PHYS 240 homework #21 – due Apr 26 2013, 5:00pm, upload to Canvas

Schrödinger bounce

1. Modify the `schro.py` program to include the delta function potential $V(x) = U\delta(x - L/2)$. Vary the amplitude U and do runs where it is less than, equal to, and more than $E = \hbar^2 k_0^2/2m$, the energy of the particle. Show that some of the wave function penetrates the potential even when $E < U$. If memory allows, increase L, the system size, to distinctly separate the reflected and transmitted waves. Feel free to also experiment with more complicated barriers $V(x)$.

2. Include any discussion and plots in a report generated in LaTeX and submitted in PDF format. Also submit your Python code separately.