

عنوان مقاله:

High-Sensitivity Pressure Sensor Based on Two-Dimensional Photonic Crystal

محل انتشار:

سومین کنفرانس ملی فناوری در مهندسی برق و کامپیوتر (سال: 1397)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

In this paper, high sensitivity two-dimensional photonic crystal (2DPC) pressure sensor based on bus waveguide with a coupled ring resonator has been investigated in detail. Our proposed structure consists of the square array of square rods (Si) placed in a background of air. We use the plane wave expansion (PWE) numerical method to calculate the propagation modes and determine the band gap for the first four bands and TE polarization. The applying pressure between 0 to 10 GPa has been investigated and resonant wavelengths have been determined. The sensor is designed for 1450 nm–1600 nm wavelengths and as the inlet pressure increases, the resonant wavelengths are shifted linearly.

کلمات کلیدی:

Photonic crystal, Waveguide, Ring resonator, Optical pressure sensor, PWE, 2D Finite-Element method

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