Analysis of β ray spectroscopy

PH3105

2024-11-15

Debayan Sarkar
22MS002

Diptanuj Sarkar
22MS038

Sabarno Saha
22MS037

Contents

I. Introduction

In this experiment, we perform β ray epectroscopy using a scintillation detector and then measure the pulse heights using a multi channel analyser. In the previous experiment we used a single channel analyser by varying the window and baseline to measure pulses within the window. The Multi Channel Analyser(MCA) measures all the pulses in all the windows at the same time.

II. Theory

We lay out, in brief, the theory behind the β ray spectrometer used, and the decay of the radioactive sources that produce the β rays in our interaction.

II.1. β ray spectrometer

β-spectrometer theory goes here.

II.2. Decay Scheme of $^{22}_{11}\mathrm{Na}$ and $^{90}_{38}\mathrm{Sr}$

We detail the β ray decay scheme of the $^{22}_{11}\mathrm{Na}$ and $^{90}_{38}\mathrm{Sr}$, both of which we will use in the experiment.

II.2.A. Decay scheme for $^{22}_{11}\mathrm{Na}$

Add text here.

II.2.B. Decay scheme for $^{90}_{38}\mathrm{Sr}$

Add text here.

II.3. Kinetic Energy of β Particles

Derivation daalo idhar.

III. Results and Analysis

III.1. $^{22}_{11}\mathrm{Cs}$ Source

III.1.A. Table for $^{22}_{11}\mathrm{Cs}$ Source

III.1.B. Plot of Energy vs Count for $^{22}_{11}\mathrm{Cs}$ Source

III.1.C. Energy corresponding to the maximum count for $^{22}_{11}\mathrm{Cs}$ source

III.2. $^{90}_{38}\mathrm{Ba}$ Source

III.2.A. Table for $^{90}_{38}\mathrm{Ba}$ Source

III.2.B. Plot of Energy vs Count for $^{90}_{38}\mathrm{Ba}$ Source

III.2.C. Energy corresponding to the maximum count for $^{90}_{38}\mathrm{Ba}$ source

IV. Conclusion

Maybe the real conclusion of this experiment is sitting in the room with us rn.