



Hybrid Dielectric/Surface Plasmon Polariton Waveguide

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Summary: A novel hybrid dielectric/Surface Plasmon Polariton waveguide design

Description: The invention provides a hybrid dielectric/Surface Plasmon Polariton (SPP) waveguide that can be used in either a single mode, single polarization waveguide, or in a multi-mode. When used as a single mode, the device allows for control of propagation and confinement. Gratings may be used for coupling light into and out of the modes or for use as mirrors in the mode. When used in a multi-mode, energy is effectively transferred back and forth between the dielectric waveguide and metal surface. This improves on standard SPP modes, yielding longer range propagation along with high intensity near the metal surface at decisive location. It can be made to function for wavelengths from the visible to far-infrared, and potentially even at longer wavelengths (limited by surface roughness).

Main Advantages of this Invention

- Efficiently couples light into the waveguide structure, lowering diffractive losses
- Overcomes the problem that as the field is concentrated, losses go up and propagation lengths go down.

Potential Areas of Application

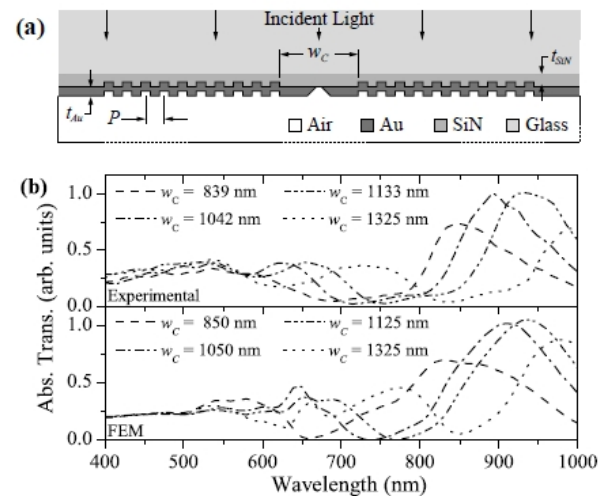
- CCD Cameras
- 3D imaging
- Electro-optic materials
- Optical modulators
- Telecommunications optic
- Bio-sensors

ID number: 8003

Intellectual Property Status: US 8,238,702

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



(a) Schematic of cross-section of structure geometry and (b) Experimental and FEM transmission spectrum.

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