

عنوان مقاله:

Highly Efficient Photonic Crystal based Refractive Index Sensor

محل انتشار:

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خلاصه مقاله:

In this article, a ۲D hole-type hexagonal lattice photonic crystal is utilized to detect refractive index changes in accordance with resonance wavelength shift for an optimized photonic crystal based circular shaped ring resonator. The presented structure has the ability to detect small refractive index changes in the range of $n=1\sim 1.06$ (applicable i.e. for identification of various carbohydrates) with the sensitivity of $S=100\text{nm}/\text{RIU}$ in the communication C-band. Two methods are considered here for the detection process and the results show good linearity for both methods in the operating range and an average quality-factor of $Q_{\text{avg}}\sim 700$ is achieved

کلمات کلیدی:

.Photonic crystal, Ring resonator, Refractive index sensor, PWE, FDTD

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