Dr. K. SRINIVASAN
Assistant Professor

Contact

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Academic Qualifications

Degree	Name of Institute	Year of Passing	Class	Subject
Ph.D.	National Institute of Technology (NIT), Tiruchirappalli-620 015, India	2009		Physics
M.Sc.	Bharathidasan University, Tiruchirappalli-620 024, India	2002	First Class	Physics
B.Sc.	Bharathidasan University, Tiruchirappalli-620 024, India	2000	First Class	Physics

Ph.D Thesis

Title of the Thesis	: **Bifurcations, Chaos and Strange Nonchaos in Certain Nonautonomous Nonlinear Circuits**
Place	: Department of Physics National Institute of Technology (NIT) Tiruchirappalli - 620 015, India
Research Supervisor	: Prof. D. Sastikumar
Duration	: July 2004 – August 2009

Position Held

Teaching Experience : 7 Years (both UG and PG)

Designation	From	To	Total
Assistant Professor-II (SS) Department of Physics, Nehru Memorial College, Puthanampatti-621 007	19 May 2018	Present	3 Years +
Assistant Professor-II Department of Physics, Nehru Memorial College, Puthanampatti-621 007	19 May 2014	18 May 2018	4 Years

Research Experience : 18 Years

Years of Experience : (2009 – present)

- Post Doctoral Research : More than Four Years
- During Ph.D. : Five Years
- Pre-Doctoral Research : Two Years

1. Designation : **Scientist**
   Research Supervisor : Prof. M. Lakshmanan
   Place : Centre for Nonlinear Dynamics, School of Physics, Bharathidasan University, Tiruchirappalli, India

	Title	: Nonlinear Dynamics – Chaotic Circuits
	Sponsored	: Department of Science and Technology (DST), Government of India
	Duration	: 29 November 2011 – 16 May 2014
2.	Designation	: **Research Associate (RA)**
	Research Supervisor	: Prof. M. Lakshmanan
	Place	: Centre for Nonlinear Dynamics, School of Physics, Bharathidasan University, Tiruchirappalli, India
	Title	: Nonlinear Dynamics – Chaotic Circuits
	Sponsored	: Department of Science and Technology (DST), Government of India
	Duration	: 26 October 2010 – 28 November 2011
3.	Designation	: **Senior Research Fellow (SRF)**
	Research Supervisor	: Prof. M. Lakshmanan
	Place	: Centre for Nonlinear Dynamics, School of Physics, Bharathidasan University, Tiruchirappalli, India
	Title	: Nonlinear Dynamics – Chaotic Circuits
	Sponsored	: Department of Science and Technology (DST), Government of India
	Duration	: 16 February 2009 – 25 October 2010
4.	Designation	: **National Doctoral Fellow (NDF)**
	Research Supervisor	: Prof. D. Sastikumar
	Place	: Department of Physics, National Institute of Technology, Tiruchirappalli, India
	Title	: Controlling and Synchronization of chaotic nonlinear circuit networks
	Sponsored	: All India Council for Technical Education (AICTE), Government of India
	Duration	: November 2004 - November 2008
5.	Designation	: **Project Assistant (PA)**
	Place	: Department of Physics, National Institute of Technology, Tiruchirappalli, India
	Title	: Bifurcation and chaos in periodically pulsed nonlinear electronic circuits – application to chaotic cryptography and secure communication
	Sponsored	: Defence Research & Development Organization (DRDO), Government of India
	Duration	: October 2002 - October 2004

Areas of Research

- Nonlinear Dynamics, Chaos, Synchronization of Chaos
- Chaotic Circuit Design, Nonlinear Electrical Circuits and its Applications
- Time Delay Circuits and Systems, Chaotic Circuit Networks
- Memristor Based Chaotic Circuit

Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	Ph.D	--	
	M.Phil	9	
Project	PG	12	
	UG / Others	2	

Publications

International		National		Others
Journals	**Conferences**	**Journals**	**Conferences**	**Books/Chapters/ Monographs/Manual**
21	**4**	**--**	**3**	**--**

Cumulative Impact Factor (as per JCR) : **45.576 (IM.F: 0.359 to 3.967)**
h-index : **12**
i10 index : **14**
Total Citations : **362**

