The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar

Numerical analysis and computational solution of integro-differential Equations

by

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Abstract

The aim of this talk is to describe the current state of the numerical analysis and the computational solution of non-standard integro-differential equations of Volterra and Fredholm types that occur in various applications. In order to do so, we first give a brief review of recent results concerning the numerical analysis of standard (ordinary and partial) Volterra and Fredholm integro-differential equations, with the focus being on collocation and (continuous and discontinuous) Galerkin methods. In the second part of the paper we look at the extension of these results to various classes of non-standard integro-differential equations type) that arise as mathematical models in applications. We shall see that in addition to numerous open problems in the numerical analysis of such equations, many challenges in the computational solution of non-standard Volterra and Fredholm integro-differential equations are waiting to be addressed.

Date :   4 May, 2017 (Thursday)
Time :   11:00a.m. – 12:00noon
Venue : TU801, The Hong Kong Polytechnic University

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