## M10b Simultaneous 2-D Spatial Spectra of the Sun Using a Microlens-Array Spectrograph

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Simultaneous spatial spectra of extended solar structures, at a high spatial resolution and temporal cadence is important to track and understand the physics of dynamically evolutionary phenomena. Replacing the slit of a conventional spectrograph with a micro-lens array help to capture simultaneous 2-D spatial spectra using a large format CCD camera (Suematsu et al., ASJ 1999 spring). This technique is proved to be applicable to almost any existing telescope-spectrograph combinations, if a spectral dispersion is not so large.

At the Richard B. Dunn Solar Telescope, National Solar Observatory/Sacramento Peak, we put a micro-lens array (0.6 mm pitch, 50 $\times$ 50 square array lens-lets), an auxilialy enlarger and demagnifier optics into a horizontal spectrograph to observe solar structures with a spatial sampling of 0.24 arcseconds in H$\alpha$ spectral line. The spectral sampling was 0.093 Å/pixel over a 10 Å bandwidth. The field-of-view was, however, limited to about 12 $\times$ 12 arcseconds square, using a 2k $\times$ 2k CCD. A correlation tracker was very helpful to stabilize image jitter and track a small target observation region. We have also explored the microlens-array spectrograph with a polarization analyzer to observe magnetic spectral lines such as Fe I 6301.5 and Fe I 6302.5 Å for the study in variation of line-of-sight subarcsecond magnetic fields.

We present the detailed instrumental setup at NSO and some results of observations in small sunspot region, a small brigtening events, a filament region and a prominence on the limb.