

# 淡江大學數學系演講公告

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題 目：Profile Optimum Planning for Degradation Analysis

日 期：110 年 11 月 23 日（星期二）

時 間：下午 14:10 開始

地 點：科學館 S433 室

## 摘要 Abstract:

Degradation tests are widely used to assess the lifetime information of highly reliable products. Before conducting a degradation test, the fundamental issues in regard to decision variables are to determine how many sample sizes are needed, how long samples need to be tested, and how many measurements are taken, particularly in early experiments with limited budgets. By minimizing the approximate variance of the estimated  $q$ -th quantile of the product's lifetime distribution with a cost constraint, profile optimum planning (POP) is proposed to provide a systematic solution to these decision variables under mild conditions. Based on the derived theoretical results, the use of flow charts efficiently simplifies complex optimization problems in practical applications. In addition, sensitivity analysis is studied to elucidate the effect of how the uncertainty in POP can be divided and allocated to the experimental costs and model parameters.

備 註：本活動與 SDGs 連結如下：SDG4 優質教育

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