DP3 The Li overabundance of J37: diffusion or accretion?

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In September 2002 the discovery of a super Li-rich F-dwarf (J37) in NGC 6633, an iron poor analogue of the better studied Hyades and Praecepe open clusters, was announced. This, at the time, unique star was thought to be the smoking gun for the action of diffusion models which predict a narrow "Li-peak" at roughly the right temperature. However, with the recent discovery of similar stars in a number of open clusters of different ages, J37 may represent the first of a new class of star providing firm evidence of the accretion of planetesimals or other material from the circumstellar environment of new born stars.

Thanks to the specific predictions made about the behavior of Be abundances, (the most striking of which being we should see no Be in super-Li-rich dwarfs) the opposing diffusion/accretion predictions can be tested.

Using the UVES/UT2 combination we are measuring abundances in J37 for many chemical elements Fe, Mn, Ti etc., but most critically Beryllium.