

Physics 113 Quantum Theory Seminar

Assignment 6 February 27, 2013

This week we apply the quantum formalism to 1-dimensional systems

Part 1: Readings

Zettili - Chapter 4

Boccio - Chapter 8(Pages 544-641 Sections 8.2-8.13). This material covers a lot of pages, but you have seen about half of it before (P14).

Lots of problems this week(some should be review)

Start this assignment as early as possible.

Part 2: Problems

1. Boccio 8.15.1 Delta function in a well
2. Boccio 8.15.2 Properties of the wave function
3. Boccio 8.15.5 Atomic Model
4. Boccio 8.15.7 $1/x$ potential
5. Boccio 8.15.10 A matrix element
6. Boccio 8.15.12 Instantaneous Force
7. Boccio 8.15.13 Coherent States
8. Boccio 8.15.16 Aharonov-Bohm experiment
9. Boccio 8.15.18 Eigenstates using Coherent States
10. Boccio 8.15.21 Another oscillator
11. Boccio 8.15.23 Neutrino Oscillations
12. Boccio 8.15.32 Deuteron Model

Midterm Problem #3 - Only consult with Professor

Boccio 8.15.26 What is the oscillator doing?(solution written up in LaTeX)