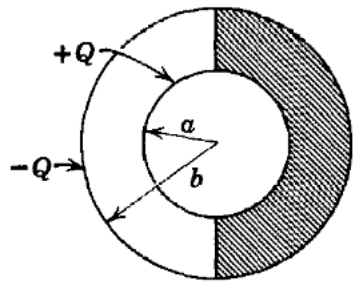
ELECTRODYNAMICS

PROBLEM SET 6

due Aprilth, before the exam

Dielectric fun Two concentric conducting spheres of radii a and b carry charges $\pm Q$. The empty space between them is half-filled by a hemispherical shell of dielectric (with dielectric constant ϵ). Find the electric field everywhere between the spheres.



Energy in dielectrics Read Griffths section 4.4.3 (third edition), Jackson section 4.7 (first edition) or your favorite textbook, dealing with the question of electrostatic energy in dielectrics. Then, calculate the force acting on a piece of dielectric when it is inserted inside a plane capacitor. *Note: this problem was in my qualify, back in the XX century and, yes, I got it right.)*

Make up your own problem

a) Make up problem.

b) Solve it.

Prizes will be given at the end of semester in the categories "Technical prowess" and "Creativity".