

Slotted microcavity ring resonators for optical storage applications

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Abstract In this paper, slotted microcavity ring resonators based optical storage devices are proposed and analyzed by means of multiresolution time domain technique. The effect of the structure geometrical parameters on the coupling efficiency, normalized transmission spectra and quality factor has been thoroughly investigated and compared to that of the conventional no-slot microring resonator. The suggested slotted configurations increase the quality factor at a fixed gap size between the central ring and input/output waveguides. In addition, the desired compromise between the coupling efficiency and resonance effect inside the ring can be achieved by mere optimization of the slot geometrical characteristics.

Keywords Multiresolution time domain · Slotted microcavity ring resonators · Optical storage · Time domain methods

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