

The lithium-rotation connection in the M35 open cluster.

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Abstract

Lithium abundance is an age indicator for G and K stellar types since its surface abundance decreases over time for these spectral types. However, despite all the observational efforts made during the last 30 years, the role of rotation and stellar activity in this process is still unclear. Our purpose is to investigate how lithium depletion is affected by rotation in G and K stars of the M35 open cluster. We take advantage of three previous WIYN/HYDRA spectroscopic studies of Li in M35 G-K stellar types, which provide an initial sample of 251 dwarfs. In addition, we have also taken into account over 160 candidate members observed with the same instrument, collecting a final sample of nearly 400 stars. In order to distinguish between members and non members of the cluster, we have combined the membership probabilities published in 2015 as part of the DANCe program and the results provided by Clusterix 2.0, a Spanish Virtual Observatory tool. Finally, we have measured the LiI 6707.8 Å equivalent width for the M35 candidates added and we have crossed our sample with several photometric surveys to obtain rotational periods for the members of this cluster. The analysis carried out so far confirms that fast rotators of K spectral type tend to be Li-rich compared with slow rotators of similar effective temperature. This general trend follows the results already observed in the Pleiades for G and K dwarfs.

My poster is available at <https://zenodo.org/record/7041728#.Y20bhSbTX0o>