

## 文献数

Deyasi, A., Biswas, P.

**Analytical computation of transmittivity of double-defected layer 1D photonic crystal for bandpass filter applications**

(2015) *IEEE International Conference on Computer Communication and Control, IC4 2015*, art. no. 7375650, .

**DOI:** 10.1109/IC4.2015.7375650

RCC Institute of Information Technology, Kolkata, India

**抄録 (Abstract)**

Transmittivity of one-dimensional defected photonic crystal is analytically computed for normal and oblique incidences of electromagnetic wave. Presence of defect is considered in both the layers of unit cell (GaN/Al<sub>x</sub>Ga<sub>1-x</sub>N), and result is compared with that obtained for ideal structure. Transfer matrix technique is used for computation purpose, and structural parameters are varied within practical limit. Following Adachi's model, refractive index of Al<sub>x</sub>Ga<sub>1-x</sub>N is considered as a function of mole fraction and operating wavelength. Numerical calculation reveals that appropriate choice of design parameters can tune the position of bandwidth along central wavelength. Comparative studies of TE and TM mode of incidences along with normal incidence are carried out for filter performance. Result shows that suitable introduction of defect along with variation of incident angle makes the structure as efficient bandpass filter by tailoring the width of passband at 1550 nm for the sole purpose of optical communication. © 2015 IEEE.

**著者キーワード**

Bandpass filter; Double-defected layer; One-dimensional photonic crystal; Polarization; Transfer matrix technique; Transmittivity

**文献タイプ:** Conference Paper

**情報源:** Scopus