

Space Science Seminar
Tuesday, 2019 October 15
10:30 a.m.
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**The Chromospheric Layer Spectro-Polarimeter
(CLASP2) Sounding Rocket Mission: First
Results**

Dr. David Mckenzie / NASA/MSFC

Host: Dr. Alphonse Sterling/ST13

Critical to understanding and predicting solar activity is the measurement and modeling of solar magnetic fields, which can only be quantified via measurement of the slight polarization and/or de-polarization that magnetism imparts to the Sun's light. The CLASP2 mission successfully measured linear polarization of ultraviolet (UV) emission formed in the solar chromosphere, sensitive to a relatively wide range of magnetic fields through the Hanle and magneto-optical effects, and sensitive to anisotropic scattering of light from the Sun's atmosphere. CLASP2 also, and for the first time, measured the circular polarization in UV emission lines formed in the chromosphere, a vital diagnostic of magnetic field strength via the Zeeman effect. By measuring both the linear and circular polarizations, CLASP2 enables measurement of all 4 Stokes parameters in chromospheric UV emission for the first time. Coupled with sophisticated numerical modeling of scattering and magnetic effects, CLASP2 is a pathfinder for future missions to routinely determine vector magnetic field in a portion of the Sun's atmosphere that is crucial for determining the flow of energy into the corona and solar wind, and the magnetic forces that power solar flares.

In this presentation, I will show a first look at the CLASP2 data, summarizing the characteristics of the CLASP2 flight, the performance of the UV telescope and spectropolarimeter, and our preliminary findings.

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