Editorial

Nonlinear Systems in Function Spaces and Applications in Biomedical Sciences, Control Theory, and Engineering

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Most mathematical systems coming from real processes and phenomena, which appear in physics, population dynamics, biotechnology, medicine, and engineering, are inherently nonlinear in nature. So, various nonlinear systems constitute basic and important mathematical models of real world phenomena, and related problems are of great interest to mathematicians as well as scientists in many other fields. The study of nonlinear systems is theoretically challenging and practically interesting. It has in all the years been a major object of investigations, and the development of related research goes on quickly every day.

The purpose of this special issue is to present some new progress on the study of nonlinear systems in function spaces and applications. All the published papers in the special issue are carefully selected. From these papers, the reader will see many of the latest achievements on the following interesting topics: the finite-time stabilization problem of dynamic nonholonomic wheeled mobile robots with parameter uncertainties and discontinuous switching controller and switching control design method; the existence of solutions to a functional differential equation with state-dependent delay on the basis of the space of real continuous functions on the real axis and the theories of fixed points and operator semigroups; the additivity of D -property of t -metrizable spaces and the function spaces $C_p X_i$, where each X_i is Lindelöf Σ ; the existence and the uniqueness of the positive solutions to nonlinear fractional differential

equations involving the p -Laplacian operators; the existence of fixed point for generalized eventual cyclic gross contractive mappings in metric spaces; damped algorithms for the split fixed point and equilibrium problems which include fixed point problems, equilibrium problems, and variational inequality problems as special cases; the existence of mild and strong solutions for semilinear evolution equations in Banach spaces with nonlocal initial conditions and applications to semilinear functional partial differential equations with nonlocal conditions; and the existence of fixed point for JH-operators and occasionally weakly biased pairs.

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