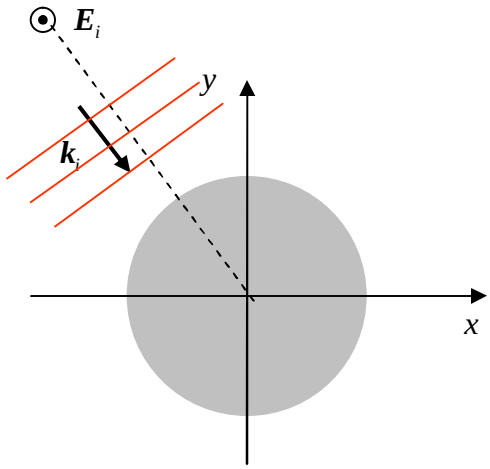
EM Scattering

Homework assignment 3

Problem 1:

Consider the problem of normal scattering from an infinitely long, perfectly conducting cylinder of radius a whose axis is along the z-axis. Assume the electric field of the incident wave to be polarized along z. Find the current on the surface of the cylinder by using the surface integral equation method. Calculate the scattered field using this current. The dielectric constant and permeability of the surrounding medium are ε_0, μ_0.



Problem 2:

Repeat the same problem, but now assume that it is the magnetic field of the incident wave which is polarized along z.