

## Chromospheric Spectroscopy at High Spatial Resolution

Ø. Langangen, M. Carlsson, L. Rouppe van der Voort, V. Hansteen  
*Institute of Theoretical Astrophysics, University of Oslo, Oslo, Norway*

B. De Pontieu  
*Lockheed Martin Solar and Astrophysics Lab, Palo Alto, CA, USA*

**Abstract.** In this summary we present spectrograms and images of the chromosphere obtained in a co-observation campaign with the SST and the DOT. The data are used to identify and measure the Doppler shifts of dynamic fibrils. Quantitative comparison with the results of (Hansteen et al. 2006) requires compensation for several observational issues.

### 1. Observations

The data briefly presented here were obtained in a co-observation campaign using the Swedish 1-m Solar Telescope (SST) (Scharmer et al. 2003) and the Dutch Open Telescope (DOT) (Rutten et al. 2004). Spectrograms were obtained with the SST, its adaptive optics system, and the TRI-Port Polarimetric Echelle-Littrow (TRIPPEL) spectrograph. To put the spectrograms into context we obtained narrow band H-alpha images with the DOT. The wide band slit-jaw images obtained together with the spectrograms were used to co-align the spectrograms and the DOT images. The data presented here are from NOAA AR 10878 on May 04 2006 (08:22:03-09:00:48 UT), see Fig. 1.

### 2. Dynamic Fibrils

This data set is used to identify dynamic fibrils (DFs), see Fig. 2. We identify a DF when a co-spatial signature is seen in both the SST spectrogram and in the narrow band DOT image. In this way we identify 32 DFs. The DF velocities are quite successfully fitted with first-order polynomials, see the righthand panels in Fig. 2. This gives us a deceleration of  $85 \pm 25$  m/s<sup>2</sup>, a maximum velocity of  $10.8 \pm 4.4$  km/s and a lifetime of  $209 \pm 39$  seconds. None of these results were corrected for line-of-sight projection effects. This is one of the reasons why these results are lower than what was reported by (Hansteen et al. 2006). Furthermore, the fact that we only observe along a one-dimensional slit can result in lower lifetimes and lower maximum velocities. Atmospheric seeing can also result in lower velocities and decelerations. A more thorough analysis of these effects will be given in a paper to be submitted to the ApJ.

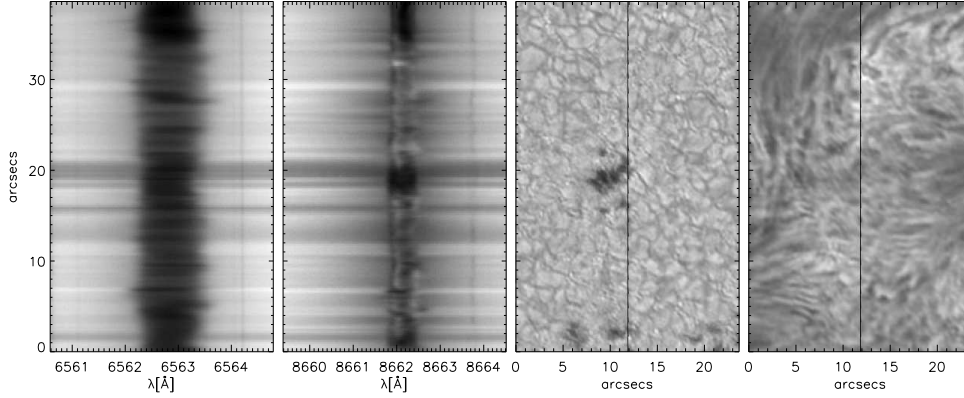


Figure 1. The aligned spectrograms and DOT images. This unique data set enables identification of chromospheric features such as dynamic fibrils.

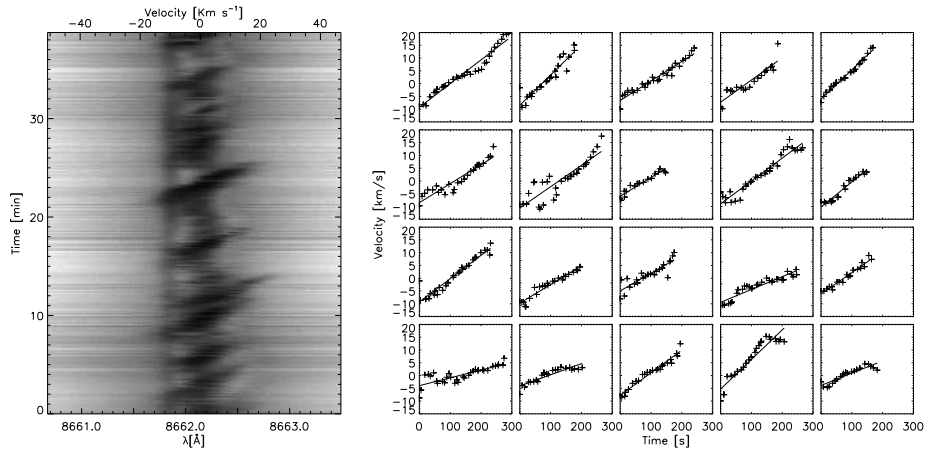


Figure 2. The lefthand panel shows the time evolution of one super-pixel (triple-binned pixel,  $0''.12$ ) in the Ca II 8662 Å line. Several DFs are seen as dark components moving across the spectral line. The 20 panels to the right show some examples of DF velocities and how well they are approximated with linear polynomials.

## References

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