ELECTRODYNAMICS

PROBLEM SET 7

due April 12th, before the class

Force and torque on a magnetic dipole

Calculate the force and torque acting on a magnetic dipole **m** immersed on a slowly varying magnetic field. As we did it for the electric dipole, "slowly varying" means that the change in the magnetic field is small within the size of the current distribution and you should keep only the first non-vanishing contribution on a expansion on the derivatives of the external field.

Images everywhere

Compute the magnetic field generated by a magnetic dipole $\mathbf{m} = m\hat{z}$ and a paramagnetic medium covering the region $z < 0$.

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".