



Journal of Applied Mathematics

Special Issue on  
**Modeling and Control of Complex Dynamic Systems  
2014**

# CALL FOR PAPERS

The concept of complex dynamic systems arises in many varieties, including the areas of energy generation and distribution, ecosystems, health delivery, safety and security systems, telecommunications, transportation networks, and the rapidly emerging research topics which are sought to be understood and analyzed. Such systems are often concurrent and distributed because they have to react to various kinds of events, signals, and conditions. They may be characterized by a system with uncertainties, time delay, stochastic perturbation, hybrid dynamics, distributed dynamics, and chaotic dynamics. Unlike those systems which are characterized by linear processes that can be effectively isolated from environmental influence, the external structures or boundary conditions of complex systems form an important part of the internal structure. Both negative and positive feedback exist in complex systems, which provide complex systems with a contextual embeddedness that makes the boundaries of complex dynamic system typically fuzzy and difficult to be described. This call is for special and efficient applied mathematics methods for solving the above problems.

This special issue is to provide a platform for researchers to discuss various mathematical methods and techniques for modeling and control of complex dynamic systems and to identify critical issues and challenges for future investigation in this field.

Potential topics include, but are not limited to:

- ▶ Mathematical modelling of complex dynamic processes
- ▶ Stability and performance analysis of complex systems
- ▶ Optimization of complex dynamic systems
- ▶ Advanced control techniques for complex dynamic systems
- ▶ Computational intelligence techniques and algorithms
- ▶ Mathematical aspects of the discretization schemes and chaotic dynamics
- ▶ Application of mathematical theories to real complex processes/systems

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