Abstract

Introduction

The aim of this assignment was to analyse how a given set of data fits to a given theoretical model. The theoretical model given models the decay of a radioactive particle X to a daughter particle D. The distribution of the decay for decay time t and decay angle θ is determined by two components:

The overall probability distribution function (PDF) for the decay is:

Where F is the fraction by which P1 contributes to the pdf and hence (1-F) is the fraction by which P2 contributes to the overall PDF. The PDF has two what may be called variables (t and θ), which form the PDF and three parameters (τ1, τ2 and F) which are specific to the decay. In other words, the distribution of t and θ given by the model depends on (τ1, τ2 and F). In order to fit the data for t and θ to the model the parameters and their errors of fitting must be determined