



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：Bayesian multiscale analysis for semiparametric model

講 者：甯宇謙 教授

(Department of Statistics, University of California, Davis)

時 間：2022年12月26日(星期一)，10:30-12:00

地 點：統計所B1演講廳

Abstract

The Bernstein-von Mises (BvM) theorem provides the basis for using Bayesian credible sets for making confidence statements. Past studies on the BvM theorem for semiparametric models are mostly focused on the parametric components. In the Cox model, as often the conditional survival function is the parameter of interest, there is a need to study the joint posterior distribution of the regression coefficient and the hazard function. This work provides the first unified theory for posterior distributions in the Bayesian Cox model without requiring the priors to be conjugate. We first derive contraction rate results for wide classes of histogram priors on the unknown hazard function. Second, using recently developed multiscale techniques, we derive functional limiting results for the conditional cumulative hazard and survival function. Frequentist coverage properties of Bayesian credible sets are investigated: we prove that certain easily computable credible bands for the survival function are optimal frequentist confidence bands. We conduct simulation studies that confirm these predictions, with an excellent behavior particularly in finite samples. This is joint work with Ismaël Castillo.

※ 茶 會：上午10：10。 The tea reception will be held at 10:10.

※ 實體與線上視訊同步進行。

Online live streaming through Cisco Webex will be available.