

INTERNATIONAL PROJECT - LITHIUM IN MAGNETIC Cp STARS

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The lithium abundance attracts exceptional attention among numerous chemical anomalies of Ap stars. The reason is that large variations of atmospheric abundance of this element have been found among Ap stars, but the effect of the magnetic field on the only observable Li line (6708 Å) complicates the interpretation of observations. From Michaud's radiative diffusion theory one may expect this element to be underabundant, because most of it is ionized and it has a noble gas electronic configuration. It would then sink, as helium does. The observed lack of Li would confirm a pure diffusion scenario, while the presence or overabundance of Li would require a more sophisticated theory (or could indicate the presence of a blend with some unidentified lines of overabundant rare earth elements).

We propose to observe Li I 6708 at different well distributed rotational phases in four cool Ap stars and two standard stars (ι Peg and α CMi). The purpose is to obtain the lithium abundance at each phase, taking into account the effect of the magnetic field. Observations with high spectral resolution and high S/N ratio should help to solve the problem of lithium presence in CP stars, to evaluate its abundance, to understand the behavior of the lithium blend in the spectra of CP stars in relation to star's peculiarity and to investigate the magnetic field structure and rotation of CP stars.