



**K. THAMILMARN**  
**PROFESSOR AND HEAD**

**Contact**

Address : DEPARTMENT OF NONLINEAR DYNAMICS  
Bharathidasan University  
Tiruchirappalli – 620 024  
Tamil Nadu, INDIA

Employee Number : BDU1610184

Date of Birth : 25-02-1961

Contact Phone (Office) : +91 431 2407093

Contact Phone (Mobile) : +91 9487170108

Contact e-mail(s) : maran.cnld@gmail.com

Skype id : --

**Academic Qualifications: M.Sc./M.Phil./Ph.D.**

1. **Ph. D.**, Department of Physics, Bharathidasan University, Tiruchirappalli – 620 024 (2006).
2. **M. Phil.**, Raman School of Physics, Pondicherry University, Pondicherry -605 015 (1989).
3. **M. Sc.**, Rajah Serfoji College (Bharathidasan University) , Thanjavur –620 605 (1988).

Title of Ph. D Thesis : *Chaos, Hyperchaos and Synchronization of chaos certain simple nonlinear electronic circuits*

Supervisor : Prof. M. Lakshmanan, Bharathidasan University, Tiruchirappalli.

Title of M.Phil Thesis: *Transport properties of superionic conducting glassy materials*

Supervisor : Prof. N. Sathyanarayana Raman, School of Physics, Pondicherry University.

## Teaching Experience: 27 Years (both UG and PG)

15 March 2015 – Present	:	<b>Professor and Head</b> Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli – 620 024
15 March 2009 – 2015	:	<b>Professor</b> Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli – 620 024
14 March 2006 – 2009	:	<b>Associate Professor</b> Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli – 620 024
03 July 1999 13 March 2006	:	<b>Lecturer (SG)</b> Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli – 620 02
10 Nov. 1993 02 July. 1999	:	<b>Lecturer (SS)</b> Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli – 620 024
15 July 1991 08 Nov. 1993	:	<b>Lecturer</b> Department of Physics, Arignar Anna Govt. College, Karaikal, Govt. of Pondicherry
03 July 1989 14 July 1991	:	<b>Lecturer</b> Department of Physics, Yadava College for Men, Madurai – 14, Tamilnadu.

## Research Experience: 19 Years

### Additional Responsibilities

1. Head, Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirapalli (July 2015-till date)
2. Head-in-Charge, Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirapalli
3. Member of the Syndicate, Bharathidasan University, Tiruchirapalli
4. Member of the Senate (July 2015-till date)
5. Member of Liaison Officer, Bharathidasan University.
6. Member of the Selection Committee for Teaching and Non-teaching in Universities and various colleges
7. Member, various Committees on Course Affiliation to various Colleges/Inspection Commissions.
8. Member, Academic Council in various colleges
9. Member, Governing Body in various colleges

## Areas of Research

1. Nonlinear Dynamics, Chaos, Synchronization of Chaos, State Controlled Cellular Neural Network (SC-CNN), Nonlinear Electrical Circuits and its Applications.
2. Transient chaos, Extreme events, Bifurcation delay in a network oscillators.
3. Fractional order systems, revival of oscillations from death in coupled nonlinear oscillators.

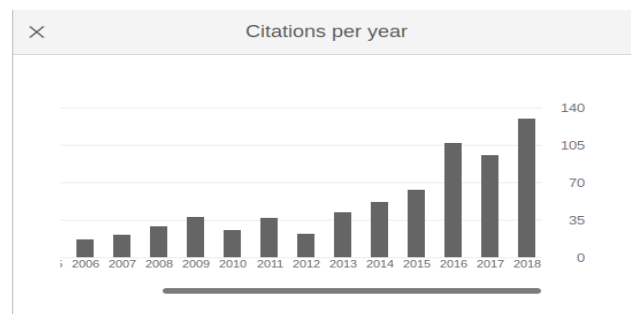
## Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	Ph.D.	4	7
	M.Phil.	26	1
Project	PG	42	6
	UG / Others	--	--

## Publications

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
50	3	--	18	2

**Cumulative Impact Factor (as per JCR) :** 110.121 (IM.F: 0.693 to 4.339)  
**h-index :** 15  
**i10 index :** 20  
**Total Citations :** 711



