

## **Analysis of Frailty-Based Competing Risk Data from Repairable Systems**

Anupap Somboonsavatdee

Department of Statistics, Faculty of Commerce and Accountancy,  
Chulalongkorn University, Bangkok, Thailand [anupap@cbs.chula.ac.th](mailto:anupap@cbs.chula.ac.th)

The focus of this talk is failure history on repairable systems for which the relevant data comprise successive event times for a recurrent phenomenon along with an event-count indicator. Situations, in which individuals or systems in some populations experience recurrent events, are common in areas such as manufacturing, software debugging, risk analysis, and clinical trials. In this study, we undertake an investigation for analyzing failures from repairable systems that are subjected to multiple failure modes. Recurrent cluster of failures from multiple systems is studied both with the assumption of independent failure modes and specifically with the dependence formulation under frailty structure. Extensive simulation has been carried out that supplements the theoretical findings.

**Key Words:** Competing risks, frailty model, power law process, recurrent events.