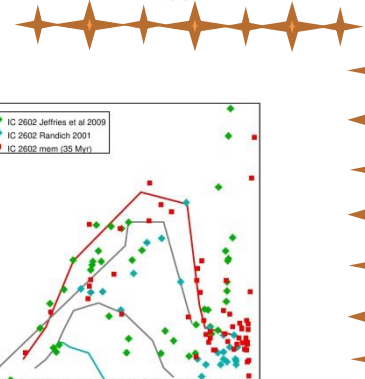
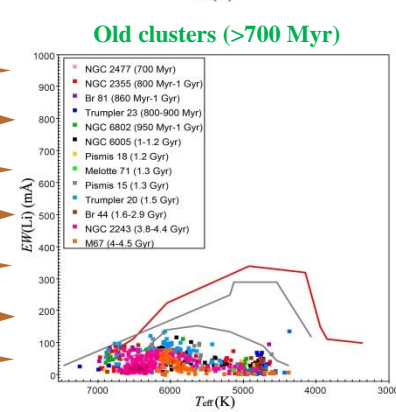
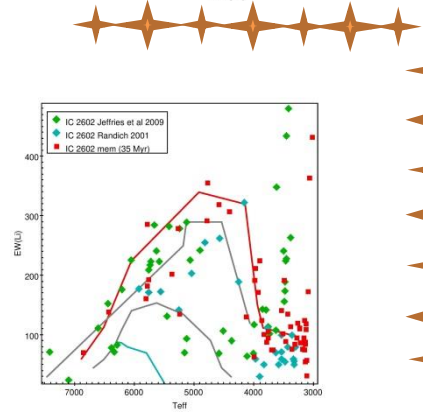
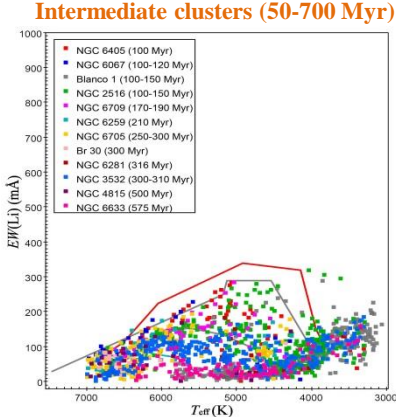
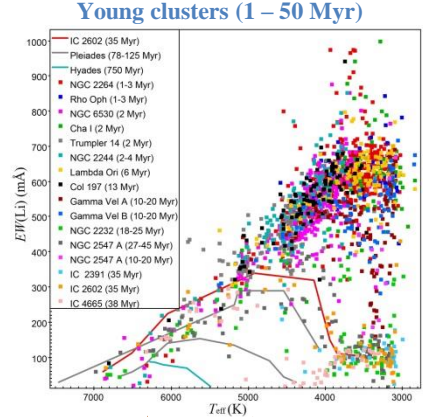
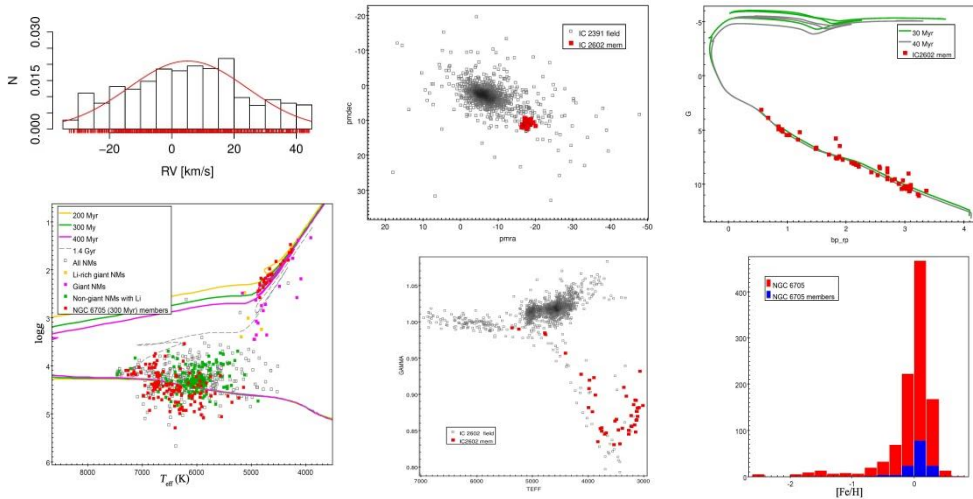


