

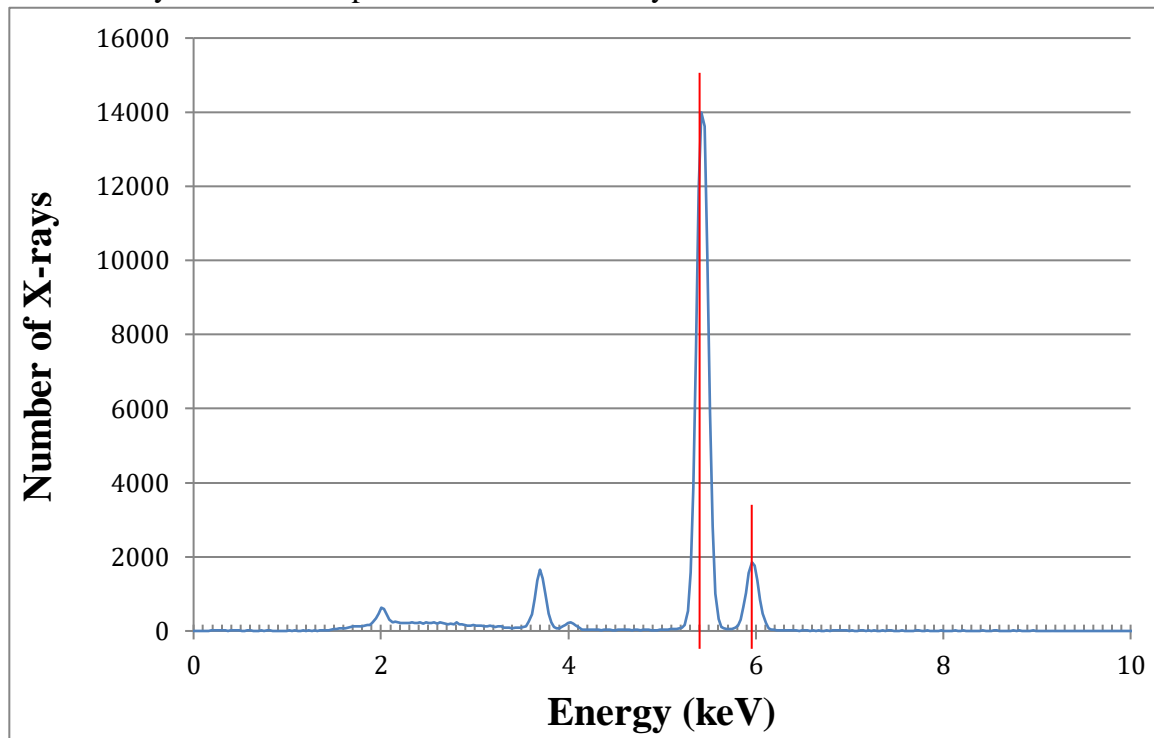
Name _____

PIXE Homework #2 - Physics 100

Union College Fall 2024

Due Date: Wednesday, September 11, 2024, in class. **Late Assignments are not accepted.**

1. Describe the PIXE process using words and/or diagrams. If you use a diagram, please explain what the diagram is about.
2. What are the K_α and K_β transition energies for the following elements: $^{40}_{20}\text{Ca}$, $^{59}_{27}\text{Co}$, and $^{197}_{79}\text{Au}$? (Please use the unmodified equations given in the lecture and not the table of x-ray energies to do the calculation.)
3. Given the *PIXE* spectrum of a single element standard shown below, what is the element indicated by the red lines? Hint: Approximate the energy of the peaks and use the unmodified energy equations to determine the atomic number of the element. You may need to use a periodic table to identify the element.



4. Given the *PIXE* spectrum of a single element standard shown below, what is the element indicated by the red lines? Hint: Approximate the energy of the peaks and use the unmodified energy equations to determine the atomic number of the element. You may need to use a periodic table to identify the element.

