

Physics 113 Quantum Theory Seminar

Assignment 14 May 01, 2013

This week we study Scattering Theory and Measurement Ideas.

Part 1: Readings

Zettili - Chapter 11 Pages 617-639

Boccio - Chapter 13(Section 11.1 Pages 1051-1092)

PRESENTATIONS: Boccio - Chapter 16

Part 2: Problems

1. Z11-06 - Scattering from exponential potential(Born Approximation)
2. Boccio - 13.3.1 - S-Wave Phase Shift
3. Boccio - 13.3.2 - Scattering Slow Particles
4. Boccio - 13.3.4 - Ramsauer-Townsend Effect
5. Boccio - 13.3.5 - Scattering from a dipole(Born approximation)
6. Boccio - 15.6.4 - Measurement of a Spin-1/2 Particle
7. Boccio - 15.6.5 - Mixed States vs. Pure States and Interference
8. Boccio - 15.6.6 - Which-path information, Entanglement, and Decoherence
9. Section 16.1.1-3 - PRESENTATION: Hidden Variables and Bell's Inequalities - 1st Try
10. Section 16.4.1-2 - PRESENTATION: EPR and Bell - The Details
11. Section 16.5.7-8 - PRESENTATION: BCHSH Inequality
12. Section 16.9.1-2 - PRESENTATION: Bayesian Probability in QM

Final Problem #4 - Only consult with Professor

Boccio - 13.3.23 - Nucleus as sphere of charge - Scattering (solution written up in LaTeX)