

## Problem Set 19

### Reading for Today's Lecture

Selection from *Conceptual Physics* by Paul G. Hewitt  
and  
*Introduction to Chemical Principles* Chapter 6.4 – 6.6

### Reading for Tuesday's Lecture

*Introduction to Chemical Principles* Chapter 6.7 – 6.10

### Practice Problems

Chapter 6: 19, 23, 24(a-c), 25, 27, 28.

### Additional Problems

1. What is the wavelength of an alpha particle (mass =  $6.6 \times 10^{-27}$  kg) travelling at 1% the speed of light?
2. If a proton and an electron have identical speeds, which has the longer wavelength? Explain.
3. Does the de Broglie model hold that an electron must be moving to have wave properties? Explain.