# design and simulation of all optical OR logic gate by photonic crystal to sake decrease power and optimized rate

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**Abstract: In this thesis, the logic gate OR of all optical based on a photonic crystal resonator is presented. For use in a wavelength of 1550 nm, the structure network constant is considered to be a=0.5943 µm. In order to standardize, at first logical levels are introduced in terms of input power P0. The output power of the OR gate in the single input mode is 0.85P0 and in the case of both inputs, it is equal to 1.8P0. The design speed is also 1.67 Tb/s. Other features of the structure are simple geometric shapes with an area of about 168 micrometers square, indicating that the proposed design is capable of being used in optical integrated circuits. key words: Photonic Crystal - Two-Dimensional Photonic Crystal Structures - Circular Resonator - Optical Logic Gate**

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