M34a On Reconnection in Quiescent Prominences

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Hinode SOT observations of quiescent prominences have revealed flows on a previously unseen small scale. These flows can be attributed to ideal MHD instabilities (like the Rayleigh-Taylor instability) or reconnection events (like knots and plasmoid ejections). These features can be expected to be accompanied by changes in the magnetic structure of the prominence, most probably as a the observed features are a consequence of or can drive reconnection inside the prominence.

Using the results from numerical simulations, we discuss reconnection inside a prominence model giving conditions for the reconnection to occur and the observational characteristics of the reconnection. Our simulations show (1) reconnection resulting from current sheets created by the Rayleigh-Taylor instability and (2) turbulent flows and secondary island formation as a result of the tearing instability. Finally, a discussion on how these small scale reconnections will alter the global structure of the prominence magnetic field will be given.