

# 國立中山大學應用數學系

## 學術演講

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講 題：Decomposition of nonlocal norms and  
quantitative dependence analysis for  
nonlocal diffusion models

時 間：2016/12/08（星期四）16:30 ~ 17:10

地 點：理學院四樓理 SC 4009-1 室

茶 會：16:10 於理 SC 4010 室（系辦公室）

### 摘要

In this talk, several decomposition properties for nonlocal norms of double integrals arising from nonlocal models will be presented. Based on it, how the equivalence between the energy norm and the Sobolev space norm depends on the horizon and other parameters for nonlocal diffusion models will be revealed. More results with quantitative dependence on the horizon and other parameters are further established, such as the nonlocal Poincar'e inequality, the priori error estimation, and condition numbers of the stiffness matrix and preconditioned stiffness matrix by diagonal scaling on quasi-uniform meshes. Both the case of integrable kernels and the case of non-integrable kernels are considered herein.

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