

CP Stars , Diamagnetic Effects (DME) and Dielectronic Recombinations (DER)

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This contribution relates to the presence of two fundamental mechanisms relevant to the presence of diverse magnetic structures at certain stellar surfaces. Specifically, we discuss

1. The role of the Diamagnetic Effect (DME), operative on charged particles (ions and electrons). This effect is connected to diffusion processes, in chemical abundance modifications, as well as heat flows (spots) and stellar winds;
2. The importance of Dielectronic Recombinations (DER), playing a crucial role in affecting abundance patterns on stars with observed magnetic fields. This could be especially relevant to the observed large and diversified abundances of rare earth elements. These elements have a very large number of dielectronic energy levels, due to their electronic structure and complex spectra.

Finally, we apply the theory to Be stars. The sharp division between He rich versus He poor stars on the main sequence is a good test case.