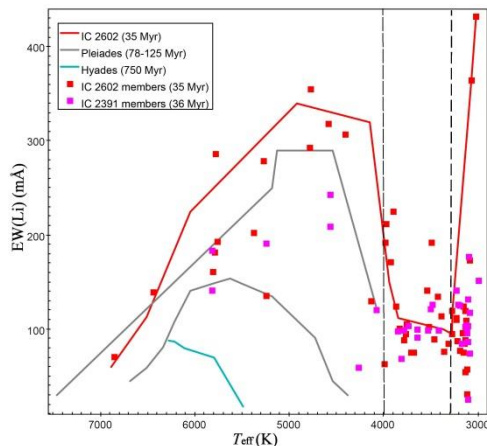
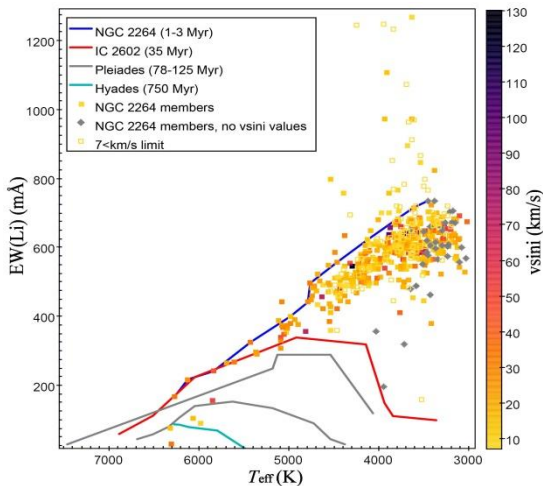
Calibrating the lithium-age relation and its dependence with rotation, activity and metallicity using open clusters and associations

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- ❖ We study lithium abundances (Li I spectral line at 6708 Å) as an age indicator for pre- and main-sequence FGKM late-type stars. 41 open clusters (ages from 1-3 Myr to 5 Gyr) analysed using GES iDR6 and Gaia EDR3.
- ❖ Lists of candidate members with following selection criteria: *RVs*, *Gaia* astrometry (proper motions and parallaxes), gravity indicators (Kiel ($\log g$ vs T_{eff}) and γ index diagrams), [Fe/H] metallicity, and $EW(\text{Li})$ vs T_{eff} diagram.



Preliminary results: dependence with rotation, activity and metallicity. Li-age relation



❖ We study the influence of rotation, activity and metallicity in the lithium dispersion of the selected candidates, using the rotational velocities ($v \sin i$), chromospheric activity indicators ($EW(\text{H}\alpha)$) and $[\text{Fe}/\text{H}]$ metallicities provided by GES, as well as additional rotational periods (P_{rot}) from the literature, including Kepler and TESS measurements.

❖ We confirm the findings of former publications and observe that members with higher values of $EW(\text{Li})$ tend to be faster rotators and have higher levels of activity. We have additionally observed slight effects of $[\text{Fe}/\text{H}]$ metallicity in the Li depletion of coeval clusters for those which are metal-rich or metal-poor.

❖ All this allows us to calibrate a Li-age relation and create empirical lithium envelopes for key age ranges in our sample, which will allow us to estimate age ranges for GES field stars. We are also studying the lithium depletion boundary (LDB) for clusters in the 15-500 Myr range with the aid of models such as [Baraffe et al. 2015](#) (see vertical dashed lines in the IC 2602 diagram, bottom left).

