



The Chromosphere and Prominence Magnetometer

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The Chromosphere and Prominence Magnetometer (ChroMag) is a synoptic instrument with the goal of quantifying the intertwined dynamics and magnetism of the solar chromosphere and in prominences through imaging spectro-polarimetry of the full solar disk in a synoptic fashion. The picture of chromospheric magnetism and dynamics is rapidly developing, and a pressing need exists for breakthrough observations of chromospheric vector magnetic field measurements at the true lower boundary of the heliospheric system. ChroMag will provide measurements that will enable scientists to study and better understand the energetics of the solar atmosphere, how prominences are formed, how energy is stored in the magnetic field structure of the atmosphere and how it is released during space weather events like flares and coronal mass ejections. An essential part of the ChroMag program is a commitment to develop and provide community access to the 'inversion' tools necessary to interpret the measurements and derive the magneto-hydrodynamic parameters of the plasma. Measurements of an instrument like ChroMag provide critical physical context for the Solar Dynamics Observatory (SDO) and Interface Region Imaging Spectrograph (IRIS) as well as ground-based observatories such as the future Advanced Technology Solar Telescope (ATST).

A prototype is currently under construction at the High Altitude Observatory of the National Center for Atmospheric Research in Boulder, CO, USA. The heart of the ChroMag instrument is an electro-optically tunable wide-fielded narrow-band birefringent six-stage Lyot filter with a built-in polarimeter.

We will present a progress update on the ChroMag design, and present results from the prototype instrument.