統計科學研究所
INSTITUTE OF STATISTICAL SCIENCE

學　術　演　講

講　題：High-dimensional model selection via Chebyshev's greedy algorithm

講　者：Prof. Chien-Tong Lin (林建同 助理教授)
(逢甲大學統計學系)

時　間：2024年3月25日(星期一)，10:30-12:00

地　點：統計所B1演講廳

Abstract

Assuming sparsity on the regression coefficient is fundamental to ultra-high dimensional variable selection. However, the true sparsity of practical data is typically uncertain, making it necessary to device a variable selection technique that performs well under various sparsity settings. In this talk, we investigate the convergence rate of Chebyshev's greedy algorithm (CGA) for regression models when the true coefficient vector satisfies a general weak sparsity condition. We determine the iteration number of CGA using our developed data-driven approach and demonstrate that the optimal convergence rate can be achieved even when the actual sparsity level is unknown. Our convergence theory relies on the convexity and the smoothness of the population loss function, allowing for the analysis of a broad family of regression models and providing optimality guarantees under weak assumptions. As a specific example, we apply our method to generalized linear models (GLM) and composite quantile regression (CQR) models, and offer the sufficient conditions under which the optimal rate can be achieved. Thorough simulation studies as well as data analysis are provided to support the obtained theory.

※ 茶　會：上午10：10。

※ 英文演講，實體與線上視訊同步進行。