國 立 中 央 大 學

統 計 研 究 所

學 術 演 講

主 講 人：俞一唐 教授（東海大學統計學系）

講　　題：**Increment Degradation Model: A Bayesian Perspective**

時　　間：**113年05月28日（星期二）上午11：00 ～ 12：00**

地　　點：**中央大學鴻經館M429室**

茶　　會：**上午 10：30 ～ 11：00**　　地　點：**鴻經館 510 室**

ABSTRACT

Degradation modeling serves as a valuable tool for assessing the lifetime information of highly reliable products. One frequently employed approach for describing the degradation phenomenon involves the use of a degradation model that relies on stochastic processes. In a stochastic-process-based degradation model, it is assumed that the increments follow a distribution with the additivity property.

This property makes the further inferences mathematically and statistically tractable. However, it limits the choices of the distributions.

This work aims to use those distributions without the additivity property to model the increments.

Under the frame of Bayesian analysis, Markov Chain Monte Carlo algorithms are developed for executing the necessary computations. Given that the proposed degradation models do not adhere to the additivity property, this work tackles the challenges involved in predicting the lifetime of both on-line and off-line products. Two illustrative examples are subsequently analyzed to demonstrate the procedural steps outlined. The suitability of the proposed model is finally validated through a simulation study.

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