



Special Issue on the 5th International Conference on Optimization and Control with Applications (OCA5)

The 5th International Conference on Optimization and Control with Applications (OCA5) was held in China University of Petroleum, Beijing, China on December 4-8, 2012. As a continuation of the OCA series, OCA5 provided an international forum for scientists, engineers, researchers, and practitioners to exchange ideas and approaches, to present research findings and state-of-the-art solutions, to share experiences on potentials and limits, and to open new avenues of research and developments, on all issues and topics related to theory and applications of optimization and control. More than 200 representatives from over 20 countries and regions, such as Mainland China, Hong Kong, Taiwan, the United States, Canada, Australia, Russia, and Japan, presented their recent works on theory and applications of optimization and control. Conference participants were invited to submit their revised and expanded papers to be considered for possible publication in a Special Issue for Nonlinear Dynamics and Systems Theory (ND&ST). Seven research papers, having been peer reviewed, are accepted for publication in this special issue.

Firstly, in recognition of Professor Taro Yoshizawa's significant contributions to nonlinear dynamics and systems theory, we include a Personage in Science to introduce his biographical sketch and scientific activities. After that, the first paper, entitled "Coordinating Supply Chains with a Credit Mechanism", solves the supply chain coordination problem with trade credit in two situations: symmetric and asymmetric information. A coordination mechanism through credit contract is proposed to achieve a win-win outcome. In the second paper, entitled "Reduced Order Function Projective Combination Synchronization of Three Josephson Junctions Using Backstepping Technique", a projective combination synchronization scheme of chaotic Josephson junction systems is proposed and studied using the backstepping technique. The third paper, entitled "Stability of Stochastic Interval System with Distributed Delays", is concerned with the stability problem of a stochastic interval system with distributed delays. The existence and uniqueness of solutions are shown, and sufficient criteria for exponential stability are derived. These results are extendable to the stochastic interval systems with multiple time delays. The fourth paper, entitled "Existence of the Solution for Discontinuous Fuzzy Integro-differential Equations and Strong Fuzzy Henstock Integrals", studies the Cauchy problem of discontinuous fuzzy integro-differential equations with strong fuzzy Henstock integral. Some important convergence results and theorems on existence of solutions for strong fuzzy Henstock integral equations are reported. In the fifth paper, entitled "Indirect Adaptive Fuzzy Control of Multivariable Nonlinear Systems Class with Unknown Parameters", a fuzzy adaptive control technique for nonlinear systems is proposed and an adaptive fuzzy control law is designed to ensure the tracking errors and boundedness of the fuzzy logic system parameters be convergent. The obtained results are hence applied to permanent magnet synchronous motors. The sixth paper, entitled

"Designing a Compensator Based on Extended Kalman Filter for Elimination of Noise and Delay Effect in Tracking Loop", investigates a new control scheme to compensate destructive effect of delay and noise in tracking loop. Finally, the seven paper, entitled "The Structure of The Solution of Delay Differential Equations With One Unstable Positive Equilibrium", establishes sufficient conditions to ensure that the solutions will converge to the trivial equilibrium and the positive equilibrium respectively. Other solutions can be divided into three classes according to their eventual tendency. It is noted that the second, fifth, and sixth papers are taken from the Journal's archive as these papers have strong connections with the theme of our conference.

We would like to express our warmest thanks to authors who submitted their papers to be considered for publication in this Special Issue. We highly appreciate the contributions from the reviewers for their careful and critical evaluation of the manuscripts. It is our pleasure to thank Professor A.A. Martynyuk, Editor-in-Chief of ND &ST, for his support and encouragement during the process of editing this Special Issue.

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