Session 1

Multi-Application Solar Telescope (MAST) : Polarimeter and telescope polarization characterization

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Multi-Application Solar Telescope (MAST) is a 50 cm off-axis telescope installed on an island at Udaipur Solar Observatory (USO) and is operational since 2016. A narrow-band spectral imager constructed out of two tandem, Lithium niobate, voltage tunable Fabry-Perot etalons in two wavelengths, FeI 617.3 nm, and CaII 854.2 nm, is integrated with the telescope and is providing simultaneous photospheric and chromospheric spectral images. The images are currently being used for understanding the photospheric and chromospheric dynamics. Another important aim of the narrow-band imager is to measure the solar magnetic field, for which a polarimeter based on two liquid crystal variable retarders is installed. The characterization of the polarimeter along with the calibration unit is in progress. In order to obtain useful magnetic field measurements, it is important to remove the instrument polarization resulting from the primary and secondary reflections, the modeling and measurement of the instrumental polarization are being carried out. In this presentation, some of the results from MAST narrow-band imager will be presented, more specific details of the polarimeter, its calibration, and the efforts being undertaken to remove the telescope polarization will be presented.