Funded Research Projects

Completed Projects: 2

S. No.	Funding agency	Project Title	Budget (Rs. In lakhs)	Period	
				From	To
1.	FAST TRACK - YOUNG SCIENTISTS, SERB-DST, Govt. of India.	Design and study of regular and delayed chaotic circuits for emergent nonlinear phenomena	24,65,000/-	2014	2017
2	National Doctoral Fellow (NDF), AICTE, Govt. of India.	Controlling and Synchronization of chaotic nonlinear circuit networks	5,67,000/-	2004	2008

Distinctive Achievements /Academic Honours / Awards

1. **Young Scientist** award of SERB-DST Fast Track (Year 2014)
2. **Scientist**, Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirapalli, India (Year 2011)
3. **Research Associate (RA)**, Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirapalli, India (Year 2010)
4. **Senior Research Fellow (SRF)**, Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirapalli, India (Year 2009)
5. **National Doctoral Fellowship (NDF)** awarded by All India Council for Technical Education, New Delhi, India (Year 2004).
6. Dr. C. Naivar Mohamed endowment award for the topper in the M.Sc., Physics, Jamal Mohamed College, Tiruchirappalli, Tamilnadu, India (Year 2003)

7. Prof. R. Ranganathan endowment award for the topper in the M.Sc., Physic, Jamal Mohamed College, Tiruchirappalli, Tamilnadu, India (Year 2003)

8. Prof. R. Ranganathan award for the top score in Mathematical Physics, Jamal Mohamed College, Tiruchirappalli, Tamilnadu, India (Year 2002)

9. Prize for college first in M.Sc., program, Jamal Mohamed College, Tiruchirappalli, Tamilnadu, India (Year 2002)

Events organized in leading roles

Number of Seminars / Conferences / Workshops / Events organized: 05

S. No.	Name of the Programme	Role of Responsibility held	Name of the Resource Person	Date of the Event
1	Seminar on "Memristor Based Chaotic Circuits"	Co- organizer	**Dr. T.F. Fozin** University of Dschang, Cameroon	07 July 2017
2	One day Seminar on "INTRODUCTION TO QUANTUM COMPUTATION"	Co- organizer	**Dr. V. Balakrishna** VIT, Vellore	14 March 2017
3	One day Workshop on "CHAOS IN A SIMPLE NONLINEAR ELECTRONIC CIRCUIT AND ITS APPLICATIONS"	Co- organizer	**Prof. K. Thamilmarn** CNLD, Bharathidasan University, Trichy	30 September 2016
4	One day Seminar on "SOLAR MODULE PRODUCTION"	Co- organizer	**Dr. V. Krishnakumar** CTF Solar GMbH, Dresden, Germany	26 December 2016
5	One day Workshop on "APPLICATION OF VECTOR CALCULUS"	Co- organizer	**Prof. M. Senthilvelan** CNLD, Bharathidasan University, Trichy	18 August 2016

6	One day Seminar on "Physics as a Future Career for Youngsters"	Co- organizer	**Prof. M. Lakshmanan** CNLD, Bharathidasan University, Trichy	June 27, 2016

Academic / Administrative Responsibilities

1. Lab in-charge for B.Sc. (Physics) for 2015- present.
2. Nonlinear Electronics Laboratory has been established for carrying out research work including PG and M.Phil. projects. This lab is established for Rs 24,65,000/- funded by SERB-DST, Government of India in support with the management.
3. Member, UG & PG Board of Studies, Department of Physics, Nehru Memorial College, Puthanampatti.
4. Participate and actively involved in assisting the functions like Department association function, Convocation etc. organized by the Department and College.

Acted as member in Doctoral committees of

1. Department of Physics, Nehru Memorial College, Puthanampatti
2. Department of Physics, National College, Trichy
3. Department of Physics, Srimad Andavan Arts and Science College, Trichy

Professional Development

Orientation / Refresher Course / FDP / Short Term Course / Online Course : 8

Orientation Programme(s)	Refresher Course(s)	Faculty Development Programme(s)	Short Term Course(s)	Online Course(s)
1	2	4	2	1

1. Refresher Course in Physics, UGC - Human Resource Development Centre (HRDC), Bharathidasan University, Tiruchirapalli (2019).

