



Spectroscopic Polarimeter

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Summary: A spectroscopic polarimeter that contains designs for filtering light for both a specific bandwidth and for selecting a single polarization state

Description: This invention is of plasmonic focusing structures that both filter light for a specific frequency bandwidth and select a single polarization state. The design is fabricated by etching or patterning grooves into a substrate with a centrally smooth area, laying down a thin layer of dielectric material, and then laying down a metal over the cavity. Specific geometric parameters depend on what wavelength is desired to be passed by the structure. The spectral bandwidth can be tuned to meet the needs of the application. It can be made to focus for both wavelength from the visible to deep infrared. The extinction ratio of the desired polarization the undesired can be as high as one million. Modifications to the structure can also yield circular polarization selectivity allowing for full Stokes polarization measurement.

Main Advantages of this Invention

- Demonstrated extinction ratios that are a factor of ten higher than current methods.
- Combines spectral and polarization filtering into a single structure; post processing allows for improved image quality

Potential Areas of Application

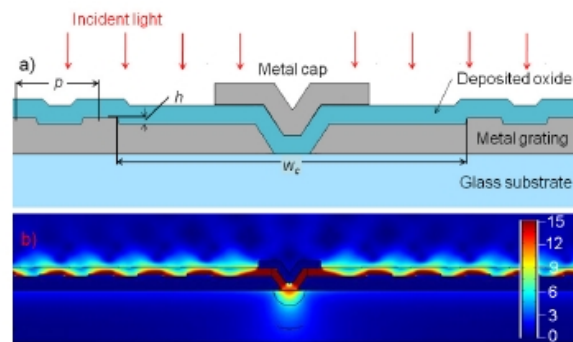
- CCD Cameras
- Detector arrays
- Biomedical imaging
- Polarimetric image reconstruction
- Surveillance

ID number: 10001

Publications: Peltzer et al. *Optics Express*, 2011, 19, 18072.

Intellectual Property Status: US utility patent pending (application #13/507,479)

Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.



Plasmonic micropolarizer structure and simulated time average power flow through aperture of the structure.

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