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Temperature Effects on Thin film Based SPR-Sensor

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Abstract : In this paper, using the angle interrogation methods, we simulate the effect of temperature fluctuation on thin film based SPR-sensor. The sensor configuration is a three layer Krestchmann configuration consisting of glass prism, thin metallic layer, and bulk sensing layer. The temperature sensor uses RPS geometry of three interfaces where the refractive index of the layer adjacent to the environment is very sensitive to changes in the environmental temperature. The final results indicate that, as the temperature decreases, $?_{min}$ (resonance angle) shift to larger angles and increased in R_{min} .These results can be used in the development of chemical, biomedical sensors, is suggested

Keywords : surface plasmon resonance (SPR), thermo-optic effect, temperature sensor.