Physics 221B Spring 2017 Homework 16 Due Friday, February 3, 2017

Reading Assignment: Notes 29, Secs. 10–12, Notes 33, Secs. 1–13.

Please do the rest of Prob. 29.2 (parts (c) through (g)) and Prob. 33.1. Although I did not lecture on Hartree-Fock theory, Prob. 29.1 illustrates one of the main techniques of the theory, which is to make the variational parameter of a set of trial wave functions, not a set of discrete variables as in the examples considered so far, but an entire function. That function ends up satisfying a single-particle equation, which is a nonlinear version of the Schrödinger equation. In the δ -function model considered in this problem, the variational problem can be solved analytically.