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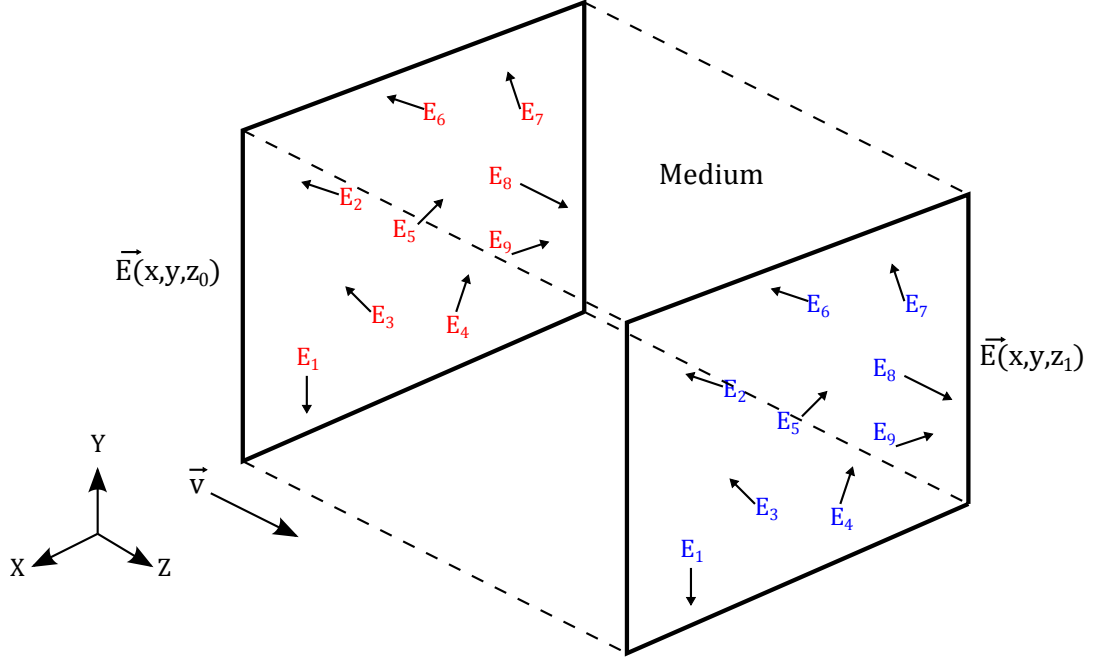
Sahand Noorizadeh

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COURSE TITLES

# 1 Problem Formulation

## 1.1 Understanding Phase Objects



$$U(x, y, z) = A(x, y)e^{-i[\omega t - \vec{k} \cdot \hat{n} d - \Phi(x, y)]} \quad (1)$$

For a thin phase object ( $d \ll 1$ ) with negligible effect on the amplitude, the above expression becomes:

$$U(x, y, z) = e^{-i\omega t} e^{i\Phi(x, y)} \quad (2)$$

The input phase pattern:

$$\Phi(x, y) = \cos(\psi_x x) + \cos(\psi_y y) \quad (3)$$