Exercise 11:

Determine the capacitance per unit-length of a parallel plate capacitor filled by a dielectric material with ε_r. The plates are separated by a distance d and the width of the plate is L.

a) Solve the problem analytically. (By neglecting fringing fields.)

b) Solve the problem by using a FD scheme. (By neglecting fringing fields.)

c) Solve the problem by using COMSOL. (By allowing fringing fields.)

d) Compare the results obtained from COMSOL with the analytical result as a function of ε_r =`linspace(1,100,20)`.

Exercise 12:

Determine the capacitance per unit length between two long, parallel, circular metallic wires. The radii of the wires are the same and equal to r and the separation between the centers of the wires is equal to d.

a) Solve the problem analytically.

b) Use the results obtained in part (a) to solve the problem by OpenMaX.

c) Solve the problem by using COMSOL.