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The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

Some new progress of time fractional differential equations with Caputo derivatives

by

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Abstract

In this talk, I will introduce a generalized definition of Caputo derivatives based on a convolution group, and its applications to fractional ODEs, SDEs and PDEs. In particular, for time fractional ODEs, I will talk about the generalized comparison principles under very weak conditions, the monotonicity and blowup behavior for some autonomous fractional ODEs; I will also introduce a fractional SDE model with Caputo derivative and fractional Brownian motion involved to satisfy the fluctuation-dissipation theorem. Furthermore, for fractional PDEs, some compactness criteria will be introduced for the existence of weak solutions to time fractional PDEs. This talk is based on a series of work with Jian-Guo Liu, Jianfeng Lu et al.

Date: Wednesday, 20 December 2017

Time: 2:00p.m. – 3:00p.m.

Venue: Room 5506, Academic Building (near Lifts 25 & 26), HKUST

All are welcome!