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PREFACE

RECENT ADVANCES IN FRACTIONAL CALCULUS, FRACTIONAL ORDINARY, FRACTIONAL FUNCTIONAL AND FRACTIONAL PARTIAL DIFFERENTIAL EQUATIONS

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Fractional calculus has been an important area of mathematics, mathematical physics and engineering in the present times. Fractional calculus has improved in analytical solutions, numerical solutions and approximate solutions for mathematical nonlinear dynamical modeling. The mathematical nonlinear dynamical modeling of phenomena with fractional derivative provides better outcomes than classical orders. A few interesting applications can be traced in mathematical nonlinear dynamical modeling. Some physical phenomena, especially viscoelasticity, electro chemistry and model of neurons in biology, control theory, plasma physics, dynamics, fluid mechanics, engineering, optical computing, physics, chemically reactive materials, chemistry, meteorology, biology, communication, signal processing, and shallow water wave propagation, continuum mechanics, optical switching, etc., respectively, can be modeled by fractional ordinary, fractional functional and fractional partial differential equations.

This special issue contains a collection of works of mathematicians actively working in the fields of fractional calculus, differential equations, partial differential equations, integral equations and so on. The content of this special issue includes some works related to the fractional calculus as well as partial differential equations and integral equations.

Finally, as the Guest Editors of this special issue of ” Applied Analysis and Optimization ”, we take this opportunity to thank all of the participating authors, and the referees and the peer-reviewers, for their invaluable contributions toward the remarkable success of this special issue. We do also greatly appreciate the editorial and managerial help and assistance provided efficiently and generously by Professor Jen-Chih Yao and Mr. Toshi Takahashi and many of his colleagues and associates in the Editorial Office of “Applied Analysis and Optimization ”.

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