

Assignment #2

Reading: Review chapter 2 in Griffiths and any notes you have from Physics 25 on the free particle, wave packets, phase and group velocity, and one dimensional scattering.

Problems: Griffiths Chapter 2 problems 2.11, 2.12, 2.13, 2.14, 2.15, 2.16, 2.35.

SP1) The spacing between vibrational levels of the CO molecule is 2170 cm^{-1} . Taking the mass of C to be 12 amu and O to be 16 amu, compute the effective spring constant K , which is a measure of the bond stiffness between the atoms of the molecule. [*Hint*: The mass that enters is the reduced mass, $\mu = mM/(m+M)$. The spacing between lines is given in terms of the wavenumber $k = 2\pi/\lambda$, where $\omega = ck$ and $\Delta\omega = c\Delta k$.]

These problems will be due on Friday, February 15 by 5 PM.

Note: Assignment #1 now contains problems 1.7, 1.18, 2.7 and 2.9. It is due on Friday, February 8 by 5 PM.