

A High Quality Factor Filter Based on Quasi- Periodic Photonic Structure

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Abstract : We report the design and characterization of ultra high quality factor filter based on one-dimensional photonic-crystal Thue-Morse sequence structure. The behavior of aperiodic array of photonic crystal structure is numerically investigated and we show that by changing the angle of incident wave, desired wavelengths could be tuned and a tunable filter is realized. Also it is shown that high quality factor filter be achieved in the telecommunication window around 1550 nm, with a device based on Thue-Morse structure. Simulation results show that the proposed structure has a quality factor more than 100000 and it is suitable for DWDM communication applications.

Keywords : Thue-Morse, filter, quality factor, photonic

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