

Physics 201, Fall 2008

Problem Set 10

Due Wednesday, November 12.

Problems from Taylor, Zafiratos and Dubson:

1. Study Sections 6.1-6.10 and 7.1-7.7.
2. Solve two problems from the text related to solutions of the Schrödinger equation.

Additional Problem:

Following the logic that led to the Schrödinger equation, but using the relativistic relation between energy and momentum instead of $E = \mathbf{p}^2/2m$, derive the relativistic Schrödinger equation for a free particle. This is also known as the Klein-Gordon equation, and is a good beginning to discussions of quantum field theory.