M36a **A statistical study of transverse waves in a quiescent prominence**

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The launch of the Hinode satellite has allowed for seeing-free observations at high-resolution and high-cadence making it ideal to study the dynamics of quiescent prominences. In recent years it has become clear that quiescent prominences support small-amplitude transverse oscillations. Until now, observation and analysis of these oscillations in prominences has generally been restricted to a few events per data time-series. Therefore, the typical parameters of the transverse waves, i.e., period, displacement amplitude, velocity amplitude, and their distributions, are far from understood. We remedy this by providing a statistical study of transverse oscillations in vertical prominence threads. A quiescent prominence is observed on the 2007-08-08 in H-α with SOT of the Hinode satellite. Over a three-hour period of observations it was possible to measure the properties of 3436 waves, finding periods from 50-6000 s with typical velocity amplitudes ranging between 0.2-12 $\mathrm{km\,s^{-1}}$. Importantly, the large number of observed waves allows for the derivation of the velocity power spectrum for the transverse waves. The derived power spectra demonstrate good agreement with the power spectra determined for transverse waves in chromospheric fibrils. Significantly, the frequency dependence of the velocity power is consistent with the velocity power spectra generated from observations of the horizontal motions of magnetic elements in the photosphere. This provides the first strong piece of evidence that the prominence transverse waves are driven by photospheric motions.