Enhanced CASSI Snapshot Imager Using Dual Prism Dispersion

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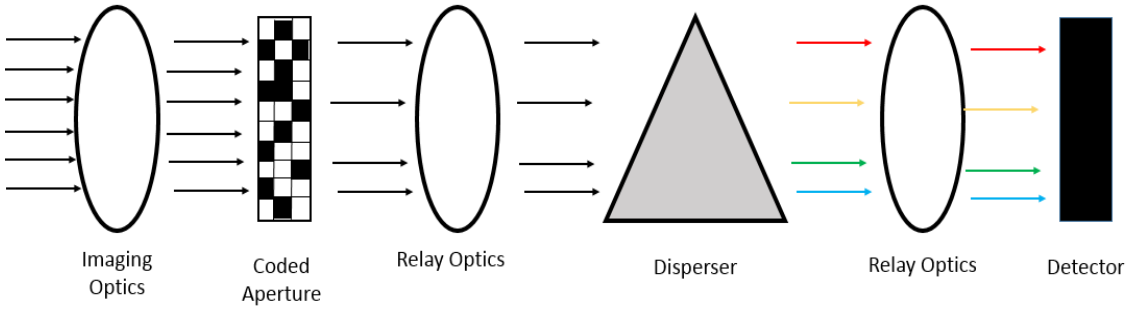
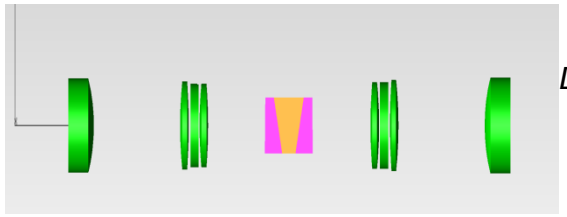
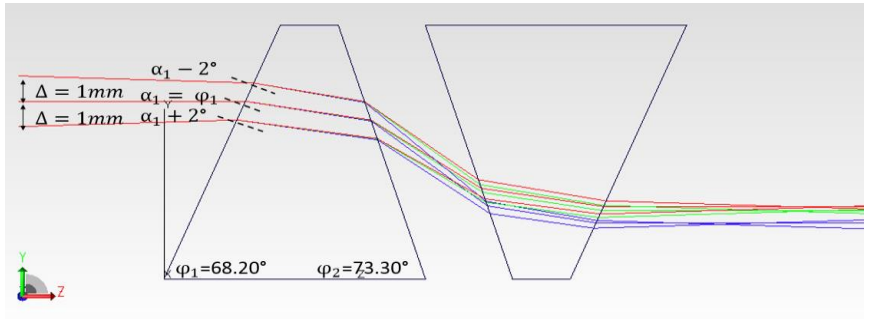


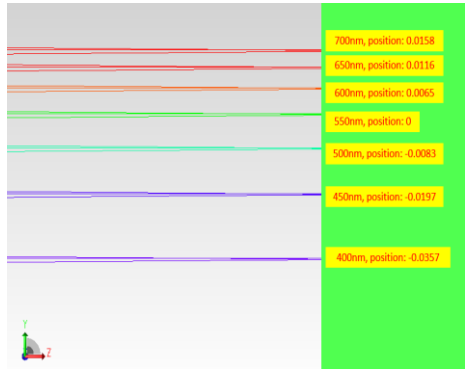
Single Prism System

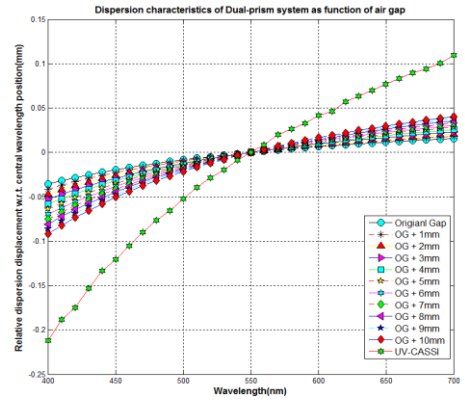


Double Amici Prism



Proposed Dual Identical Prisms





Dispersion Data

- A snapshot imaging system that is capable of acquiring the spectral and spatial information simultaneously.
- Coded Aperture Mask as spatial modulator: a mask of pinhole array with closed and open holes
- Dispersive Unit as spectral modulator: either single prism or double amici prism served for individual band separation along one direction.
- Other optics: imaging lens and relay lens to form the image on focus

- Utilise two identical prisms placed in parallel to make the incident angle and exit angle same
- Minimise axial shift on focal plane for multiple wavelengths
- Spectral information displacement is able to change when adjust the air gap between two prisms for a dynamic environment
- Potential applications in military target detection, agricultural monitoring, biomedical identification