

國立中正大學數學系

暨應用數學碩士班、統計科學碩士班

學 術 演 講

Optimal Design for Accelerated-Stress Acceptance Test Based on Wiener Process

蔡志群 教授

Prof. Tsai, Chih-Chun

淡江大學數學學系

Department of Mathematics, Tamkang University

Abstract

Acceptance test is widely used to assess whether a product meets the expectations of customers. Yet, traditional acceptance tests based on time-to-failure data will not be practical, because today's highly reliable products may take a long time to fail.

It may be good in this case to base a test on a suitable quality characteristic (QC) whose degradation over time is related to the reliability of the product. Motivated by resistor data, we first propose a degradation model to describe the degradation paths of the resistors.

Next, we present an accelerated-stress acceptance test to cut down the acceptance testing time, and then derive the optimal accelerated-stress acceptance testing time for a product, and the probability of acceptance of the batch. A model incorporating cost is also used to determine the optimal design for an accelerated-stress acceptance experiment, and a motivating example is then presented to illustrate the proposed procedure.

Finally, we examine the performance of the estimators, and the effect of misspecification of the parameters on the optimal test plan through a Monte Carlo simulation study, and a detailed sensitivity analysis. (Joint work by C. T. Lin and N. Balakrishnan)

日 期:112 年 2 月 15 日(星期三) 16:10~17:00

地 點:本校數學館 527 教室 (嘉義縣民雄鄉大學路 168 號)

茶 會:15:30~16:00 數學館四樓 409 室舉行

歡迎參加 敬請公佈

交通資訊及校內地圖請參閱如下網址:

<https://www.math.ccu.edu.tw/math/wp-content/uploads/2016/12/MathMap.jpg>