Editorial
Fractional Differential Equations 2012

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

In recent years, a growing number of papers 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 third special issue on fractional differential equations consists of one review article and 9 original articles covering various aspects of FDEs and their applications written by prominent researchers in the field.

In the paper titled as "*Generalized multiparameters fractional variational calculus*" by O. P. Agrawal, the author introduces some new one-parameter GFDs, investigates their properties, and uses them to develop several parts of FVC. The author also shows that many of the fractional derivatives and fractional variational formulations proposed recently in the literature can be obtained from the GFDs and the generalized FVC.

The papers titled as "*Solving the fractional Rosenau-Hyman equation via variational iteration method and homotopy perturbation method,*" by R. Y. Molliq and M. S. M. Noorani, titled as "*Generalized monotone iterative technique for Caputo fractional differential equation with periodic boundary condition via initial value problem*" by J. D. Ramírez and A. S. Vatsala, and titled as "*Solving fractional-order logistic equation using a new iterative method*" by S. Bhalekar and V. Daftardar-Gejji introduce variational iteration and homotopy perturbation methods for solving fractional Rosenau-Hyman, fractional differential (with periodic boundary conditions), and fractional-order logistic equations, respectively.

The paper titled as "*Axisymmetric solutions to time-fractional heat conduction equation in a half-space under Robin boundary conditions,*" by Y. Z. Povstenko derives analytical solutions to time-fractional heat equation in a half-space under Robin boundary conditions using an integral transform technique. The paper titled as "*Analytical study of nonlinear fractional-order integrodifferential equation*: revisit Volterra's *population model*" by N. A. Khan et al. proposes a two-component homotopy method to solve Volterra's population model.

The paper titled as "*A time-space collocation spectral approximation for a class of time fractional differential equations*" by F. Huang develops a time-space collocation spectral method for a class of time fractional differential equations.

The paper titled as "*Analysis of Caputo impulsive fractional order differential equations with applications*" by L. Mahto et al. studies the existence and uniqueness of the theorem of Caputo impulsive fractional order differential equations using Sadavoskii's fixed point method. The paper titled as "*Fractional order difference equations*" by J. J. Mohan and G. V. S. R. Deekshitulu establishes a theorem on the existence and uniqueness of solutions for various classes of fractional order difference equations.

Finally, The paper titled as "*Chaos control and synchronization in fractional-order Lorenz-like system*" by S. Bhalekar