Special Issue

Nonlinear Dynamical Behaviors in Complex Systems

Message from the Guest Editors

Most real-world systems are complex systems with rich emergence phenomena such as phase transition, cooperation, oscillation, synchronization, etc. Such complex dynamic features are commonly believed to be caused by the nonlinearity and randomicity at multi-scales. The unveiling principles and effects of nonlinear interactions play a pivotal role in understanding the dynamic behaviors of complex systems, which always attracts great attention in diverse fields. Take some recent advances as examples; higher-order interactions induce bi-stable phenomena in diffusion processes and imply an effective controlling strategy. The dynamic mechanisms of confirmation bias and selective exposure lead to shifts from group consistency to echo chamber/opinion polarization. The coupling between game dynamics and environmental feedback results in oscillating or periodic evolutions.

Nowadays, modeling and analyzing the nonlinear dynamical mechanisms in complex systems are still important challenging tasks, which are the basis for further predicting and controlling the system behaviors. This Special Issue invites all contributions that address any of these issues.

Guest Editors

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