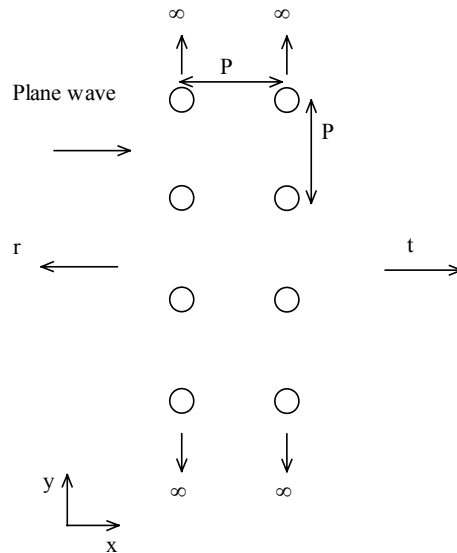


FDTD Project

Write an FDTD 3-D code which simulates the illumination by a TM plane wave of two parallel partially reflecting surfaces composed of metallic lines.



The metallic lines will be modeled by annulling the vertical component of the electric field at the position of the line ($E_z=0$). Use a Gaussian excitation. Choose $f_{\max}=c/P$ for the maximum frequency (c is the speed of light in free space). In z axis, consider PEC boundaries; in y axis consider PMC boundaries; In x axis, use Mur's ABC boundaries of first order. In z axis, three cells are enough for the meshing ($N_z=3$). To create the plane wave, consider a plane at the position x_0 , where in all the cells are placed z -directed current sources (J_z). Observation points should be at a distance from the surfaces greater than P . Carry out two simulations : one with the structure and the other without the simulation for the normalization.

Plot magnitudes of r and t as a function of frequency. Write a report.