



성균관대학교 응용통계연구소 세미나 안내

응용통계연구소 세미나를 다음과 같이 개최합니다.

- 일 시 : 2024년 4월 26일 금요일 오전 10:30
- 장 소 : 퇴계인문관 31406호
- 연 사 : 양준호 교수님 (Academia Sinica)
- 발표 내용

Fourier analysis of spatial point processes

In this presentation, we discuss comprehensive frequency domain methods for estimating and inferring the second-order structure of spatial point processes. The main element here is on utilizing the discrete Fourier transform (DFT) of the point pattern and its tapered counterpart. Under second-order stationarity, we show that both the DFTs and the tapered DFTs are asymptotically jointly independent Gaussian even when the DFTs share the same limiting frequencies. Based on these results, we establish an α -mixing central limit theorem for a statistic formulated as a quadratic form of the tapered DFT. As applications, we derive the asymptotic distribution of the kernel spectral density estimator and establish a frequency domain inferential method for parametric stationary point processes. For the latter, the resulting model parameter estimator is computationally tractable and yields meaningful interpretations even in the case of model misspecification. We investigate the finite sample performance of our estimator through simulations, considering scenarios of both correctly specified and misspecified models. Joint work with Yongtao Guan @CUHK-Shenzhen.

성균관대학교 응용통계연구소

Homepage : <https://swb.skku.edu/rias>

☎ : 02-760-1295

e-mail : riasmaster@skku.edu