

598SCM Fall 2004 Homework 2

Handed out Tuesday, September 14, 2004

Due Tuesday, September 28, 2004

There will be an "Office hour" session before the due date. Anyone is welcome to come to discuss the solutions to the problems. Time to be announced.

1. Exercise 6.3. Note: The Thomas-Fermi approximation provides an estimate of the correlation between electrons. It is an analytic approximation to the response of electrons to an external charge, and this can be considered the first step in understanding the response of electrons to one another.

2. Exercise 6.10.

The following 4 exercises are related and can be worked together.

3. Exercise 6.7.

4. Exercise 7.2

5. Exercise 7.3

6. Exercise 7.7. Even though you may know the answer already, use a general approach that allows you to invert the Schrodinger equation to find the potential given the wave function.

7. Exercise 10.3

8. Exercise 10.4

9. Exercise 10.13

10. Exercise 11.9.

Optional Problems

Good for understanding - Prof. Martin will be happy to discuss the solution of these problems

11. Exercise 7.9.

12. Exercise 8.1.

13. Exercise 9.1

14. Exercise 9.3

15. Exercise 10.14.

16. Exercise 11.11.