## Funded Research Projects

### Completed Projects

S. No	Agency	Period		Project Title	Budget (Rs. In lakhs)
		From	To		
1	DST-SERB	2011	2014	Experimental Students on the Dynamical of Coupled Nonlinear Electronic Oscillators	7,60,000/-
2	DST-SERB	2013	2017	Dynamics of memristor based coupled chaotic circuits	32,04,400/-

### Events organized in leading roles

Number of Seminars / Conferences / Workshops / Events organized: 3

1. Conferences Conducted : National Seminar on Nonlinear Electronics and Spintronics, School of Physics, Bharathidasan University, Tiruchirappalli 620 024 (20-21 March, 2009).
2. Co- organizer : Six th National Conference On Nonlinear System and Dynamics - (NCNSD – 2011), Bharathidasan University, Tiruchirappalli – 620 024 (27 - 30 January, 2011).
3. Refresher Course Conducted : UGC Refresher course in Physical Sciences, Academic Staff College, Bharathidasan University, Tiruchirappalli - 620 024 (1 - 21 February, 2007).

### Events Participated (optional)

#### Conferences / Seminars / Workshops: 26

1. International Conference on Perspectives in Nonlinear Dynamics (PNLD), ITT Chennai and IMSC Chennai, July 12-15, 2004.
2. National Conference on Nonlinear Systems and Dynamics (NCNSD-2006), Ramanujm Institute for Aadvanced study in Mathematics, University of Madras, Chennai (2006).
3. State level seminar on current advancements in physics, Department of Physics, St. John's College, Palayamkottai-2, 22 September, 2006.
4. National Seminar on Nonlinear Electronics and Spintronics, School of Physics, Bharathidasan University, Tiruchirappalli – 620 024, 20, 21 March, 2009.

5. Recent and emerging developments on physics, held at Women's Christian college, Nagorkovil, during 7 – 9, January, 2010.
6. Acted as resource person for UGC Refresher Course in Academic Staff College, Pondichery University, Pondichery, held at March, 12, 2010.
7. Presented a talk at the conference on “Computational Methods for Nonlinear Dynamics” held at School of Physics, Bharathidasan University, Tiruchirappalli, during 22-25 September, 2010.
8. Presented a talk at the conference on “Nonlinear Dynamics of Electronic Systems” Saha Institute of Nuclear Physics, Kolkata, India, during 8 – 11 March, 2011.
9. Presented a talk on “Recent Trends in Mathematics and Physics” at Sudharsan College of Arts and Science, Pudukottai, 17 March, 2011.
10. Presented a talk on “Nonlinear phenomena in simple nonlinear electronic circuits” at MNNIT, Allahabad at 12 April, 2011.
11. Presented a talk on “3rd international symposium on complex dynamical systems and applications” at Indian Statistical Institute, Kolkata at March 10 12, 2014.
12. Presented a talk on “DST-SERC School on Nonlinear Dynamics” at Central University of Rajasthan, December 1-20, 2014.
13. Presented a talk on “Nonlinear systems and Dynamics” held at Indian Institute of Science Education and Research, Mohali, India, during 13- 15, March 2015.
14. Presented a talk on “Recent Advancements in Frontier Areas of Materials Science” held at Alagappa University, Karaikudi. 23-24, March 2016.
15. Presented a talk on “One day seminar” held at Nehru Memorial College, Puthanampatti. 29 September 2016.
16. Presented a talk on “One day workshop” held at karpagam university, coimbatore. 6 October 2016.
17. Presented a talk on “International Conference on Advanced Materials & its Applications” held at Thanthai Hans Roever College, Perambalur during August 14, 2018.
18. Presented a paper at “Conference on Nonlinear Systems and Dynamics - 2018” at Jawaharlal Nehru University, New Delhi, during 11 October 2018 to 14 October 2018.

