
Magnetic higher-mass stars in the early stages of their evolution

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Abstract

Over the past decade, significant investigations have been made through the use of spectropolarimetry to probe the surface magnetic field characteristics of young higher-mass ($M > 1.5 M_{\text{sun}}$) stars from pre-main sequence to zero-age main sequence evolutionary phases. The results of these observational campaigns suggest that these young massive stars host similar magnetic properties to their main sequence descendants - strong, stable, globally-ordered fields that are detected in approximately 10 percent of all stars. This strongly contrasts with lower-mass stars, where it is generally accepted that a solar-like dynamo is in operation that generates more complex, globally-weak fields that are ubiquitous among these stars. The consensus is magnetic fields in higher-mass stars are fossil remnants of a magnetic field present in the molecular cloud, or generated very early during stellar formation. In this talk I will review the spectropolarimetric observations of higher-mass stars and discuss how these observations have guided our current understanding of the magnetic characteristics of young higher-mass stars.

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