

Dynamical response of 3D spicular waveguides to the magnetohydrodynamical wave-mode(s)

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Spicules play an important role in the transfer of mass and mechanical energy through the Interface Region. This transport of energy is in the form of magnetohydrodynamical (MHD) waves and is manifested in the dynamical behavior of spicular waveguides. The transverse, torsional and field-aligned motions of spicules have previously been observed in imaging-spectroscopy and analyzed separately for wave-mode identification. Here, we have combined the line-of-sight (LOS) and plane-of-sky (POS) kinematic components, using the high spatial/temporal resolution H α imaging-spectroscopy data from the CRisp Imaging SpectroPolarimeter (CRISP) based at the Swedish Solar Telescope (SST) to achieve a better understanding of these motions as a whole. Coupled evolution of LOS and POS velocity components, along with intensity variations indicate presence of both compressible and incompressible wave-modes in spicular structures. The talk will emphasise the combined LOS and POS dynamics in fine temporal and spatial scale evolution of resultant 3D components, but also on more precise interpretation of wave-mode(s) embedded in the observed waveguides.