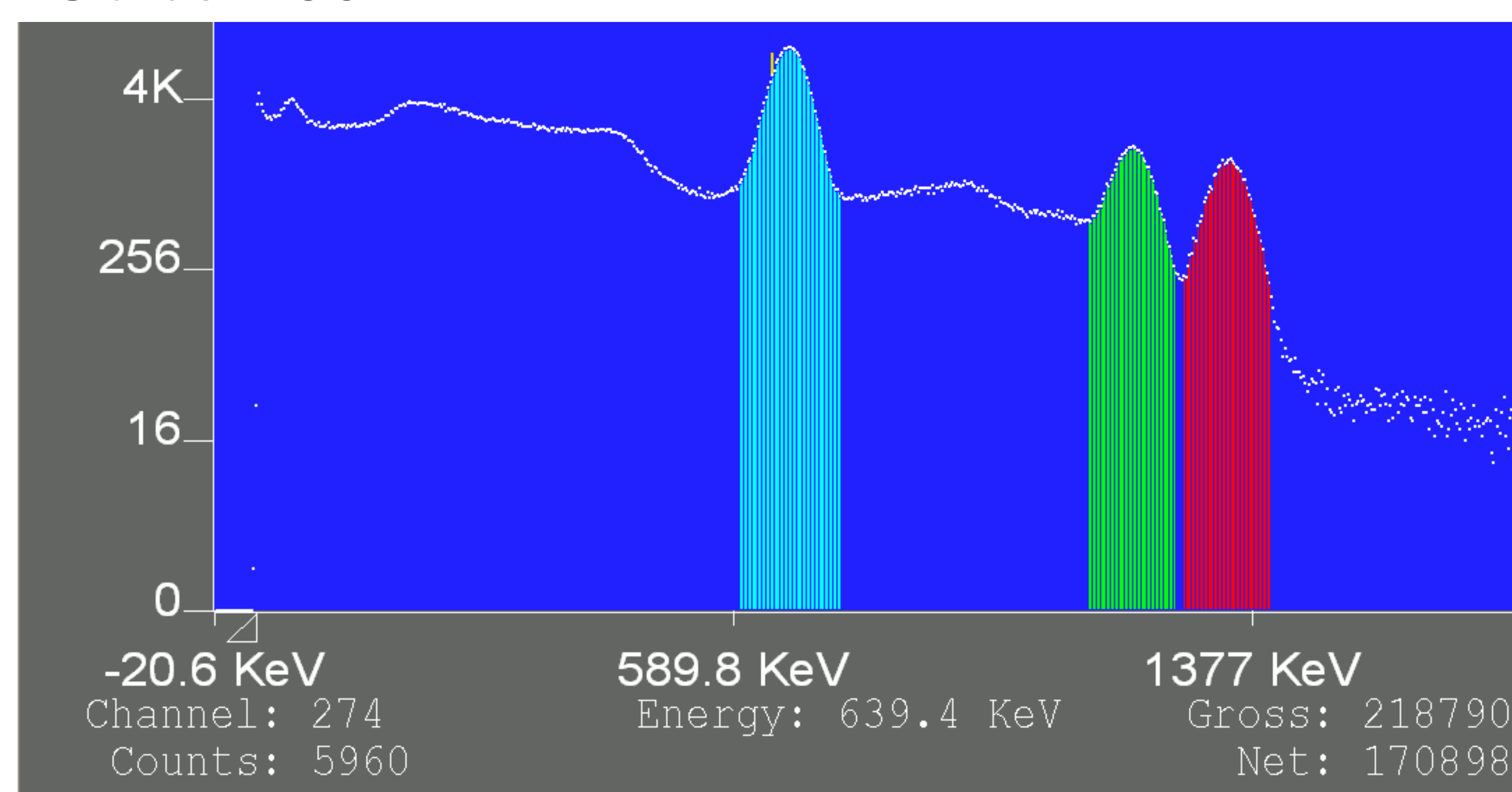


Experiment 1

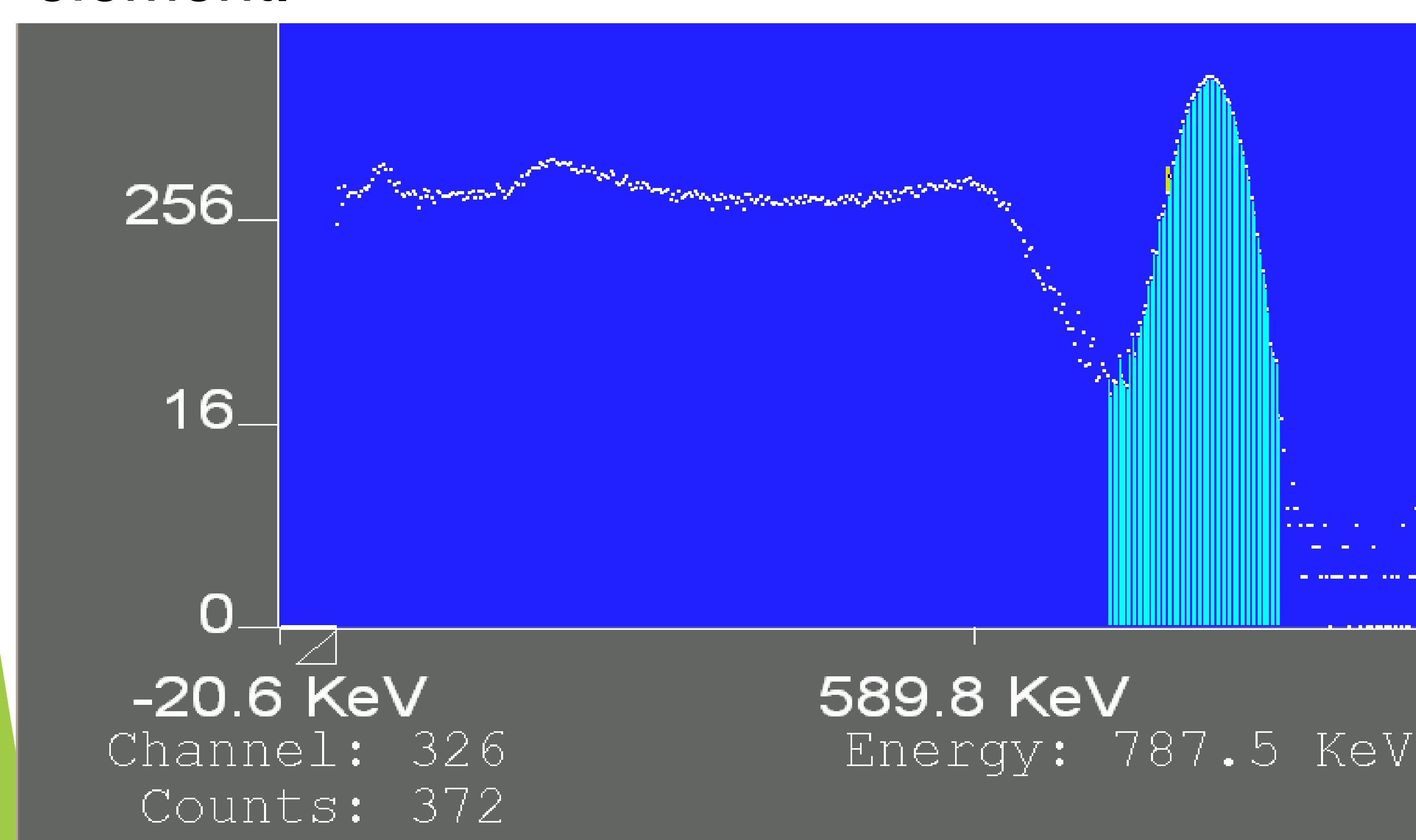
Gamma and X-Ray Spectroscopy

Purpose: To find the identity of an unknown element using gamma rays.

Procedure: Plot a decay scheme (below) using two known elements – Cesium-137 and Colbalt-60



Next step: Use the above decay data to create a calibrated graph for analyzing the unknown element.



Conclusion: Since each element has its own unique peak height, the unknown sample registered as Manganese.

