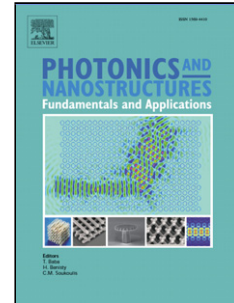


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Highlights

- A mid-infrared (IR) sensor based on slotted photonic crystal waveguides (SPCW) was designed.
- The effective sensitivity of the sensor is enhanced through engineering the input and output slot waveguide interfaces.
- The optical sensitivity of the proposed sensor is investigated by 3D-FDTD and 3D-PWE methods in both the spectral and spatial domains based on the refractive index variation of infiltrated liquids.
- The sensitivity of the designed SPCW sensor is more than 1150 (nm/RIU) with an insertion loss level of -0.3 dB.
- The designed SPCW structures are believed to be best suited to realize high sensitivity and miniature Mid-IR sensor devices.

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