## **Other Training Programs**

1. Winter School in “Integrable Systems and Low Dimensional Many body Problems” held in the Department of Physics, Bharathidasan University, Tiruchirappalli-24, 18th to 23<sup>rd</sup> December, 1995.
2. Workshop on “Nonlinear Dynamics Unit” held in the Department of Physics, Bharathidasan University, Tiruchirappalli-24, 22 to 24 August, 1996.
3. Workshop on “Recent Development in Chaotic Dynamics” held in the Department of Physics, Bharathidasan University, Tiruchirappalli-24, 9-13 December 1996.
4. Workshop on “Statistical Physics” held in the Department of Physics, Bharathidasan University, Tiruchirappalli-24, 20 March 1997 to 1 April 1997.
5. National workshop on “Molecular Biophysics” held in the Department of Physics, Bharathidasan University, Tiruchirappalli-24, 28-30 March, 2001.
6. National Conference on recent advances in nonlinear science-2002, IISc and ISRO, Bangalore, 31 July to 2 August, 2002.
7. Workshop on “Nonlinear Optics” held in the Department of Physics, Bharathidasan University, Tiruchirappalli – 620 024, 10 - 13 December, 2003.
8. Workshop on “High performance Computing” held in the Department of Physics, Bharathidasan University, Tiruchirappalli – 620 024, 23 -27 August, 2010.

## **Overseas Exposure / Visits**

1. Visitor at the Abdus Salam International Centre for Theoretical Physics (ICTP), Italy.
2. Prof. Tomasz Kapitaniak, Laboratory of Division of Dynamics at Technical University of Lodz, Poland.
3. Prof. Kazuyuki Aihara, Institute of Industrial Science, University of Tokyo Collaborative Research Center for Innovative Mathematical Modelling, University of Tokyo, Japan.

## **Membership in**

### **Professional Bodies**

1. Life Member: --
2. Life Member: --

## Advisory Board

1. Member of the Syndicate
2. Member of the Senate

## Academic Bodies (such as Board of Studies , etc.,)

Member Board of Studies in Physics in Universities and various colleges

## Resource persons in various capacities

Number of Invited / Special Lectures delivered: 10

## Others

1. Articles published in Newspapers / Magazines : - Nil -
2. Products developed : - Nil -
3. No. of PhD Thesis evaluated : 12
4. No. of PhD Public Viva Voce Examination conducted : 8

\*\*Social Interests and Initiatives / Articles in News papers etc can also be included

## Recent Publications

1. S. Sabarathinam, **K. Thamilmaran, (2018)**, "Controlling of chaos in a tumor growth cancer model: An experimental study" Electronics Letters. (Impact Factor:1.232).
2. D. Premraj, K. Suresh, Tanmoy Banerjee, **K. Thamilmaran, (2018)**, "Bifurcation delay in a network of locally coupled slow-fast systems", Physical Review E, **98**, 022206. (Impact Factor: 2.284).
3. P. Megavarna Ezhilarasu, M. Inbavalli, K. Murali, **K. Thamilmaran, (2018)**, "Strange non-chaotic attractors in a state controlled-cellular neural network-based quasiperiodically forced MLC circuit" Pramana, **91**, 4 . (Impact Factor: 0.699).
4. V. Vaibhav, S. Sabarathinam, A. Prasad, **K. Thamilmaran, (2018)**, "Infinite number of hidden attractors in memristor-based autonomous duffing oscillator", International Journal of Bifurcation and Chaos, **28**, 1850013. (Impact Factor:1.329).

