

## **Theoretical and observational relations between plasma parameters and the radiation of the prominence**

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**Abstract.** On April 26, 2007 the quiescent prominence was observed during the coordinated campaign of prominence studies including SOT, XRT, and EIS on Hinode, MDI (Michelson Doppler Imager), EIT, SUMER, and CDS on SOHO, TRACE, and several ground-based observatories. This was the first Hinode-SUMER observing campaign. In this analysis we use the data obtained with Hinode/SOT, SOHO/SUMER and Multichannel Spectrograph MSDP (Meudon, France). The SUMER instrument provide us the UV spectra of several spectral lines along the 120 arcsec slit crossing the prominence. We used the following lines: L-beta, L-gamma, L-delta, L-epsilon, C III and S VI. Using these spectra we calculated the integrated intensities along the slit for all these lines. We also calculated the integrated intensity of the H-alpha line from the spectroscopic ground-based MSDP observations for the same parts of the prominence observed at the same time. These intensities were used to calibrate the Hinode/SOT data. Next, we analyzed the relations between different observed intensities in these lines and compared them with the values obtained from the theoretical calculations presented by Heinzel et al. (1994). We compared the observed and theoretical correlations and as a results we estimated the different physical parameters of the prominence plasma.