國立中山大學應用數學系
學術演講

講　者：Dr. Amir Noorizadegan (NTU)

講　題：The application of the effective condition number in meshless methods

時　間：2023/06/01 (Thursday) 15:30~16:30

地　點：理 SC 4009-0 教室

茶　會：15:00

Abstract

Radial basis functions (RBFs) find extensive applications in scientific computing, such as computational mechanics, fluid dynamics, image analysis, and economics. These applications share common mathematical challenges like function data recovery, meshfree methods for solving PDEs, and inverse problems. RBFs offer effective solutions to these challenges. This presentation focuses on the Effective Condition Number in RBF and the Method of Fundamental Solutions (MFS). These meshless methods facilitate function reconstruction and PDE solutions. By leveraging the Uncertainty Principle (UP), we address the trade-off between accuracy and stability. Motivated by the UP, our goal is to identify unstable settings using the Effective Condition Number to achieve high accuracy. This involves exploring improved RBF types, optimal shape parameters, and suitable source point locations in MFS.

Overall, this research significantly contributes to the successful application of meshless methods by addressing conditioning issues and optimizing parameters to obtain accurate and efficient solutions.

敬 請 公 告！ 歡 迎 參 加！

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