

The mechanism behind our biosensors operation stems from the analysis of surface waves in 1D photonic crystals given by Yeh and Yariv et al. (Appl. Phys. Lett. 32, 104 (1977)). They showed that surface waves can exist at the interface of a 1D photonic crystal and its bounding medium. The electric field of these surface waves takes the form

$$E(t, x, z) = E_k(x)$$