عنوان مقاله:

Quantum-Dot Semiconductor Optical Amplifier: Performance and Application for Optical Logic Gates

محل انتشار:

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نویسنده:

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خلاصه مقاله:

We proposed a novel structure of ultrafast all optical Feynman logic gate based on the cross-phase modulation that is principle nonlinear effect in a quantum dot semiconductor optical amplifier assisted with a Mach-Zehnder interferometer at the wavelength of ۱.۵۵ μm. To realize ultrafast mechanism, an active layer with a thickness of ۱.۷-μm, and the confinement factor of ۰.۷۵ and ۰.۷ respectively for both TE۰ and TM۰ modes, are provided. By solving the rate equations, a gain difference up to ۰.۱ dB has been obtained. The proposed structure has the potential application in advanced optical devices such as optical memristors.

کلمات کلیدی:

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