Record Nr. UNINA9910557551803321

Autore Stavroulakis Ioannis

Titolo New developments in Functional and Fractional Differential Equations

and in Lie Symmetry

Pubbl/distr/stampa Basel, Switzerland, : MDPI - Multidisciplinary Digital Publishing

Institute, 2021

Descrizione fisica 1 electronic resource (155 p.)

Soggetti Research & information: general

Mathematics & science

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Sommario/riassunto Delay, difference, functional, fractional, and partial differential

equations have many applications in science and engineering. In this Special Issue, 29 experts co-authored 10 papers dealing with these subjects. A summary of the main points of these papers follows:Several oscillation conditions for a first-order linear differential equation with non-monotone delay are established in Oscillation Criteria for First Order Differential Equations with Non-Monotone Delays, whereas a sharp oscillation criterion using the notion of slowly varying functions is established in A Sharp Oscillation Criterion for a Linear Differential

Equation with Variable Delay. The approximation of a linear autonomous differential equation with a small delay is considered in

Approximation of a Linear Autonomous Differential Equation with Small Delay; the model of infection diseases by Marchuk is studied in Around the Model of Infection Disease: The Cauchy Matrix and Its Properties.

Exact solutions to fractional-order Fokker–Planck equations are presented in New Exact Solutions and Conservation Laws to the Fractional-Order Fokker–Planck Equations, and a spectral collocation approach to solving a class of time-fractional stochastic heat equations driven by Brownian motion is constructed in A Collocation Approach for Solving Time-Fractional Stochastic Heat Equation Driven by an Additive Noise. A finite difference approximation method for a space fractional

convection-diffusion model with variable coefficients is proposed in Finite Difference Approximation Method for a Space Fractional Convection—Diffusion Equation with Variable Coefficients; existence results for a nonlinear fractional difference equation with delay and impulses are established in On Nonlinear Fractional Difference Equation with Delay and Impulses. A complete Noether symmetry analysis of a generalized coupled Lane—Emden—Klein—Gordon—Fock system with central symmetry is provided in Oscillation Criteria for First Order Differential Equations with Non-Monotone Delays, and new soliton solutions of a fractional Jaulent soliton Miodek system via symmetry analysis are presented in New Soliton Solutions of Fractional Jaulent-Miodek System with Symmetry Analysis.