Project Details

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Topic: The Solar-Stellar Connection

Project Title:
Observational Constraints and Tests for Dynamos in Solar-like Stars

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Summary:
Data from other stars can help solar dynamo models, putting more

on constraints on the models, and then testing them over a wide

range of properties. A surprising amount of information can be

gleaned with careful analysis of a variety of stellar data.

Starting with existing databases and published values, and

later using data generated by other FST and the growing VSSO

database, we propose to: 1) Generate cycle periods, amplitudes,

secondary periods, rotational periods, surface differential

rotation, diffusivity and meridional flow estimates, identify

activity belts, and see how all these vary with mass and age.

2) Explore mass and age dependence of stars which may be in

magnetic grand minima, and improve Ca II HK calibration,

3) Determine how the rates of large flares and CMEs vary with

mass and age, and 4) explore new dynamo cycle proxies.

These will be generated from existing data and datasets

initially and sent to the dynamo modeling teams and the VSSO;

later improvements and additional constraints will be derived

from new data coming into the VSSO and from other sources. These

results will lay a crucial foundation for improving our physical

understanding of the dynamos of solar-type stars and how they

evolve in time.

Publication References:

no references