統計科學研究所
INSTITUTE OF STATISTICAL SCIENCE

統計所學術演講

中研院統計所

學　術　演　講

講　題：Optimizing Two-Variable Gamma Accelerated Degradation Tests with a Semi-Analytical Approach

講　者：Prof. Hung-Ping Tung (董弘平 教授)
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時　間：2024年1月22日(星期一)，10:30-12:00

地　點：統計所B1演講廳

Abstract

Gamma accelerated degradation tests are widely used to assess timely lifetime information of highly reliable products when the degradation path of quality characteristic of products follows a monotonic process. In this talk, a semi-analytical approach is proposed to determine the optimal designs for two-variable gamma accelerated degradation tests under three criteria: D-optimality, A-optimality and V-optimality. We first use general equivalence theorem to prove that the optimal approximate designs only allocate test units at the four vertices of a rectangular design region, and the corresponding optimal proportion of total number of measurements at each stress level is derived. Next, we apply the concept of prescribed accuracy level and total experimental cost to further determine optimal integer designs. More specifically, a numerical approach is used to resolve the number of test units and number of measurements at each stress level.

※ 茶　會：10：10開始。

※ 實體與線上視訊同步進行。