Title (en)

ALL-OPTICAL LOGIC GATES USING NONLINEAR ELEMENTS

Title (de)

DURCHWEG OPTISCHE LOGIKGATTER MIT NICHTLINEAREN ELEMENTEN

Title (fr)

PORTES LOGIQUES ENTIÈREMENT OPTIQUES UTILISANT DES ÉLÉMENTS NON LINÉAIRES

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Application

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Abstract (en)

[origin: WO2007094845A1] An all-optical logic gates comprises a nonlinear element such as an optical resonator configured to receive optical input signals, at least one of which is amplitude-modulated to include data. The nonlinear element is configured in relation to the carrier frequency of the optical input signals to perform a logic operation based on the resonant frequency of the nonlinear element in relation to the carrier frequency. Based on the optical input signals, the nonlinear element generates an optical output signal having a binary logic level. A combining medium can be used to combine the optical input signals for discrimination by the nonlinear element to generate the optical output signal. Various embodiments include all-optical AND, NOT, NAND, NOR, OR, XOR, and XNOR gates and memory latch.

IPC 8 full level

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