

The origin and evolution of stellar magnetic fields

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Since the discovery of magnetic fields in Ap stars over sixty years ago, the study of chemically peculiar stars has closely followed the development of magnetohydrodynamics (MHD), which was itself in its infancy at that time. The main focus of theoretical studies has been in applying new results in MHD to find magnetic equilibria stars and examine their stability, using dispersion relation or energy methods. I review these results as well as summarising what we know about various MHD processes occurring during formation of Ap stars, during the relaxation to equilibrium on the ZAMS, and longer processes taking place throughout the lifetime of an Ap star. I conclude with a brief comparison of observation and theory and identify likely fruitful areas for research in the near future.