
The Solar-Stellar Connection

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Abstract

The Sun is the archetype of magnetic star. Its proximity and the wealth of very high accuracy observations that this has allowed us to gather over many decades have greatly helped us understanding how solar-like stars (e.g with a convective envelope) redistribute angular momentum and generate a cyclic magnetic field. However most models have been so fine tuned that when they are straightforwardly extended to other solar-like stars and are compared with the ever growing stellar magnetism and differential rotation observations the agreement is not as good as one could hope. In this review I will discuss based on theoretical considerations and multi-D MHD stellar models what can be considered as robust properties of solar-like star dynamics and magnetism and what is still speculative.

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