Classical Electrodynamics (Physics course 503)

Problem set #6

Due date: 6pm, Apr 13 (Fri), 2018

Submission: HW box in physics building.

***1.*** A very long conducting pipe has a square cross section of its inside surface, with side D. Far from either end of the pipe is suspended a point charge located at the center of the square cross section. (a) Determine the electric potential at all points inside the pipe, perhaps the form of an infinite series. (b) Give the asymptotic expression for this potential for points far from the point charge. (c) Sketch some electric field lines in a region far from the point charge.

***2.*** Jackson 3.1

***3.*** Jackson 3.3

***4.*** Jackson 3.9