



DEPARTMENT OF APPLIED MATHEMATICS

應 用 數 學 系

**The Hong Kong Polytechnic University  
Department of Applied Mathematics**

**Colloquium**

**Recent Results on Multiply Monotone Radial Functions**

by

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**Abstract**

The purpose of this talk is to establish new results on interpolation to continuous functions of multiple variables. For this, radial basis function interpolation is most useful, as it provides always regular, indeed positive definite or conditionally positive definite collocation matrices, independent of the spatial dimension and the geometry of the data points we wish to work with.

These interpolants are used for example to solve partial differential equations by collocation.

Specifically, we aim to classify radial basis and other functions that are useful for scattered data interpolation from vector spaces spanned by translates of basis functions (kernels) in any (high) dimensional space, and to this end we study so-called multiply monotonic functions. We collect special properties of such multiply monotonic functions, generalise them and find larger classes than the well known completely monotone functions for multivariate interpolation. Furthermore, we generalise other results recently established for completely monotone functions to this class of functions. (Joint work with Janin Jäger.)

**Date : 1 June, 2018 (Friday)**

**Time : 3:00p.m. – 4:00p.m.**

**Venue : TU801, The Hong Kong Polytechnic University**

**\* \* \* ALL ARE WELCOME \* \* \***