5. J. Palanivel, K. Suresh, D. Premraj, **K. Thamilmaran, (2018)**, "Effect of fractional-order, time-delay and noisy parameter on slow-passage phenomenon in a nonlinear oscillator", *Chaos, Solitons & Fractals*, **106**, 35-43 . (Impact Factor: 2.213).
6. S. Leo Kingston, **K. Thamilmaran**, Pinaki Pal, Ulrike Feudel, Syamal K Dana, **(2017)**, "Extreme events in the forced Liénard system" *Physical Review E*, **96**, 052204 . (Impact Factor: 2.284).
7. K. Suresh, J. Palanivel, **K. Thamilmaran , (2017)**, "Successive torus doubling and birth of strange non-chaotic attractors in non-linear electronic circuit" *Electronics Letters*, **53**, 1464. (Impact Factor: 1.232).
8. S. Leo Kingston, **K. Thamilmaran, (2017)**, "Bursting Oscillations and Mixed-Mode Oscillations in Driven Liénard System", *International Journal of Bifurcation and Chaos*, **27**, 1730025.(Impact Factor: 1.329).
9. R. Rocha, R. Jothimurugan, **K. Thamilmaran, (2017)**, "Memristive oscillator based on Chua's circuit: stability analysis and hidden dynamics", *Nonlinear Dynamics*, **88**, 2577. (Impact Factor: 4.339).
10. D. Premraj, K. Suresh, J. Palanivel, **K. Thamilmaran, (2017)**, "Dynamic bifurcation and strange nonchaos in a two-frequency parametrically driven nonlinear oscillator" *Communications in Nonlinear Science and Numerical Simulation*, **50**, 103. (Impact Factor: 3.181).
11. D. Premraj, K. Suresh, Tanmoy Banerjee, **K. Thamilmaran, (2017)**, "Control of bifurcation-delay of slow passage effect by delayed self-feedback " *Chaos* **26**, 083104. (Impact Factor: 2.415).
12. J. Palanivel, K. Suresh, S. Sabarathinam, **K. Thamilmaran, (2017)**, "Chaos in a low dimensional fractional order nonautonomous nonlinear oscillator" *Chaos, Solitons & Fractals* **95**, 33. (Impact Factor: 2.415).
13. S. Sabarathinam, **K. Thamilmaran, (2017)** "Implementation of analog circuit and study of chaotic dynamics in a generalized Duffing-type MEMS resonator" *Nonlinear Dynamics*, **87**, 2345. (Impact Factor: 4.339).
14. S. Sabarathinam, Christos K Volos, **K. Thamilmaran, (2017)**, "Implementation and study of the nonlinear dynamics of a memristor-based Duffing oscillator" *Nonlinear Dynamics*, **87**, 37. (Impact Factor: 4.339).
15. K. Suresh, S. Sabarathinam, **K. Thamilmaran**, Jürgen Kurths, Syamal K. Dana, **(2016)**, "A common lag scenario in quenching of oscillation in coupled oscillators" *Chaos* **26**, 083104. (Impact Factor: 2.415).
16. D. V. Senthilkumar, K. Suresh, V. K. Chandrasekar, Wei Zou, Syamal K. Dana, **K. Thamilmaran , Jürgen Kurths, (2016)**, "Experimental demonstration of revival of oscillations from death in coupled nonlinear oscillators" *Chaos* **26**, 043112. (Impact Factor: 2.415).



17. P. R. Sharma, N. K. Kamal, U. K. Verma, K. Suresh, **K. Thamilmaran**, M D Shrimali, (2016), "Suppression and revival of oscillation in indirectly coupled limit cycle oscillators" *Physics Letters A* **380**, 3178. (Impact Factor: 1.863).
18. A. Jeevarekha, S. Sabarathinam, **K. Thamilmaran**, P. Philominathan, (2016), "Analysis of 4D autonomous system with volume-expanding phase space" *Nonlinear Dynamics* **84**, 2273, (Impact Factor: 4.339).
19. R. Jothimurugan, **K. Thamilmaran**, S. Rajasekar, MAF Sanjuán, (2016), "Multiple resonance and anti-resonance in coupled Duffing oscillators" *Nonlinear Dynamics* **83**, 1803. (Impact Factor: 4.339)
20. D. Premraj, K. Suresh, Tanmoy Banerjee, **K. Thamilmaran**, (2016), "An experimental study of slow passage through Hopf and pitchfork bifurcations in a parametrically driven nonlinear oscillator" *Communications in Nonlinear Science and Numerical Simulation*, **37**, 212. (Impact Factor: 3.181).
21. A. Arulgnanam, A. Prasad, **K. Thamilmaran**, M. Daniel, (2015), "Multilayered bubbling route to SNA in a quasiperiodically forced electronic circuit with experimental and analytical confirmation" *Chaos, Solitons & Fractals*, **75**, 96. (Impact Factor: 2.213).
22. R. Jothimurugan, **K. Thamilmaran**, S. Rajasekar and M. A. F. Sanjuán, (2015), "Multiple resonance and anti-resonance in coupled Duffing oscillators", *Nonlinear Dynamics* **83**, 1803. (Impact Factor: 4.339).
23. A. Arulgnanam, **K. Thamilmaran**, M. Daniel, (2015), "A Rich Spectrum of Dynamical Phenomenon in a Forced Parallel LCR Circuit with a Simple Nonlinear Element" *Chinese Journal of Physics* **53**, 22. (Impact Factor: 1.051).
24. S. Sabarathinam, **K. Thamilmaran**. (2015), "Transient chaos in a globally coupled system of nearly conservative Hamiltonian Duffing oscillators" *Chaos, Solitons & Fractals*, **73**, 129 (Impact Factor: 2.213).
25. A. Arulgnanam, A. Prasad, **K. Thamilmaran**, M. Daniel, (2015), "Multilayered bubbling route to SNA in a quasiperiodically forced electronic circuit with a simple nonlinear element" *International Journal of Dynamics and Control*, 1. (Impact Factor: 1.437).
26. P. S. Swathy, **K. Thamilmaran**, (2014), "Hyperchaos in SC-CNN based modified canonical Chua's circuit" *Nonlinear Dynamics*, **78**, 2639 .(Impact Factor: 4.339).
27. P. S. Swathy, S. Sabarathinam, K. Suresh, **K. Thamilmaran**, (2014), "Chaos synchronization and transmission of information in coupled SC-CNN-based canonical Chua's circuit" *Nonlinear Dynamics*, **78**, 1033 . (Impact Factor: 4.339).
28. K. Suresh, MD. Shrimali, A. Prasad, **K. Thamilmaran**, (2014), "Experimental evidence for amplitude death induced by a time-varying interaction" *Physics Letters A*, **378**, 2845. (Impact Factor: 1.863).

