

M18a Demonstration of the mapping of chromospheric magnetic fields by CLASP2.1

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The magnetic field measurement throughout the solar atmosphere is crucial to understand the energy transfer from the photosphere to the corona, as well as for its dissipation. However, there is an overwhelming lack of information on the magnetic field in upper chromosphere and the above where the magnetic pressure dominates the gas pressure ($\beta < 1$).

The sounding rocket experiment CLASP2 conducted the high-precision spectropolarimetric observation in near UV around 280 nm including the Mg II *h* & *k* and Mn I lines, and revealed the expanding flux tube in the plage region combined with the photospheric magnetic field measurement by Hinode (Ishikawa et al. 2021). In order to further demonstrate the diagnostic capability by the UV spectropolarimetry, our international CLASP2 team planned the re-flight of the CLASP2 with a modified observing program.

The CLASP2 payload, which had been recovered after the launch, was brought to the White Sands Missile Range (WSMR) and was re-flown on October 8 2021 after the 1.5-month test. During the 6 minute observing time, the spectrograph slit with the length of 200" scanned across an active region plage at 16 locations with the interval of 1.8", to enable us to get a two-dimensional map of the Stokes profiles. In this presentation, we will present the pre-flight test results at the WSMR and preliminary results from the CLASP2.1 flight.