Ultra-weak magnetic field in hot stars

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Abstract

Magnetic fields play an important role in hot stars. About 7% of hot stars host a magnetic field with a dipolar magnetic field strength above 100 G. In these stars the magnetic field are thought to be of fossil origin. The configuration of the magnetic field is simple, often a dipole, and the magnetic field is stable. However, ultra-weak magnetic fields (less than 1 Gauss) were recently discovered in the normal A star Vega and in the Am star Sirius. Theory proposes to explain the dichotomy between the strong and ultra-weak magnetic fields with the stability of the magnetic field and predicts that ultra-weak fields exist in all hot stars that do not host a strong magnetic field. I will present the result of a search for ultra-weak magnetic fields in hot stars and the discovery of a new family of ulyra-weakly magnetic hot stars: the Am stars.

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