

Optimal Test Planning for Degradation Analysis

Chien-Yu Peng

Institute of Statistical Science, Academia Sinica

Abstract

Before conducting a degradation test, it is essential to determine fundamental issues about decision variables. These include determining the required sample sizes, the termination time of sample testing, and the number of measurements, particularly in initial experiments with limited budgets. Consequently, devising cost-constrained optimal test plans becomes a practical concern in degradation tests for highly reliable products. In this talk, I will provide an overview of stochastic processes and their optimal test plans. Some challenges associated with (accelerated) testing plans will be discussed. The development of these optimal test plans, along with their theoretical properties, serves to bring the engineering and statistical communities closer, enabling them to address real-world problems with a more solid foundation.