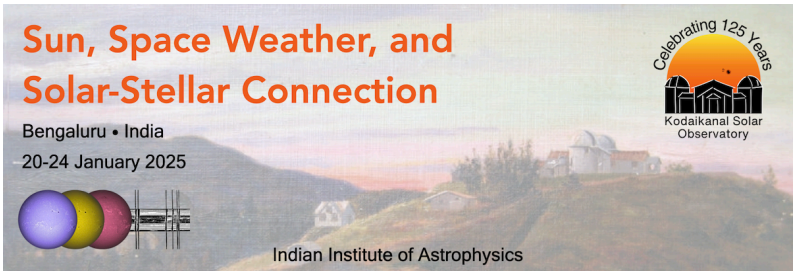

Contribution ID: **200** Type: **Invited review talk**

The Sun as a Prototype of Stellar Variability

Thursday, January 23, 2025 9:00 AM (25 minutes)

The Sun is variable on timescales ranging from minutes to millenia. Its variability has been shown to be dominantly caused dominantly by the solar magnetic field, with contributions by granular convection and oscillations. Until a decade ago, the known variable stars were distinctly different from the Sun. Their variability was caused by large-scale pulsations, binarity, or, for the most highly active cool stars, by magnetic features. Only stars showing large amplitude brightness fluctuations were detected as variable. Moderately active Sun-like stars were considered to be constant as their variability was hidden in the noise of most stellar observations. Only thanks to the advent of space missions doing highly sensitive photometry (mainly aimed at detecting exoplanets via planetary transits) have other sun-like stars been found to be variable in ways similar to the Sun. Whereas the causes of solar variability have been identified and are reasonably well understood, for stars, we are still at the start of the journey leading to a good understanding. Here the Sun serves as a prototype and guide, helping to interpret and understand the observed variability of cool stars. Stellar observations in turn also give new insights into the possible behavior of the Sun, particularly on timescales that are longer than those for which we have good solar data.

Contribution Type

Invited talk

Theme

Solar - Stellar Connections

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