29. R. Jothimurugan, K. Suresh, P. Megavarna Ezhilarasu and **K. Thamilmaran, (2014)**, "Improved realization of Canonical Chua's Circuit using current feedback operational amplifier" *AEU-International Journal of Electronics and Communications*, **68**, 413. (Impact Factor: 1.437).
30. A. Sharma, K. Suresh, **K. Thamilmaran**, A. Prasad, MD. Shrimali, **(2014)**, "Effect of parameter mismatch and time delay interaction on density-induced amplitude death in coupled nonlinear oscillators" *Nonlinear Dynamics*, **76**, 1797. (Impact Factor: 4.339).
31. P. S. Swathy. **K. Thamilmaran, (2014)**, "SC-CNN based variant MLC circuit: An experimental study" *International Journal of Bifurcation and Chaos*, **24**, 1430008. (Impact Factor: 1.329).
32. S. Sabarathinam, **K. Thamilmaran**, L. Borkowski, P. Perlikowski, A. Stefanski and T. Kapitaniak, **(2013)**, "Experimental observation of two types of transient chaos in two coupled, dissipatively perturbed Hamiltonian Duffing oscillators" *Communication in nonlinear science and numerical simulation*, **18**, 3098. (Impact Factor: 3.181).
33. R. Jothimurugan, **K. Thamilmaran**, S. Rajasekar, MAF. Sanjuán, **(2013)**, "Experimental Evidence for Vibrational Resonance and Enhanced Signal Transmission in Chua's Circuit" *International Journal of Bifurcation and Chaos*, **23**, 1350189. (Impact Factor: 1.329).
34. K. Suresh, **K. Thamilmaran** and A. Prasad, **(2013)**, "Birth of strange nonchaotic attractors through formation and merging of bubbles in a quasiperiodically forced Chua's oscillator" *Physics Letters A*, **377**, 612. (Impact Factor: 1.863).
35. P. S. Swathy. **K. Thamilmaran, (2013)**, "An experimental study of SC-CNN based canonical Chua's circuit, *Nonlinear Dynamics* **71**, 505. (Impact Factor: 4.339).
36. K. Sakthivel. S. Rajasekar, **K. Thamilmaran** and S. K. Dana, **(2012)**, "Statistical measures and diffusion dynamics in a modified Chua's circuit equation with multi-scroll attractors" *Int. J. Bifurcation and Chaos*, **22**, 1250004. (Impact Factor: 1.329).
37. I. Manimehan, **K. Thamilmaran** and P. Philominathan, **(2011)**, "Torus breakdown to chaos via Period-3 doubling route in a modified canonical Chua's circuit" *Int. J. Bifurcation and Chaos*, **21**, 1. (Impact Factor: 1.329).
38. K. B. Rajesh, P. M. Anbarasan and K. Thamilmaran, **(2008)**, "Nanoscale resolution lens axicon for high density optical recording using crypton ion laser", *JP Journal of Solids and structure*, **2** 139. (Impact Factor: 0.829).
39. K. Srivivivasan, D. V. Senthilkumar, R. Suresh, **K. Thamilmaran** and M. Lakshmanan, **(2009)**, "Experimental realization of strange nonchaotic Attractors in Nonlinear Series LCR Circuit with Nonsinusoidal Force" , *Int. J. Bifurcation and Chaos*, **19**, 1. (Impact Factor: 1.329).
40. A. Arulgnanam, **K. Thamilmaran** and M. Daniel, **(2009)**, "Chaotic dynamics with high complexity in a simplified new nonautonomous nonlinear electronic circuit", *Chaos, Solitons and Fractals*, **42**, 2246. (Impact Factor: 2.213).