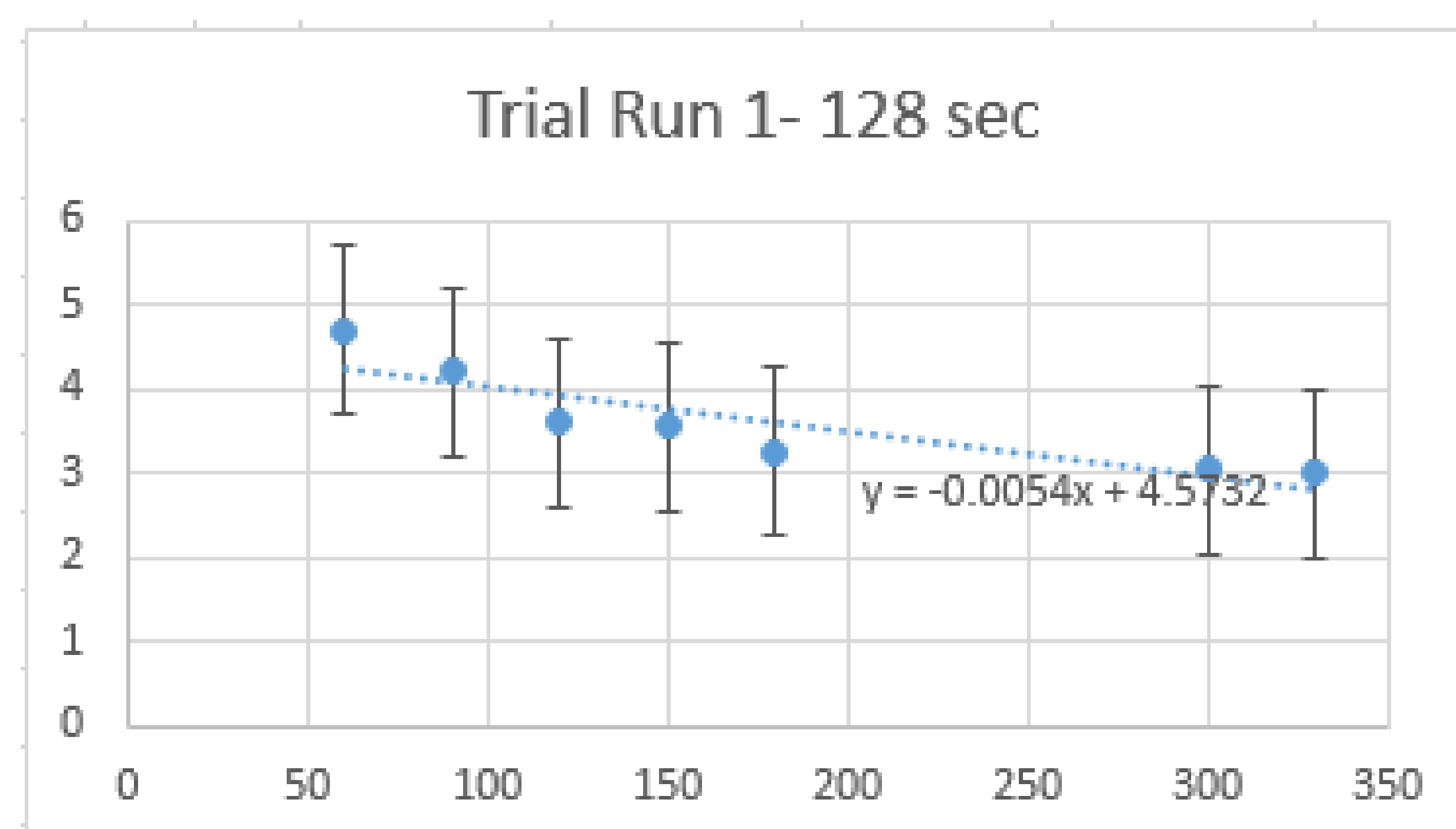
Experiment 2

The Geiger Müller Counter

Purpose: To use a Geiger Muller Counter to measure the half life of a given element