2. Science Academies' Refresher Course on 'Quantum Mechanics', VIT, Chennai (2018).

3. Participated Orientation Programme at UGC- Academic Staff College, Bharathidasan University, Trichy – 620023 from 06-11-2014 to 03-12-2014.

4. Participated one day Faculty Development Programme on "Sustenance/Enhancement of Quality in Higher Education" organized by Nehru Memorial College (Autonomous), Puthanampatti on 5th August 2015 under the Aegis of UGC autonomous grant.

5. Faculty Development Programme on 'Impact of Research on Teaching in Higher Education', Organized by Internal Quality Assurance Cell, Nehru Memorial College, Puthanampatti- 621007, June 11, 2014.

Membership in

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

- Board of Studies: B.Sc and M.Sc Physics (Nehru Memorial College, Puthanampatti).

Referee (Peer Reviewed Journal)

- **Nonlinear Dynamics (**An International Journal of Nonlinear Dynamics and Chaos in Engineering Systems), Springer.

- **Chaos, Solitons & Fractals,** Elsevier.

Events Participated

Conferences/Seminars/Workshops : 20

1. Participated in the NMI Workshop on Nonlinear integrable systems and their applications held at Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirappalli, February 24- March 01, 2014.

2. Participated in the **DST SERC School** on *Nonlinear Dynamics* held at Centre for Nonlinear Dynamics, Bharathidasan University, Tiruchirappalli, January 04-26, 2011.

3. Participated in the seminar on Frontier topics in fundamental physics on March 30-31, 2009 at School of Physics, Bharathidasan University, Trichy – 620 024.

4. Participated in the workshop on Nanostructures and devices on 23 February, 2008 at Department of Physics, National Institute of Technology, Trichy – 620 015.

5. Participated in the International Conference on Recent developments in nonlinear dynamics organized at the Centre for Nonlinear Dynamics, School of Physics, Bharathidasan University, Trichy – 620 024 during 12-16, February 2008.

6. Participated in the lecture workshop of frontier topics in physics on 4 & 5, February 2008 organized by Department of Physics, Bishop Heber College, Trichy – 620 017.

7. Participated in the workshop on Advanced Coating Technologies and their Applications on 24th January 2008 at Department of Physics, National Institute of Technology, Trichy – 620015.

8. Participated in the workshop on Advanced Materials & Devices on 10th January, 2008 at Department of Physics, National Institute of Technology, Trichy – 620015.

9. Participated in the two-day workshop on computational fluid dynamics on 17 & 18 September, 2007 at Department of Mathematics, National Institute of Technology, Trichy – 620 015.

10. Participated in the workshop on High performance Computing held during August 6-9, 2007 organized by Centre for Nonlinear Dynamics, School of Physics, Bharathidasan University & C-DAC, Pune.

11. Participated in the workshop on Laser materials processing (LAMP – 2007) on 9 & 10, January 2007 in National Institute of Technology, Trichy – 620 015.

12. Participated in the workshop on communication skills conducted by Department of Physics, NIT, Trichy – 620015 on December 01, 2006.

13. Participated in the third National Conference on Nonlinear Systems and Dynamics (NCNSD- 2006), The Ramanujan Institute for Advanced Study in Mathematics, University of Madras, Chennai - February, 2006.

14. Participated in the second **DST SERC School** on *Nonlinear Dynamics* held at Pondicherry University, Pondicherry, January 04-24, 2006.

15. Participated in the seminar on Recent Developments in Physics conducted by School of Physics, Bharathidasan University, Trichy – 620024 during 21-22, November 2005.

16. Participated in the workshop on Optics & Photonics (WOOP-2005) held on 18, 19 August 2005 organized by Department of Physics, NIT, Trichy – 620 015.

17. Participated in the workshop on Mathematical Neurosciences – An Introduction on July 27, 2005 organized by Nonlinear Studies Group, IISc, Bangalore – 560012.

18. Participated in the second National Conference on Nonlinear Systems and Dynamics held at Department of Physics, Aligarh Muslim University, Aligarh, Delhi during 24-26 February, 2005.

19. Participated in the summer School 2004 from May 31st – June 5th, 2004 organized by Nonlinear Studies Group, IISC, Bangalore – 560012.

