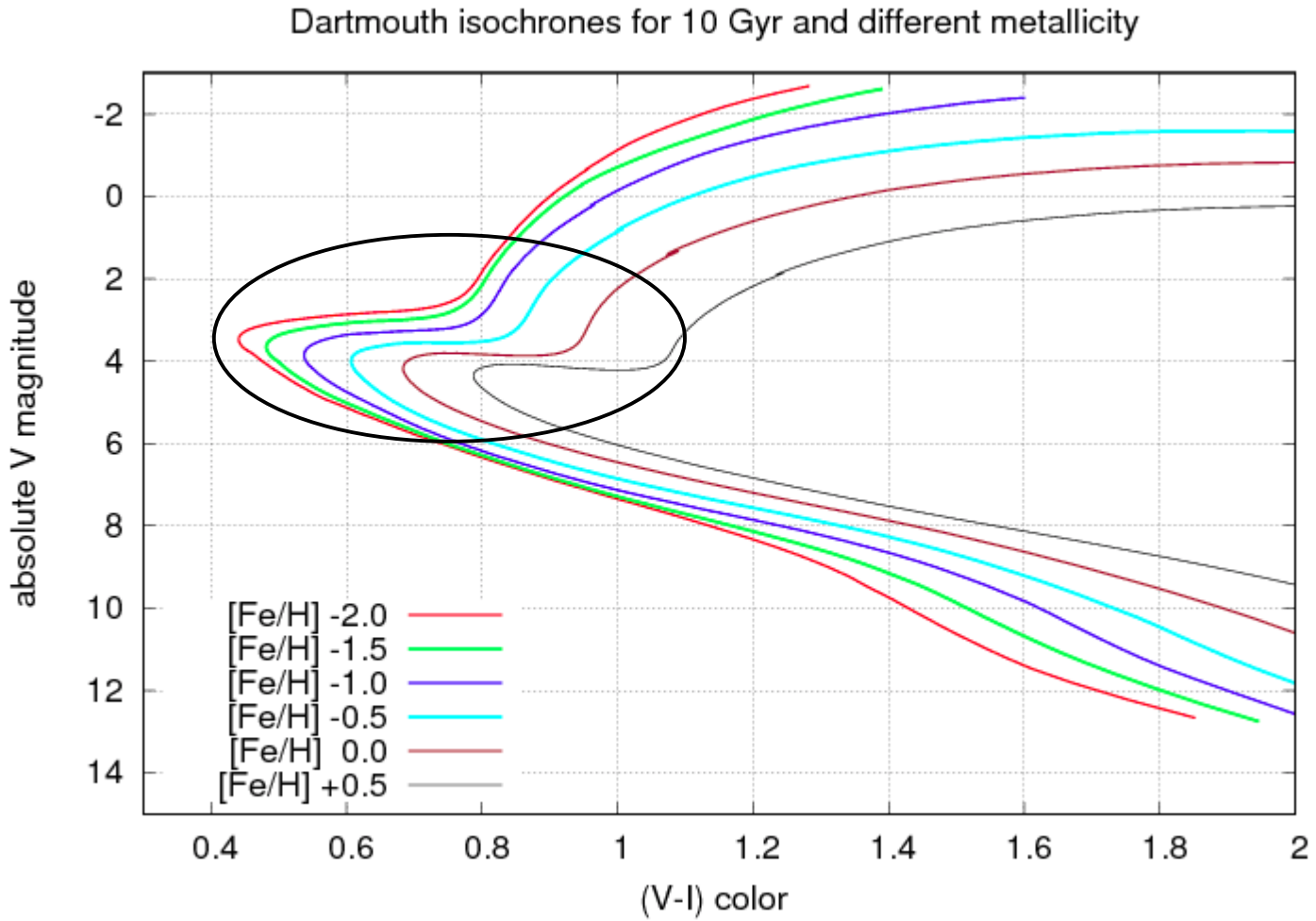


Ross et al., AJ 147, 4 (2014).

