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Poster Abstract for Gamma Spec Lab

**Abstract**

Gamma spectroscopy is a method that can be used to identify different radioactive isotopes. Gamma-rays are emitted by the relaxation of an excited nucleus from an excited state. In a similar fashion to atomic electron relaxation, these gamma-rays are released at specific energy levels for a given nucleus. By measuring the energy levels of gamma-rays emitted from a source material, these values may be compared with known energy values and used to identify the atomic nucleus of the source material. In this experiment, a sodium-iodide (NaI) scintillation detector was used to measure the energies of gamma-rays emitted by several materials. First, several known substances were measured in order to set a calibration curve. Then an unknown compound of two different materials was measured and plotted on the calibration curve so that the gamma-ray energies could be determined. By comparing these values to a table of known gamma-ray energies we were able to determine that the unknown compound was made up of Ce-137 and Zn-54.