

Assignment #1: The two-path experiment, and some easy linear algebra with complex numbers  
Due: beginning of class, Monday, Feb. 14.

1. Read chapter 1 of Albert.
2. Read the selection from Feynman's Lectures on Physics entitled "Quantum Behavior" (on Server). There are simple but deep parallels between the electron interference experiment Feynman describes and the two-path experiment discussed in class and in chapter 1 of Albert. Explain, clearly and in a page or so, what these parallels are; for the two-path experiment, refer to the depiction of it given in Handout #1. In particular, you should be able to say, clearly and precisely, what it is about Feynman's interference experiment that is analogous to the following feature of the two-path experiment: when either path is blocked, 50% of the particles that make it through the final magnet go up; but when neither path is blocked (or interfered with in any other way), all of the particles that make it through the final magnet go up.
3. Read chapters 1 and 2 of Hughes (on MIT Server), and do all eight problems in Hughes, pp. 37-8.

**Note:** Your discussion of Feynman will be worth 5 points; the problems from Hughes will be worth, collectively, 2 points.