

## **Determining Prominence Magnetic Field through Prominence Seismology Using Hinode SOT data**

M24c

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The SOT on the Hinode satellite has allowed long duration timeseries prominence observations in the seeing free environment of space. These observations provide a valuable tool analyse the structure and dynamics of quiescent prominences. Using the high-time cadence, high-spatial resolution observations in the H- $\alpha$  spectral line, the oscillations of quiescent prominence threads have been analysed. The oscillation of threads is determined by using slits to see the temporal evolution of the slit movement, then fitting sine curves to the observed thread oscillations, the amplitude, period and propagation velocity of the waves are determined. The observations show both shorter period ( $\sim 300$ s) and longer period oscillations ( $\sim 1000$ s). By identifying the wave mode it is possible to perform prominence seismology on these results. This yields the magnetic field strength of the prominence as well as information on the temporal variation on the temperature of the prominence material. The implication of these results for prominence theory are discussed.