

Editorial

Fractional Differential Equations 2011

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It is our pleasure to bring this special issue of the International Journal of Differential Equations dedicated to fractional differential equations (FDEs).

In recent years, a growing number of work by many authors from various fields of science and engineering deal with dynamical systems described by fractional partial differential equations. Due to the extensive applications of FDEs in engineering and science, research in this area has grown significantly all around the world.

This special issue of Fractional Differential Equations consists of 13 original articles covering various aspects of FDEs and their applications by some of the prominent researchers in the field. These papers could be broadly grouped into three categories, namely, numerical and approximate schemes to solve fractional dynamical models (1st to 5th paper), existence and uniqueness of solutions of fractional differential equations and other theoretical results (6th to 11th paper), and application of fractional differential equations in various fields (12th and 13th paper). Other papers could also have been considered in this last category. However, because of their emphasis, they have been included in the first two categories.

The first paper introduces a new modified step variational iteration method for solving biochemical reaction model. The second and third papers use homotopy analysis method for solving a space- and time-fractional foam drainage equation and nonlinear coupled equations with parameters derivative, respectively. The fourth paper develops a new application of Mittag-Leffler function method and extends the application of the method to fractional linear differential equations. The fifth paper proposes an explicit numerical method for the