統計科學研究所

INSTITUTE OF STATISTICAL SCIENCE

SEMINAR STATAS

Seminar

Title：A refined space-filling pattern criterion and optimal regular designs

Speaker：Prof. Cheng-Yu Sun (孫誠佑教授)

(Institute of Statistics, National Tsing Hua University)

Time：10:30 ~ 12:00, Monday, October 16, 2023

Place：Auditorium, B1F, Institute of Statistical Science

Abstract

Space-filling designs are routinely employed in computer experiments, and common criteria for selecting such designs are either distance- or discrepancy-based. Recently, Tian and Xu introduced a minimum aberration-type criterion known as the Space-Filling Pattern (SFP), which plays a crucial role in classifying and ranking strong orthogonal arrays, a well-established category of space-filling designs. Designs that perform well under the SFP tend to exhibit stratifications across a variety of grids. However, SFP does not distinguish between grids of different dimensions. To address this, we propose a refined version of the SFP, named the Stratification Pattern (SP). Using the chi-characteristics, we provide a justification for both the SFP and SP. Next, our focus shits to the regular designs of a prime square level. We show that the SP-optimal designs can be found by counting the different types of words of the same lengths. This result allows for a complete search for the SP-optimal designs, especially for those of small sizes.

※Online live streaming through Cisco Webex will be available.

※ The tea reception will be held at 10:10.