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Prototype Spectro-Polarimeter for the India's National Large Solar Telescope

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India's National Large Solar Telescope (NLST) of two meter aperture size is proposed to be set up in Ladakh region of Himalayas at a height of around 4300 meters. A high resolution spectrograph along with a polarimeter is planned as one of the backend instruments for NLST. Prototype development of the NLST Spectro-Polarimeter (SP) is proposed to be designed and developed for usage at the back focal plane of the Multi-Application Solar Telescope (MAST) recently installed at the Udaipur Solar Observatory.

Design of the prototype SP is discussed in detail along with the scientific goals. The SP is designed to be operated in three wavelengths to observe photospheric and chromospheric layers of the solar atmosphere simultaneously. Vector magnetic fields will be calculated in these layers. High resolution of the designed SP will provide accurate estimates of velocities. Highly resolved polarized line profiles will allow us to obtain the height variation of vector magnetic fields when used along with suitable inversion codes (like SPINOR or SIR).