Homework 11 - Physics 240
Schordinger equation

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1 Introduction

The goal of this homework is to solve the Schrodinger equation using the numerical PDE methods.

2 Discussion and data

Belows are the plots that generated when I included the V potention for which V(x) = Uδ(x-L/2), whereas U can be equal to, less than, or more than E = $\hbar^2 k_0^2/2m$

For U = E I got:

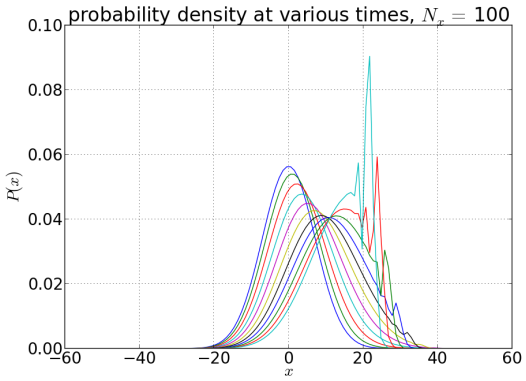

Figure 1: U = E

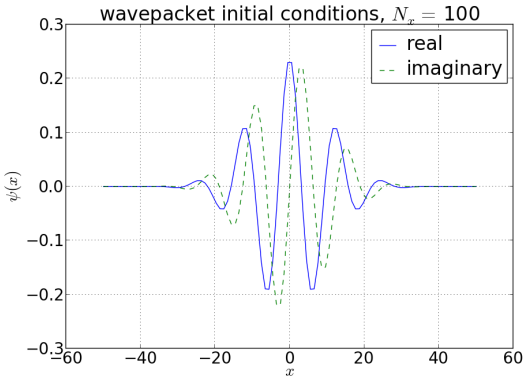

Figure 2: U = E

For U = 0.5E I got

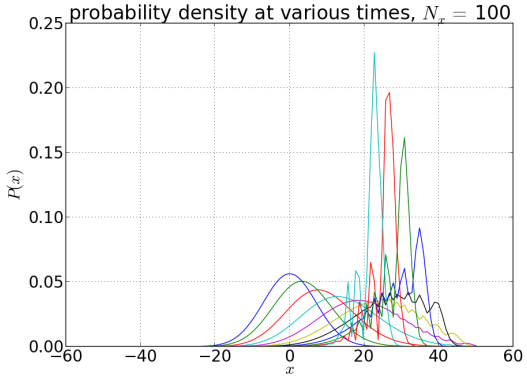

Figure 3: U = 0.5E

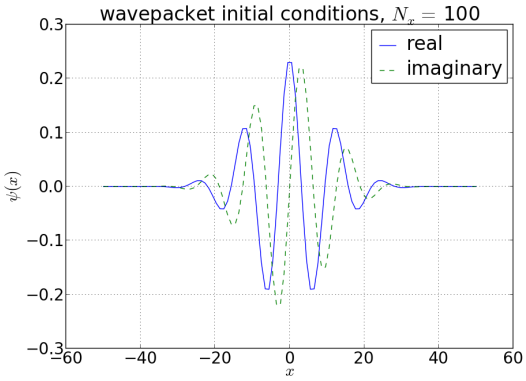

Figure 4: U = 0.5E

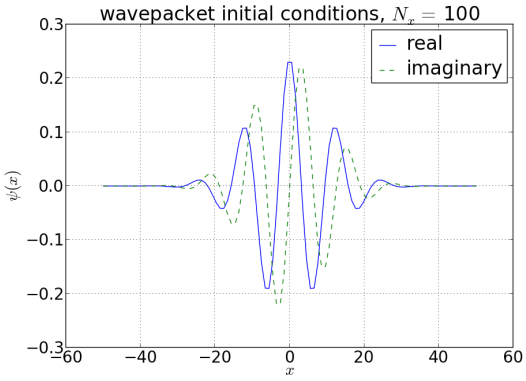

Figure 5: U = 0.5E

And for U = 2E I got:

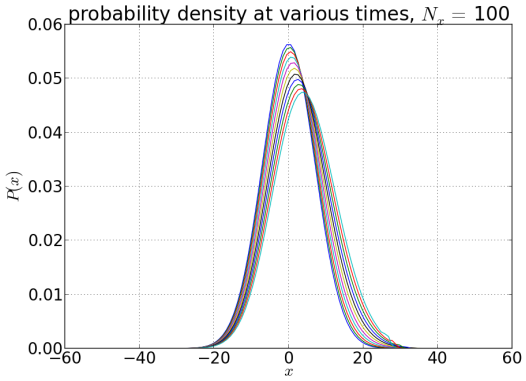

Figure 6:

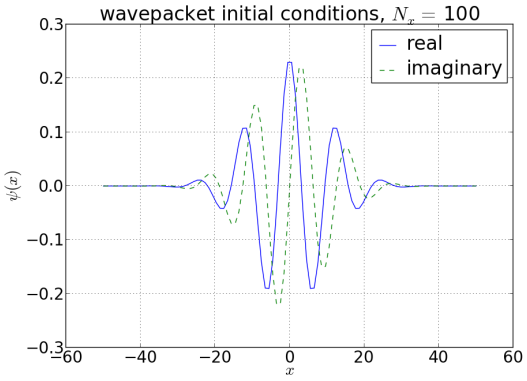

Figure 7: