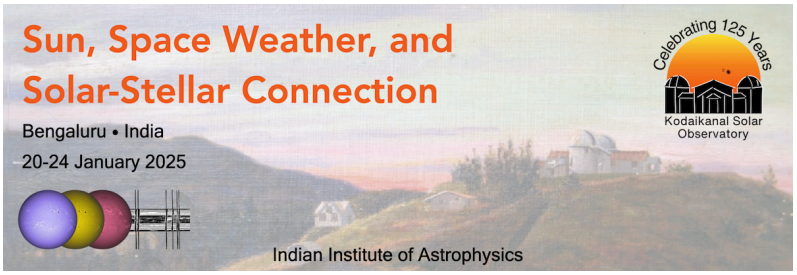

Contribution ID: **167** Type: **Invited talk**

The Properties of Propagating Compressive Waves in a Multithermal Coronal Loop

Tuesday, January 21, 2025 3:05 PM (20 minutes)

Observations often suggest that the solar coronal loops are multi-stranded and multi-thermal at the current instrument resolution. The goal of this work is to study the effect of this multi-strandedness on the propagation and damping of compressive slow magnetoacoustic waves. We employ an ideal 3D MHD numerical model to achieve this objective. The simulation results are forward modelled to generate synthetic images, which reveal that the observed propagation speeds are dependent on the temperature response of the filter used. Furthermore, we find that the slow waves are damped despite the absence of any dissipation mechanism in our model. This is because of the phase differences in their propagation across different strands. We call this the Multithermal Apparent Damping (MAD). Our results indicate that MAD is as effective as thermal conduction, especially, for the short period waves.

Contribution Type

Theme

Solar Magnetism in High-Resolution

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Session Classification: Waves in the Solar Atmosphere