

Abstract Details

Title: Simulation of Cobalt Based Fiber Optic Surface Plasmon Resonance Sensor

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Abstract: In these days, a large number of theoretical and experimental research investigations have been carried out to improve the performance of the surface plasmon resonance based fiber optic sensor. Now a days, some new types of fiber optic sensors such as micro and nano structured fiber sensors are attracting a number of researchers due to outstanding progress in the fields of surface plasmon resonance and photonic crystal fiber technology. In continuation to this, a surface plasmon resonance based fiber optic sensor with nanolayer of Cobalt metal coated on the core of the optical fiber utilizing Kretschmann's configuration is proposed and theoretically analyzed. The sensor's performance is taken into consideration, measuring the change in sensitivity according to the change in design parameters such as operating wavelength, sensing medium. The sensitivity of the sensor has been found to increase with increase in cobalt layer thickness.

Keywords: Optical fiber, cobalt, surface plasmon resonance, sensor.