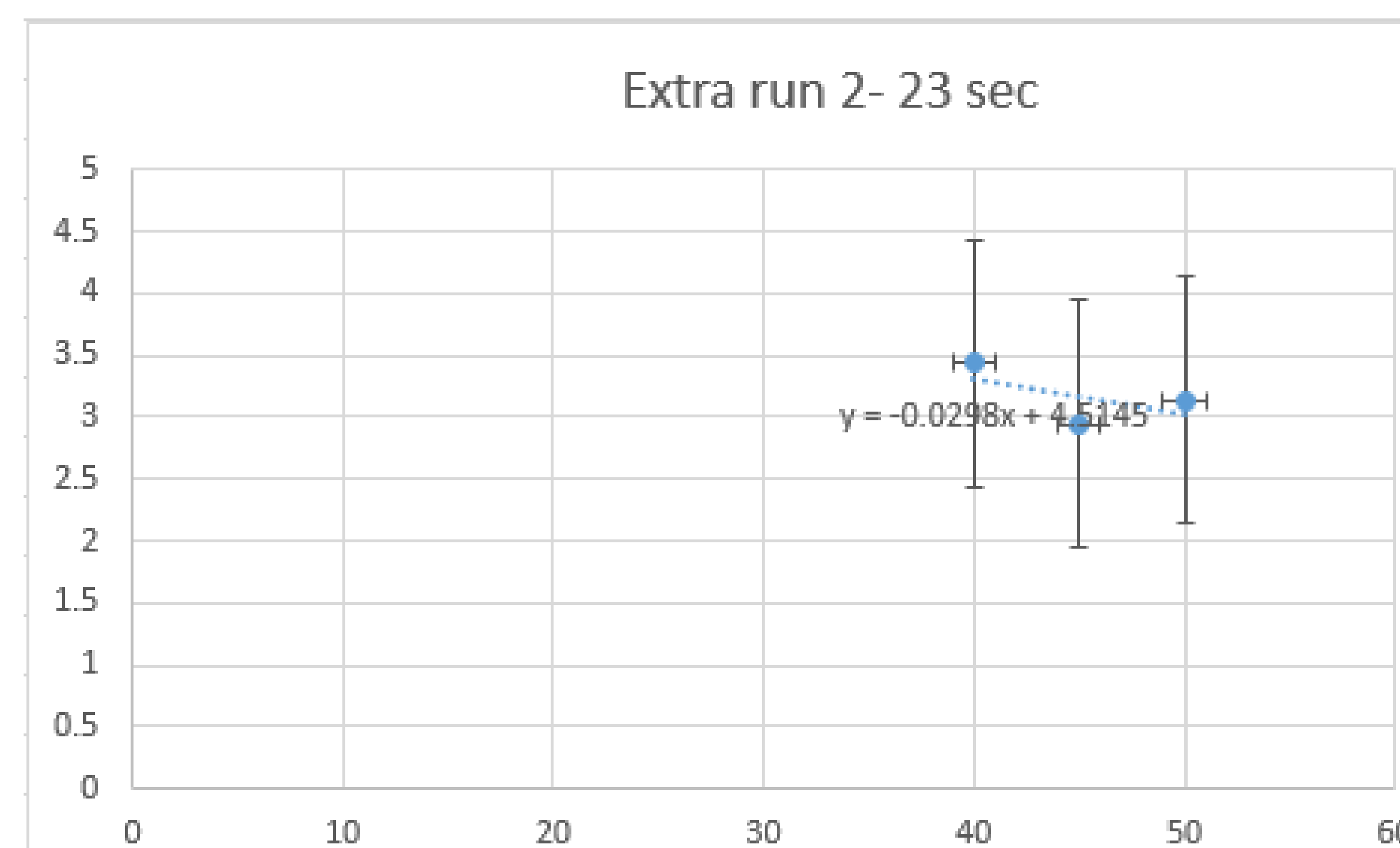
Procedure: measure the radioactive decay in counts / interval of time.

Below is the graph of one decay of silver 108. (Counts v time)



We took three measurements – 178, 128, 124, which averaged to 143 seconds. The real half life is 152.

Additionally, we measured another isotope of silver – silver 110.