Aplicaciones y resultados anexos



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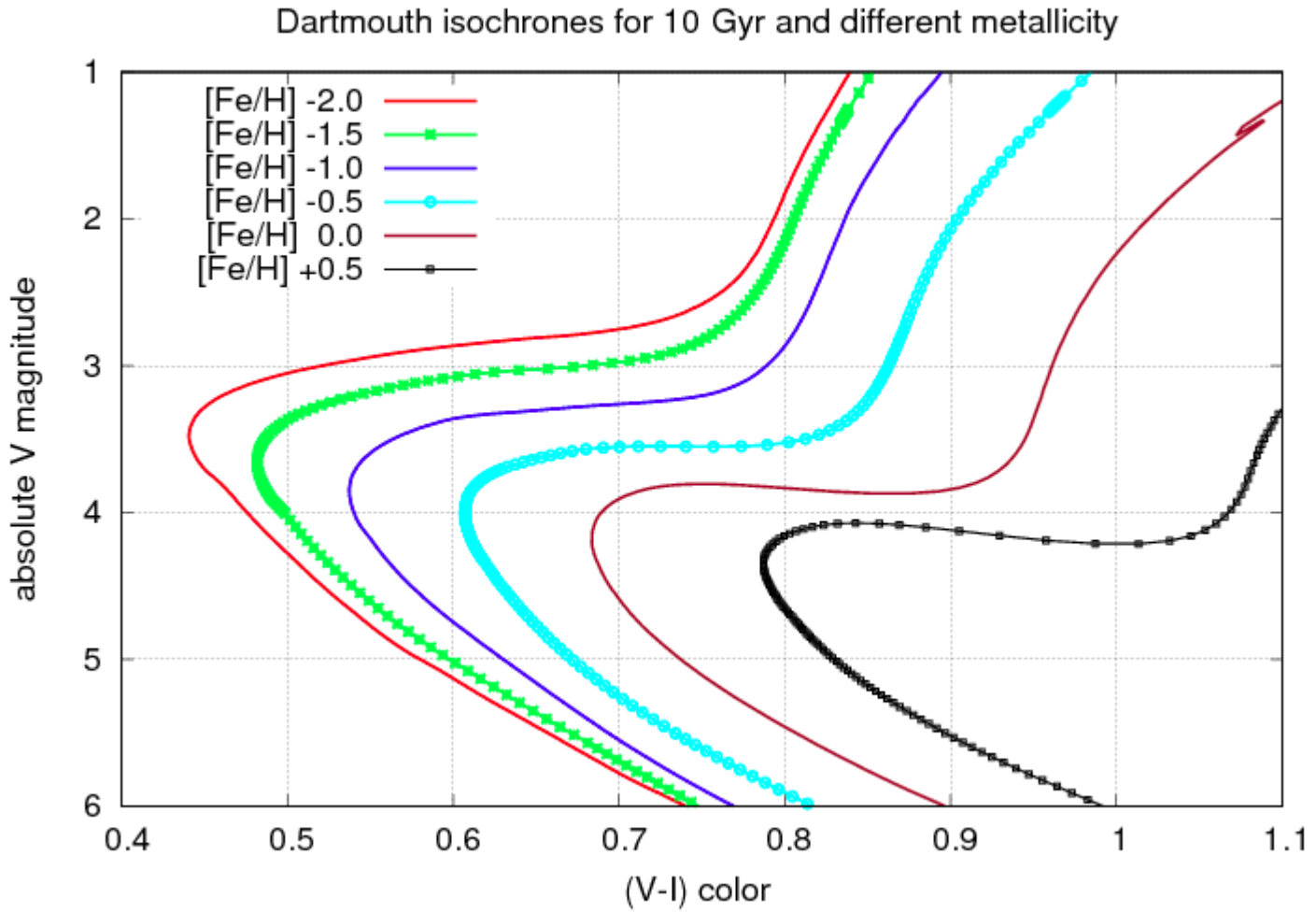

