

# Post-Lecture #2: Atomic and Nuclear Physics

1. Provide a reasonable (a) isotope for Ge-72, (b) isotope for F-18, and (c) isobar for O-16 in **full nuclear notation**.

2. Describe the "line of stability" and explain what the "tug-of-war" is caused by.

3. If a proton is added to a nucleus, will the binding energy of the electrons increase or decrease? Similarly, would a lower shell-number electron have a greater or lower binding energy than a higher shell-number electron?

4. Determine the mass defect in amu of O-15 given the values of proton and neutron masses as described in the lecture and an experimental mass of 14.998677 amu.

5. What is the competing process to characteristic radiation? Draw the curve that describes the probability of characteristic radiation as a function of atomic number (x-axis).