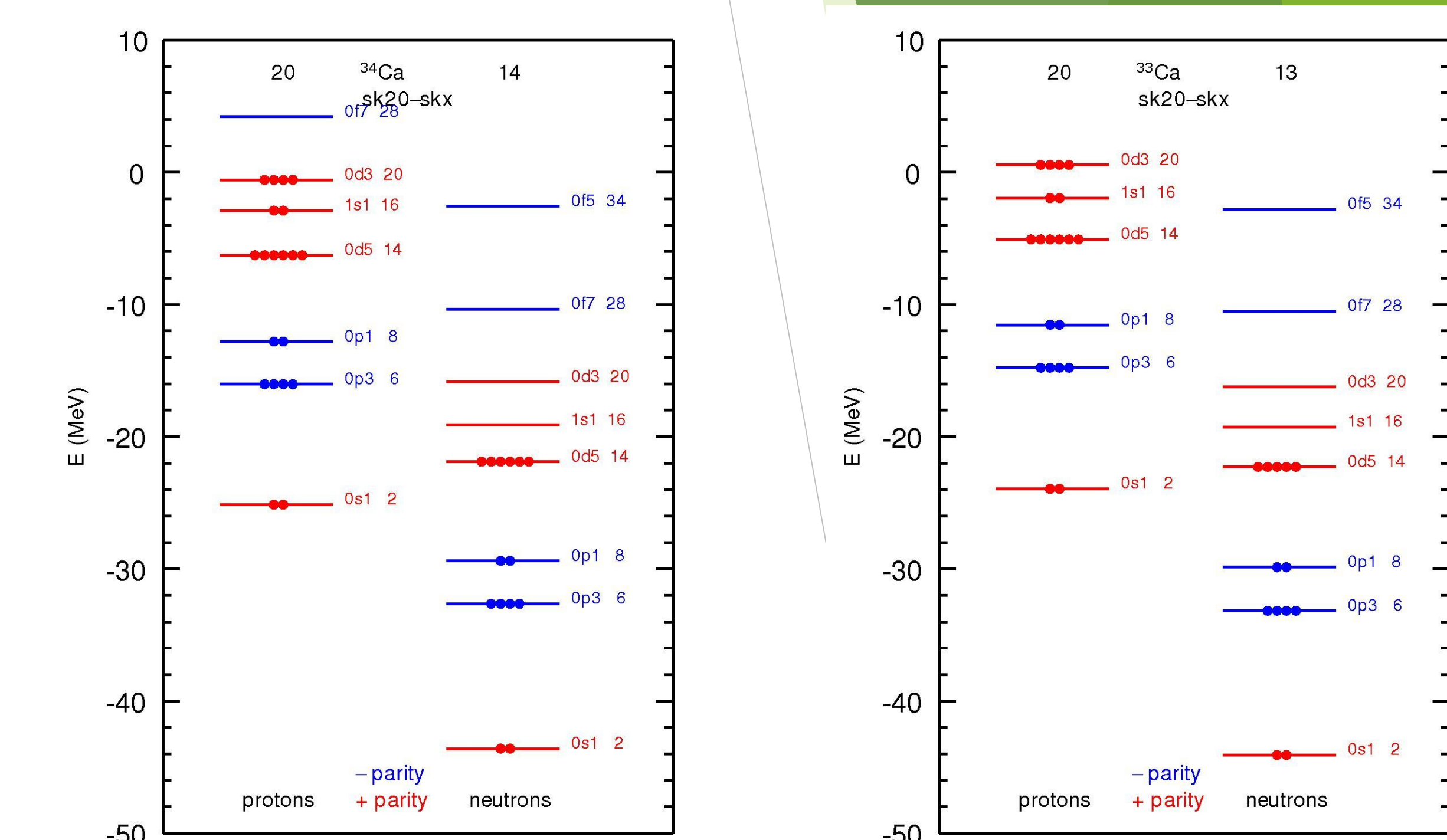
We ran this number twice, getting 21 and 23 seconds. The real half life is 24.

Experiment 3

Proton/ Neutron Driplines

Purpose: To estimate the proton and neutron driplines of Calcium using a theoretical program.

Procedure 1: Entered numerous isotopes of Calcium into the program and incrementally took away neutrons until we reached the proton dripline.



Procedure 2: Added neutrons to the element until the neutron dripline was reached.