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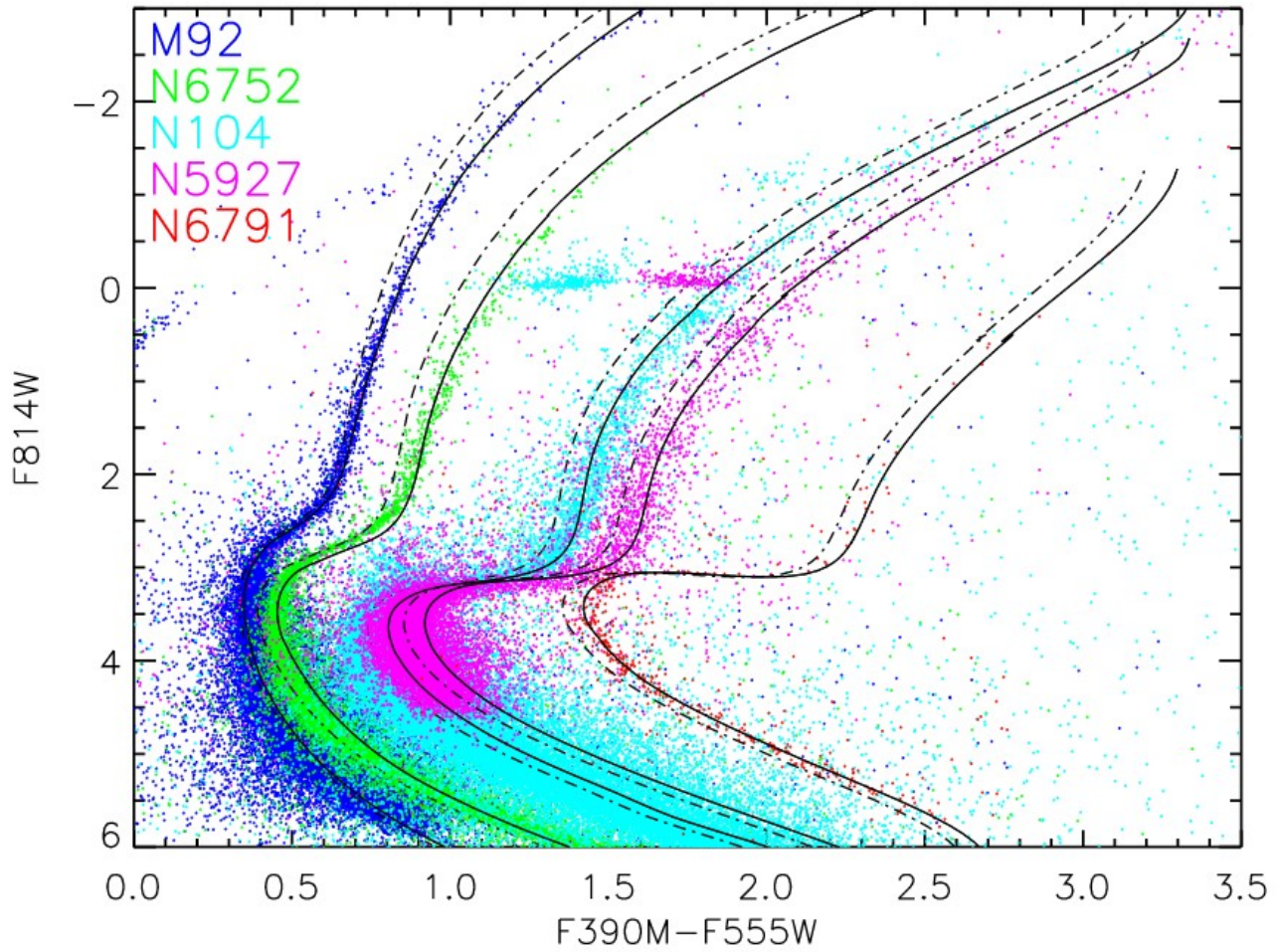

Ross et al., AJ 147, 4 (2014).

¡Ahora si!

¡Obras a las manos!