

“A Sounding Rocket Experiment for the Chromospheric Lyman-Alpha Spectro-Polarimeter (CLASP)”

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A sounding-rocket experiment called the Chromospheric Lyman-Alpha Spectro-Polarimeter (CLASP) is presently under development to measure the linear polarization profiles caused by scattering processes and the Hanle effect in the hydrogen Lyman-alpha line (121.567nm). Accurate measurements of the linear polarization signals caused by scattering processes and the Hanle effect are essential to explore the strength and structures of weak magnetic fields. The primary target of future solar telescopes is to measure the weak magnetic field in outer solar atmospheres (from the chromosphere to the corona through the transition region). The hydrogen Lyman-alpha-line is one of the best lines for the diagnostics of magnetic fields in the outer solar atmospheres. CLASP is to be launched in 2015, and will provide, for the first time, the observations required for magnetic field measurements in the upper chromosphere and transition region. CLASP is designed to have a polarimetric sensitivity of 0.1% and a spectral resolution of 0.01nm for the Lyman-alpha line. CLASP will measure two orthogonal polarizations simultaneously for about 5-minute flight. Now the integration of flight mirrors and structures is in progress. In addition to our strategy to realize such a high-precision spectro-polarimetry in the UV, we will present a progress report on our pre-launch evaluation of optical and polarimetric performances of CLASP.