41. I. Manimehan, **K. Thamilaran** and P. Philominathan, (2009), "Enriched dynamics of a simple nonlinear nonautonomous parallel LCR circuit", *Int. J. Bifurcation Chaos* **19**, 7. (Impact Factor: 1.329).
42. K. Srinivasan, **K. Thamilaran** and A. Venkatesan, (2009), "Classification of bifurcations and chaos in Chua's circuit with effect of different periodic forces", *Int. J. Bifurcation Chaos* **19**, 6. (Impact Factor: 1.329).
43. K. Srinivasan, **K. Thamilaran** and A. Venkatesan, (2009). "Effect of nonsinusoidal periodic forces in Duffing oscillator: Numerical and analog simulation studies", *Journal of Chaos, Soliton and Fractals*, **40**, 319. (Impact Factor: 2.213).
44. D. V. Senthilkumar, K. Srinivasan, **K. Thamilaran** and M. Lakshmanan, (2008), "Bubbling route to strange nonchaotic attractor in a nonlinear series LCR circuit with a nonsinusoidal force, *Phys. Rev. E* **78**, 1. (Impact Factor: 2.284).
45. **K. Thamilaran**, D. V. Senthilkumar, A. Venkatesan and M. Lakshmanan, (2006), "Experimental realization of Strange nonchaotic attractors in a quasiperiodically forced electronic circuit," *Phys. Rev. E* **74**, 036205. (Impact Factor: 2.284).
46. **K. Thamilaran**, D. V. Senthilkumar, M. Lakshmanan and A.Ishaq Ahmed, (2005), "Strong chaos in a forced negative conductance series LCR circuit", *Int. J. Bifurcation Chaos* **15**, 637. (Impact Factor: 1.329).
47. **K. Thamilaran**, M. Lakshmanan and A. Venkatesan, (2004), "Hyperchaos in a modified canonical Chua's circuit", *Int. J. Bifurcation Chaos* **14**, 221. (Impact Factor: 1.329).
48. **K. Thamilaran** and M. Lakshmanan, (2002), "Classification of bifurcations and routes to chaos in a variant of Murali-Lakshmanan-Chua circuit, *Int. J. Bifurcation Chaos* **12**, 783. (Impact Factor: 1.329).
49. **K. Thamilaran**, M. Lakshmanan and K. Murali, (2000), "Rich variety of bifurcations and chaos in a variant of Murali-Lakshmanan-Chua circuit, *Int. J. Bifurcation Chaos* **10**, 1781. (Impact Factor: 1.329).

#### **Book Chapter:**

1. R. Jothimurugan, S. Sabarathinam, K. Suresh, **K. Thamilaran**, "Experimental Analogue Implementation of Memristor Based Chaotic Oscillators, *Advances in Memristors, Memristive Devices and Systems*, **701**, 343 (2017).
2. V. Vaibhav, S. Sabarathinam, **K. Thamilaran**, M. D. Shrimali, Awadhesh Prasad, "Existence and control of hidden oscillations in a memristive autonomous Duffing oscillator" *Nonlinear Dynamical Systems with Self-Excited and Hidden Attractors*, Springer, Cham, 327-344 (2018).