



統計科學研究所  
INSTITUTE OF  
STATISTICAL SCIENCE



統計所學術演講



中研院統計所

## 學 術 演 講

講 題：A Random-effects Approach to Regression  
Involving Many Categorical Predictors and  
Their Interactions

講 者：Prof. Jiming Jiang  
( Department of Statistics, University of California,  
Davis)

時 間：2023年8月2日(星期三)，11:00-12:00

地 點：統計所B1演講廳

### Abstract

Linear model prediction with a large number of potential predictors is both statistically and computationally challenging. The traditional approaches are largely based on shrinkage selection/estimation methods, which are applicable even when the number of potential predictors is (much) larger than the sample size. A situation of the latter scenario occurs when the candidate predictors involve many binary indicators corresponding to categories of some categorical predictors as well as their interactions. We propose an alternative approach to the shrinkage prediction methods in such a case based on mixed model prediction, which effectively treats combinations of the categorical effects as random effects. We establish theoretical validity of the proposed method, and demonstrate empirically its advantage over the shrinkage methods. We also develop measures of uncertainty for the proposed method and evaluate their performance empirically. A real-data example is considered. This work is joint with Hanmei Sun of Shandong Normal University, China.

※ 實體與線上視訊同步進行。