敬請公告

東海大學統計學系學術演講

時　間：115 年 12 月 1 日（星期二下午 14:10~15:00）

地　點：管理學院新大樓 M240

主講人：鄭雅珊 教授 (國立中央大學 統計研究所)

講　題：Bi-optimal Quantile-based Test Planning for Accelerated Degradation Tests Based on a Wiener Process

Abstract

Under limited resources, the widely used V_{t_q}-optimal test plan determines the sample size, termination time, and number of measurements by minimizing the approximate variances of the estimated q-quantile, t_q, for highly reliable products. This approach is economically efficient when the V_{t_q} -optimal test plan simultaneously satisfies another optimality criterion through an appropriate choice of q. Therefore, we theoretically study a bi-optimal quantile-based test plan based on a Wiener process, which achieves 100% efficiency for two optimality criteria. The necessary and sufficient conditions for its existence and uniqueness are derived, which can then be used to determine the optimal test configuration for accelerated degradation tests. Numerical examples are presented to illustrate the practical applicability of the proposed bi-optimal quantile-based test plan.

Keyword: Cost-constrained optimization, D-optimal frequency, inverse Gaussian distribution, monotonicity, signal-to-noise ratio.

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