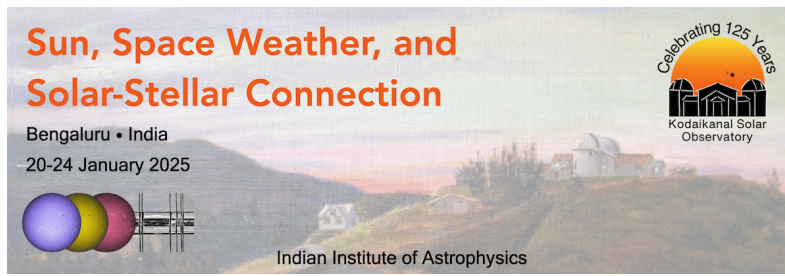


Sun, Space Weather, and Solar-Stellar Connection



Contribution ID: 172

Type: **Invited review talk**

MHD Waves in the Solar Atmosphere: Recent Advances from High-resolution Observations

Tuesday, January 21, 2025 2:30 PM (25 minutes)

A new era of high-resolution solar observations, driven by advancements in ground-based, balloon-borne, and space-based facilities (e.g., SST, DKIST, ALMA, SUNRISE, and Solar Orbiter, among others), has revolutionised our understanding of magnetohydrodynamic (MHD) waves in the solar atmosphere in recent years. These cutting-edge facilities provide unprecedented high-resolution observations, enabling the study of MHD wave phenomena in intricate detail, and revealing their diverse manifestations and crucial role in energy transport and heating. This review talk will explore the latest observational findings, highlighting the diverse nature of MHD waves. A key challenge in this field is disentangling the various MHD wave modes superimposed on each other within the same magnetic structures, a complex task due to their overlapping signatures in observational data. This talk will emphasise how the combination of advanced instrumentation, multi-wavelength observations, and sophisticated analysis techniques is crucial for the correct identification and interpretation of these different wave modes. We will discuss the implications of these observations for our understanding of chromospheric and coronal heating, providing new insights into the overall dynamics of the solar atmosphere.

Contribution Type

Theme

Solar Magnetism in High-Resolution

Primary author: JAFARZADEH, Shahin (Queen's University Belfast, UK/Max Planck Institute for Solar System Research, Germany)

Presenter: JAFARZADEH, Shahin (Queen's University Belfast, UK/Max Planck Institute for Solar System Research, Germany)

Session Classification: Waves in the Solar Atmosphere