EPJ ST Special Issue: Circuit Application of Chaotic Systems: Modeling, Dynamical Analysis and Control

To be referred as an amazing physical phenomenon with the highly sensitivity to initial conditions, chaos is ubiquitous in natural world and human society. Numerous explorations have reported the broad engineering application potential of chaos on account of its excellent features. Nowadays, chaos theory has become an important frontier research field. It is valuable research to build chaotic systems for engineering purposes, to reveal the complex dynamic properties of chaotic systems via different theoretical and numerical analysis, to consider its different control objectives by applying some effective and feasible control techniques. We are keenly aware that there are still many challenging issues to be addressed on chaos study by considering the existing research work. That is why the chaos study can sustain vitality and exert important influence.

Since the invention of the Chua circuit in 1983, chaotic circuits have attracted wide attention in academia. The discovery of memristors has pushed the study of chaotic circuit to reach a new level. Circuit systems have been shown to produce rich chaotic motions. Besides, it is very important to realize the chaos by electronic circuit for establishing its physical existence before putting it into the engineering fields. To date, the circuit application has extended to all aspects of chaos study. The existence of multi-stability and hidden attractors in chaotic systems owns new challenges to the circuit implementation and control design. It should be a fascinating and challenging work to control chaotic systems with multi-stability and hidden attractors, and synchronize them via advanced control methods. Furthermore, memristor-based chaotic circuits can exhibit many unknown dynamic behaviors, within which the memristor injects tremendous vitality into its research.

This special issue focus on the circuit application of chaotic systems for exploring its recent advances on the modeling, dynamic analysis and control design. Interesting research work on the generation and analysis of new chaotic circuits, the circuit implementation of different types of chaotic systems or chaotic networks, the control and synchronization of chaotic systems, and other contents corresponding to the subject of this special issue are welcome.

The topics include, but are not limited to the following:

- Modeling and analysis of chaotic circuits
- Circuit implementation of chaotic systems
- Chaotic systems with coexisting attractors
- New control techniques of chaotic systems
- Circuit application on chaos synchronization
- Fractional-order chaotic circuits and systems
- Memoristor-based chaotic systems and networks
- Chaotic communication and its circuit realization

Authors are invited to submit their original research and short reviews on the theme of this special issue. Manuscripts should be prepared following the instructions for authors using the latex template of EPJ ST, which can be downloaded here. Articles should be submitted to the Editorial Office of EPJ ST via the submission system at https://articlestatus.edpsciences.org/is/epjst/home.php by selecting " Circuit Application of Chaotic Systems: Modeling, Dynamical Analysis and Control " as special issue.

Submission Deadline: December 31 2020.

A pdf of this Call for Papers can be downloaded here

We are looking forward to your contributions.

Lead Guest Editor
Qiang Lai, East China Jiaotong University, Nanchang, China
E-mail: laiqiang87@126.com

Co-Guest Editors
Bocheng Bao, Changzhou University, Changzhou, China
E-mail: mervinbao@126.com
Chaoyang Chen, Hunan University of Science and Technology, Xiangtan, China
E-mail: ouzk@163.com
Jacques Kengne, University of Dschang, Bandjoun, Cameroon
E-mail: kengnemozart@yahoo.fr
Akif Akgul, Sakarya University, Sakarya, Turkey
E-mail: aakgul@sakarya.edu.tr