ELECTRODYNAMICS
PROBLEM SET 5
due March 22nd, before the exam

Several images

Two grounded conducting semi-infinite planes intersect at an angle of 60°. A single charge $+q$ is placed on a plane bissecting the angle between the planes at a distance d from the intersection. Find the potential between the two planes.

Force and torque on a dipole

Consider an ideal electric dipole (that means, the size of the charge distribution l goes to zero as the charges go to infinity keeping ql constant). What are the force and torque acting on the dipole as it is immersed on an external electric field that varies little on a distance scale l?

Interaction between dipole

Find the interaction energy between two electric dipoles. There is a δ function contribution when they are on top of each other.

Greens function in 2D

Find the two-dimensional Dirichlet Green's function for a circle.

Make 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".