PHYS 352 – Assignment 4

Due: Tues., Feb 8, midnight

Submit code solutions and the .png's, .sh's, .plt's requested below. **Source files for your main executables** should be named "assignment4_X.c", where "X" corresponds to the question numbers. Include your name enclosed in C comment tags (ie: `/*YourName*/`) at the top of each program. Create a zip archive containing all of your files, name it "assignment4_YourLastName.zip" (with the appropriate name replacement) and copy it to your `/projects/e20271/student/[netID]/homework` directory.

1. **Wave Propagation** (5 pt.)
   Implement the `propagate` , `initialize_from_wave` , and `initialize_from_gauss` functions discussed in class. Demonstrate that the first two function properly by plotting two separate waveforms with different wave numbers over their respective periods.

2. **Power Spectrum for Gaussian Displacements** (5 pt.)
   Follow the discussion of Section 6.2 in the text on the power spectrum of string with a Gaussian displacement. Reproduce Figure 6.6 and both plots of Figure 6.7. Note that power is proportional to the sum of the squares of the real and imaginary Fourier frequency components.