

## **Velocity vector, ionization degree, temperature of Hinode prominence fine structures**

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**Abstract.** Prominences have been successfully observed by Hinode in April 2007 exhibiting a strong dynamics of their fine structures (movie of SOT). The dynamics of a prominence is a challenge to understand the formation of cool plasma prominence embedded in the hot corona. Combining simultaneous observations obtained in Halpha with Hinode/SOT and the MSDP spectrograph operating in the Meudon solar tower velocity vectors have been derived.. The Doppler-shifts of bright threads are of the same order as the velocities measured perpendicular to the line-of-sight. This suggests that the vertical structures of the prominence could be not really vertical but a pile up of dips in magnetic field lines within a 3D perspective. MSDP allows use to calibrate Hinode Halpha data. Using these Ha data and XRT and TRACE data the hydrogen ionization degree has been determined around 0.5, the optical thickness in Halpha between 0.5 and 1.4. The Extreme Ultraviolet Imaging Spectrometer (EIS) on Hinode produced the images of the prominence in 11 selected lines with formation temperatures between  $\log(T) = 4.7$  and  $\log(T) = 6.1$ . We comment on the absorption, volume blocking, emission involved, for interpreting the different structures of the prominence in term of temperature.