MARDANIH. Characteristics of One Dimensional Photonic Crystal Sensor with Two Defect Rods. Supervised by HUSIN ALATAS and IRZAMAN.

Numerical simulations of electromagnetic wave propagation inside a one dimensional photonic crystal with two defect rods are presented. The simulations were carried out by applying Finite Difference Time Domain method to solve the corresponding Maxwell’s equations. It also use Perfectly Matched Layer as a boundary condition of computational domain. The result shows linear dependence of time average energy density with respect to the variation of second defect refractive index, which can be potentially used for refractive index sensing platform. On the other hand, a non-linear dependence of time average energy density is obtained by varying the radius of the second defect.

Keyword: Photonic Crystal, FDTD, PML, Optical Sensor