## 國 立 中 央 大 學 統 計 研 究 所 學 術 演 講

主 講 人:李宜真 教授(國立成功大學統計學系)

講	題:Sequential Test Planning for Polymer Composites
時	間:108年3月12日(星期二) <u>上午11:00 ~ 12:00</u>
地	點:中央大學鴻經館M429室
茶	會: <u>上午 10:30 ~ 11:00</u> 地 點:鴻經館 510 室

## ABSTRACT

Polymer composite materials are widely used in areas such as aerospace and alternative energy industries, due to their lightweight and comparable levels of strength and endurance. To ensure the material can last long enough in the field, accelerated cyclic fatigue tests are commonly used to collect data and then make prediction for the field performance. Thus, a good testing strategy is desirable for evaluating the property of the polymer composites. While there has been a lot development in optimum test planning, most of the methods assume that the true parameter values are known. However, in reality, the true model parameters may depart from the planning values. In this paper, we propose a sequential strategy for test planning, and use Bayesian framework for the sequential model updating. We also use extensive simulation to evaluate the properties of the proposed sequential test planning strategy. Finally, we compare the proposed method to the traditional optimum design. Our results show that the proposed strategy is more robust and efficient when true values of parameters are unknown.

Keywords: Polymer composite; Optimum design; MCMC.



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