Abstract Template

Title: Geometrical impact on sensing based on localized surface plasmon resonance (LSPR) technique

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Abstract:

A comprehensive analysis has been reported, based on localized surface plasmon resonance phenomenon on responses with the change in probe geometry of optical fiber. Plasmonic responses of noble metal nanoparticles such as AuNPs and AgNPs have been examined for the detection of methanol exclusively by adopting D-type and tapered optical fiber probe. With increase in concentration of methanol, absorbance characteristics of the NPs changes, results in the change in effective refractive index of the medium. Consequently, the change in effective RI leads to alter the output responses of the proposed sensor. A comparative study has been presented with respective change in geometrical shape of the probes to detect methanol. The sensitivity in case of D-type probe for detection of methanol is found to be ~0.09644 mV/ppm with AuNPs and ~0.03038 mV/ppm with AgNPs. On the other hand, the sensitivity for AgNPs coated probe is found to be ~0.00389 mV/ppm and 0.00379 mV/ppm for AuNPs in case of tapered probe.

Biography:

Dr. Dimpi Paul received her M.Sc. and Ph.D degree in physics from Tezpur University. My current research interest is fiber-optic sensors and modelling of PBG structured fiber. Recently she has completed her Ph.D from Deptt. of physics, Tezpur University. I have published more than 9 papers in reputed journals along with 2 book chapters and two proceedings and has been serving as guest lecturer (GL) at NITAP. Presently I am working as guest faculty in GEC Assam India.

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