



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：Functional-Input Gaussian Processes with
Applications to Inverse Scattering
Problems

講 者：Prof. Ying Hung (洪瑛教授)

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時 間：2022年8月8日(星期一)，10:30-12:00

地 點：統計所B1演講廳

Abstract

Surrogate modeling based on Gaussian processes (GPs) has received increasing attention in the analysis of complex problems in science and engineering. Despite extensive studies on GP modeling, the developments for functional inputs are scarce. Motivated by an inverse scattering problem in which functional inputs representing the support and material properties of the scatterer are involved in the partial differential equations, a new class of kernel functions for functional inputs is introduced for GPs. Based on the proposed GP models, the asymptotic convergence properties of the resulting mean squared prediction errors are derived and the finite sample performance is demonstrated by numerical examples. In the application to inverse scattering, a surrogate model is constructed with functional inputs, which is crucial to recover the reflective index of an inhomogeneous isotropic scattering region of interest for a given far-field pattern.

※ 實體與線上視訊同步進行。

※ 茶 會：上午10:10開始。