



The Plasma and SupraThermal Ion Composition (PLASTIC) Instrument Onboard STEREO: First Results

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With the successful launch of the Solar Terrestrial Relations Observatory (STEREO) spacecraft on October 26, 2006, the mission entered the instrument commissioning and preliminary data collection phase. During the spacecraft phasing orbits to place the twin spacecraft into their heliocentric orbits, all scientific teams started with instrument operation and verification. The STEREO mission will provide a unique opportunity to investigate the 3-dimensional structure of the heliosphere, with particular focus on the origin, evolution, and propagation of Coronal Mass Ejections (CMEs). Utilizing the four STEREO instrument packages with *in situ* and remote sensing capabilities, the mission also seeks to determine the sites and mechanisms of energetic particle acceleration as well as develop a 3-D time-dependent understanding of the ambient solar wind properties. The two identical PLAsma and SupraThermal Ion Composition (PLASTIC) instruments onboard STEREO-A and STEREO-B will measure the bulk solar wind plasma parameters (density, velocity, temperature, temperature anisotropy, and alpha/proton ratio) and the distribution functions of major heavy solar wind ions in the energy per charge range 0.3-80 keV/e. This is achieved with a system that measures ion energy per charge E/q , ion velocity distribution \mathbf{v} , and ion energy E . As the primary solar wind plasma instruments, PLASTIC will provide *in situ* plasma mea-

surements at ~ 1 AU in order to understand processes low in the corona and in the inner heliosphere from two heliocentric longitudes that will increase by $\sim 45^\circ$ / year. During the commissioning phase, even prior to full routine operation, PLASTIC provided interesting preliminary results. In this presentation, we will give an overview of the initial solar wind observations. A companion poster by Galvin et al. will provide an overview of initial suprathermal and pickup ion observations.