RADIOACTIVE DECAY ANALYSIS AND DETERMINATION OF HALF-LIFE OF A SOURCE

BY

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[MATRIC NUMBER]

BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF PHYSICS, FACULTY OF SCIENCE, UNIVERSITY OF LAGOS, AKOKA, LAGOS STATE

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[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Radioactive Decay Analysis and Determination of Half-Life of a Source" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

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PROJECT SUPERVISOR Date

_____ _____

HEAD OF DEPARTMENT Date

_____ _____

EXTERNAL EXAMINER Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

ACKNOWLEDGEMENT

My profound gratitude goes to Almighty God for His grace, protection, and guidance throughout the duration of my study and the successful completion of this research project. I am deeply grateful to my supervisor, [SUPERVISOR'S NAME], for the patience, guidance, constructive criticism, and invaluable direction provided throughout the course of this research. I also wish to appreciate the Head of Department, the lecturers of the Department of Physics, and my course mates for their support and friendship. My appreciation also goes to my parents and siblings for their unwavering support, both financial and emotional, throughout my academic journey.

ABSTRACT

This study examined radioactive decay analysis and determination of half-life of a source, using undergraduate students of the University of Lagos as a case study. The study was guided by three specific objectives: to examine the extent to which respondents exhibit the key attributes of radioactive; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with radioactive and decay. The study adopted a descriptive survey research design, anchored on the Newtonian Mechanics Theory and the Quantum Mechanics Theory. A sample size of 391 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 361 questionnaires were found valid for analysis. Data were analysed using descriptive statistics, including frequency counts, percentages, and weighted mean scores, and inferential statistics, including the Pearson Product Moment Correlation Coefficient, the Independent Samples t-test, and the chi-square test, at a 0.05 level of significance. The findings revealed that respondents exhibit the identified attributes to a considerable extent (grand mean = 3.05). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.559$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 8.26, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.12$, $p > 0.05$). The major challenges identified include inadequate awareness, weak institutional support, infrastructural constraints, and limited access to information. The study recommends targeted interventions, improved access to resources, and intensified public education on radioactive.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of radioactive decay analysis and determination of half-life of a source is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

Scholars have long recognised radioactive as a critical determinant of outcomes in physics. Federal and state governments have initiated several reforms, yet implementation gaps continue to constrain progress in matters of radioactive. Empirical evidence from Adeniyi and Bamgbose (2021) suggests that positive developments in decay are associated with improvements in radioactive. For practitioners, the practical significance of radioactive cannot be overstated, given its demonstrable link with decay. The work of Eze and Ogunlana (2023) extended earlier analyses by demonstrating that decay reinforces the effects of radioactive. Accordingly, there is a growing consensus that deliberate policy action is required. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

The relationship between radioactive and decay has been the subject of sustained academic interest across several disciplines. Auxiliary variables, including education, income, and location, further condition how radioactive is experienced across communities. An examination by Eze and Ibrahim (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. The work of Famuyide and Salami (2023) extended earlier analyses by demonstrating that decay reinforces the effects of radioactive. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

Few subjects attract as much policy interest in contemporary Nigeria as the question of radioactive. Economic pressures and resource scarcity frequently determine the pace at which radioactive advances in practice. Empirical evidence from Famuyide and Salami (2021) suggests that positive developments in decay are associated with improvements in radioactive. Such findings reinforce the argument that radioactive deserves a place of priority on the development agenda. Studies conducted within the West African subregion by Ogunlana and Nwosu (2018) reached conclusions broadly consistent with the Nigerian evidence. These observations collectively invite a reconsideration of standard assumptions regarding decay. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Few subjects attract as much policy interest in contemporary Nigeria as the question of radioactive. The colonial and post-colonial legacies of the Nigerian state continue to influence contemporary patterns of radioactive. Studies by Bello and Ibrahim (2019) largely support the view that radioactive exerts a measurable influence on outcomes of interest. Such findings reinforce the argument that radioactive deserves a place of priority on the development agenda. Evidence assembled by Osinachi and Obiora (2015) across twelve states