

Introduction to Philosophy of Physics Homework 5

Quantum mechanics: introduction and non-locality

Due: 7 May 2018

1. Why does a color-and-hardness box not solve the problem that we cannot simultaneously determine an electron's color and its hardness?
2. Which path does a black electron take in the two-path experiment as displayed in Figure 1.4 in Albert? Explain.
3. Compare Principles C and E in Albert's presentation of the standard view of quantum mechanics. Are they compatible or not? Explain.
4. What are the basic assumptions of the EPR argument? What is its conclusion?
5. Explain why a local hidden-variables theory cannot account for both data sets in an EPR-Bohm experiment.
6. *Extra credit.* Discuss the consequences of Bell's theorem. What do you think follows from it, and why?