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Calibration of the PLAsma and SupraThermal Ion Composition Instrument for STEREO

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PLASTIC (PLAsma and SupraThermal Ion Composition) is the primary instrument for solar wind ion measurement on board the STEREO (Solar Terrestrial Relations Observatory) mission which is to be launched in February 2006. STEREO consists of two similar spacecraft at two different heliocentric longitudes to investigate the 3-dimensional structure of the heliosphere and physical processes occurring in the corona utilizing in situ and remote sensing instrumentation. PLASTIC measures the solar wind plasma properties including the velocity distribution, mass and ionic charge states in the mass range from hydrogen to iron up to 80 keV/e. It consists of an entrance system with three apertures of different geometric factors and an electrostatic analyzer, a time-of-flight section and an electronic box. The design allows the same instrument to measure solar wind protons/alphas and heavy ions along with suprathermal ions. At the University of Bern, PLASTIC was recently tested and calibrated using ion beams at different energies and charge states to obtain all the important instrument parameters characterizing the ion optical properties. Furthermore the UV suppression properties of the instrument have been determined. In this presentation the PLASTIC instrument will be described, the calibration procedures outlined and discussed and the results will be presented.