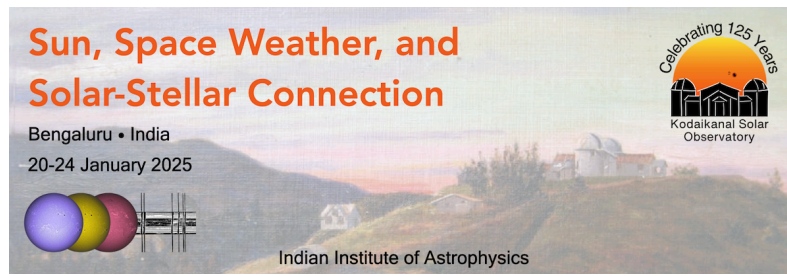


Sun, Space Weather, and Solar-Stellar Connection



Contribution ID: 9

Type: **Invited talk**

Small-Scale Swirls in the Solar Atmosphere

Tuesday, January 21, 2025 12:40 PM (20 minutes)

The solar atmosphere is populated by ubiquitous swirling structures, believed to play a crucial role in exciting various magnetohydrodynamic waves, pulses, as well as spicules. However, their small scale and short lifespan have posed significant challenges to automated detection, hindering comprehensive studies of their statistical and collective behavior. This talk summarizes recent advancements in the automated detection of solar atmospheric swirls, highlighting their role in exciting Alfvén pulses channeling energy to the upper solar atmosphere and exploring the spatial and temporal relationship between swirls and photospheric magnetic concentrations. Furthermore, our analysis reveals periodicities in swirl parameters ranging from 3 to 8 minutes, remarkably coinciding with the dominant period of the global p-mode spectrum. This suggests a potential link between global p-modes and the triggering of both photospheric and chromospheric swirls.

Contribution Type

Theme

Solar Magnetism in High-Resolution

Primary author: LIU, Jiajia (University of Science and Technology of China)

Presenter: LIU, Jiajia (University of Science and Technology of China)

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