

specification can then be addressed sequentially. The result demonstrates that the effect on the accuracy of the product's MTTF prediction strongly depends on the ratio of critical value to the scale parameter of the gamma process. The effects on the precision of the product's MTTF prediction are observed to be serious when the shape and scale parameters of the gamma degradation process are large. Furthermore, we also carry out a simulation study to evaluate the penalty of the model mis-specification when the sample size and termination time are not large. It demonstrates that the simulation results are quite close to the theoretical ones.

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17b1-3 **On the Monitoring of Mixture Linear Profiles**

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In some applications, the quality of a process or product is better characterized and summarized by a functional relationship between a response variable and one or more explanatory variables. Profile monitoring is used to understand and to check the stability of this relationship or curve over time. The normality assumption for the error term is commonly used in the existing simple linear profile monitoring models. However, in certain applications, the mixture normal assumption for the error term may be more appropriate in real situations. Therefore, a process with mixture simple linear profiles is considered in this article. We propose new control schemes for Phase II monitoring, which are shown to have good performance in the simulation study.

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17b2-Statistical Genetics

December 17 (Saturday), 13:00 - 14:30, HSS 2nd Conference Room

Organizer: Chen-Hung Kao

Chair: Chen-Hung Kao

17b2-1 **Study Genetic Basis and Pathways of Complex Traits**

Zhao-Bang Zeng

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Department of Statistics and Department of Genetics North Carolina State University,
U.S.A.*