Liu Bie Ju Centre for Mathematical Sciences
City University of Hong Kong

Mathematical Analysis and its Applications Colloquium

Organized by Prof. Hui-Hui Dai and Dr. Dan Dai

Blind-source identification and decomposition of functions governed by the Adaptive Harmonic Model

by

Professor Charles K. Chui

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Date : **3 November, 2016 (Thursday)**
Time : **4:30 pm to 5:30 pm**
Venue : **Room B6605**
Blue Zone, Level 6, Academic 1 (AC1)
City University of Hong Kong

ABSTRACT:

The problem of decomposition or factorization of specific functions or of functions from certain function spaces has a long history in Mathematics, and is central to the recent development of Harmonic Analysis and Functional Analysis. However, for real-world problems, particularly in this era of Big Data, the functions of interest are usually not well-defined, but only governed by some nonlinear function models. In this presentation, we will only consider functions that represent real-world signals or time series. Such functions can always be modeled as the real part of certain exponential sums but with non-linear amplitude functions and phase functions that are not necessarily linear polynomials. We will discuss the state-of-the-art approaches, with background from instantaneous frequency extraction and the problem of sparse-data representation and super-resolution, originally proposed by David Donoho.

Light refreshments will be provided before the colloquium from 4:00 pm to 4:30 pm. Please come and join us!

** **All interested are welcome** **

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