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Slow coronal loop oscillation in multiple spectral lines observed by Hinode/EIS

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Abstract. We analyse an observation of a 5 minute quasi-periodic oscillation detected in the coronal line FeXII at 195 Å, near the footpoint of a coronal loop in Hinode/EIS data on 08 Feb 2007. The same oscillation is detected simultaneously in two other coronal lines, FeXIII at 204 Å and CaXVII at 192 Å. The oscillation is observed for a full 2 periods in both Doppler shift and intensity. We use Fourier and wavelet analysis to determine the period of the oscillation. We use simple models of the oscillation and determine the phase between the Doppler shift and intensity time series. We determine the period of oscillation to be $P_V = 314 \pm 83$ s in Doppler shift and $P_I = 344 \pm 61$ s in intensity. We observe negligible phase shift between Doppler and intensity time series. This is strong evidence for the existence of a propagating slow magneto-acoustic MHD mode. We detect intensity oscillations in three spectral lines with a wide range of temperatures. This suggests a structure of multi-threaded, multi-thermal loops.