



Contribution ID: 34

Type: **not specified**

Full Stokes Polarimeter for Characterization of Retarders

Polarimeters are useful devices that help understand the polarization state of electromagnetic radiation. As such, they find applications in astronomy, medicine, crystallography, ellipsometry, remote sensing, and so on. Over the past few decades, IIA has built several polarimeters for astronomical observations. Continuing this activity, we have developed a full-stokes polarimeter that can be used to characterize waveplates -which will later be extended for astronomical observations. The setup consists of two parts: Polarization State Generator (PSG), which generates a known State of Polarization (SoP) for illuminating the sample, and Polarization State Analyser (PSA), which analyses the output SoP from the sample. The PSA thus characterizes the sample by measuring the deviation introduced by the sample in the PSG-generated SoP. The setup is designed such that the sample need not be rotated while characterizing. Also, the surface of the sample can be imaged onto a camera. This image is used to characterize the retardance at various points across the sample's surface. We developed the software to interface with the camera in Python. Using the wrapper developed in Cython, the Python software interacts with the API of the camera driver. In this talk, we present the construction of the polarimeter and demonstrate the characterization results of commercially available standard waveplates at various wavelengths.

Presentation type

Oral

Primary authors: DVS, Phanindra (Indian Institute of Astrophysics); ABDUL LATEEF, Syed; Dr K, Nagaraju (Indian Institute of Astrophysics)

Presenters: DVS, Phanindra (Indian Institute of Astrophysics); ABDUL LATEEF, Syed