

Space Physics Seminar

Thursday, October 2, 2014

Probing the Origin of the Solar Wind: A Heliospheric Quest

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Abstract:

The Sun, our closest star, is far more complex and variable than it appears. Plasma in the high-temperature solar corona of the Sun travels into the heliosphere forming a rapid outflow of plasma that we call the solar wind. Winds are features of essentially all stars. The solar wind plays a fundamental role in shaping the interplanetary environment and its variability. Understanding its origin and forecasting its variability are fundamental requirements for predicting the effects of the Sun on the heliosphere. Traditionally the solar wind has been categorized into two components, fast and slow solar wind, which are strongly dependent on the solar activity cycle.

During the last two decades the combination of ground- and space-based instrumentation has helped us make progress toward identifying and characterizing the coronal source regions of the solar wind. I will review the results for the plasma properties of the fast and slow wind source regions and their evolution over the solar cycle, determined from the analysis of remote and in situ measurements. I will also discuss how these results can be used to potentially rule out some of the current theoretical ideas on how to heat the solar corona and accelerate the solar wind and provide important feedback on the next generation of space solar missions.

3:00 pm

Refreshments
CAS Room 500

3:30 pm

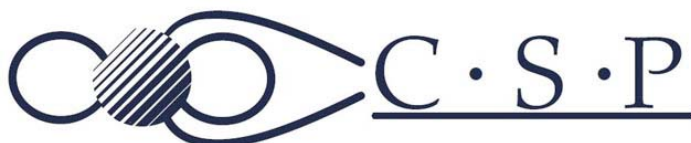
Seminar
CAS Room 502

Next Week

- Ed Deluca
Center for Astrophysics
- The Active Solar Atmosphere: Results from the First Year of IRIS Observations



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