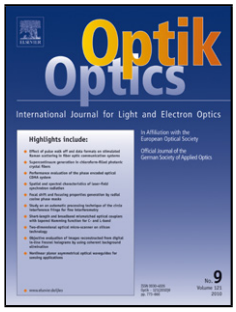

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Simulation of LSPR based fiber optic sensor utilizing layer of platinum nanoparticles

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Highlights

- Analysis of LSPR sensor with Pt nanoparticles is done.
- Sensitivity increases with increase in thickness of Pt nanoparticles layer.
- Sensitivity also increases as the particle size increases.
- Optimized layer thickness and particle size are 50 nm and 10 nm respectively.

Abstract

Analysis of localized surface plasmon resonance (LSPR) based fiber optic sensor using platinum (Pt) nanoparticles is carried out. For a fixed particle size of Pt nanoparticles, the sensitivity and figure of merit (FOM) increase with increase in thickness of Pt nanoparticles layer. Besides, sensitivity enlarges as the particle size increases from 5 nm to 10 nm and afterwards, it starts sinking with further increase in the particle size of Pt nanoparticles for all