20. Participated in the winter School on Nonlinear Optics: Theory and Applications organized by the Centre for Nonlinear Dynamics, Bharathidasan University, Trichy – 620 024 during December 1-13, 2003.

Resource persons in various capacities

Number of Invited / Special Lectures delivered : 4

1. Acted as a resource person and conducted experimental lab session in **SERB School on "Nonlinear Dynamics"** at *IIT Patna* during 23-25 December 2019.

2. Acted as a resource person and conducted experimental lab session in **SERB School on "Nonlinear Dynamics"** at *Guru Nanak Dev University, Amritsar* during 09-12 December 2018.

3. Acted as a resource person and conducted experimental lab session in **SERB School on "Nonlinear Dynamics"** at *Savitribai Phule Pune University, Pune* during 24-25 January 2018.

4. Acted as a resource person and delivered a special lecture on "*Nonlinear Electronic Circuits: A study of their design normal and time delay systems*", **Summer Research Training Programme (SRTP – 2015)** held at Bishop Heber College, Trichy during May 11-18, 2015.

Extension Activities / Outreach Programme

1. Organized industrial visit for UG students (2015).

2. Organized industrial visit for PG and UG students (2020).

Publications

List of Publications in Refereed International Journals

1. "Synchronization, phase-flip transition and amplitude death in delay-coupled nonlinear electronic circuits" B. Akila, **K. Srinivasan**, P. Muruganandam and K. Murali, *Commun Nonlinear Sci Numer Simul* (submitted).

2. "Complex Dynamics in a Memristive Diode Bridge-Based MLC Circuit: Coexisting Attractors and Double-Transient Chaos" A. Chithra, T. F Fozin, **K. Srinivasan**, ER Mache Kengne, A T. Kouanou, I. Raja Mohamed, *Int. J. Bifurcation and Chaos* 31, 2150049 (2021).

3. "Multistability control of space magnetization in hyperjerk oscillator: a case study" G. D. Leutcho, J. Kengne, T. F. Fozin, **K. Srinivasan**, Z N. Tabekoueng, S. Jafari, M. Borda, *J. Comput. Nonlinear Dynam.,* 15(5), 051004 (2020).

4. "Control of multistability in a self-excited memristive hyperchaotic oscillator" T. Fonzin Fozin, R. Kengne, **K. Srinivasan**, J. Kengne and F.B. Pelap, *Int. J. Bifurcation and Chaos* 29, 1950119 (2019).

5. "Coexisting Bifurcations in a Memristive Hyperchaotic Oscillator", T. Fozin Fonzina, **K. Srinivasan**, J. Kengne, F. B. Pelap, *Int. J. Electronics and Communications* 90, 110-122 (2018).

6. "Dynamics of Periodically Pulsed Driven Chua's Circuit", M. Inbavalli, **K. Srinivasan**, R. Gladwin Pradeep, A. Venkatesan and K. Murali, *Journal of Computational and Theoretical Nanoscience* 15, 854-858 (2018).

7. "Duffing-Van der Pol oscillator type dynamics in Murali-Lakshmanan-Chua (MLC) circuit", **K. Srinivasan**, V. K. Chandrasekar, I. Raja Mohamed and A. Venkatesan, *Chaos, Solitons & Fractals* 82, 60-71 (2016)

8. "Different types of synchronization in coupled network based chaotic circuits" **K. Srinivasan**, V.K. Chandrasekar, R. Gladwin Pradeep, K. Murali and M. Lakshmanan, *Commun Nonlinear Sci Numer Simul* 39, 156-168 (2016).

9. "Dynamic environment coupling induced synchronized states in coupled time-delayed electronic circuits" R. Suresh, **K. Srinivasan**, D.V. Senthilkumar, K. Murali, M. Lakshmanan, J. Kurths, *Int. J. Bifurcation and Chaos* 24, 1450067 (2014).

10. "Zero-lag synchronization in coupled time-delayed piecewise linear electronic circuits", R. Suresh, **K. Srinivasan**, D.V. Senthilkumar, I. Raja Mohamed, K. Murali, M. Lakshmanan and J. Kurths, *European Physical Journal Special Topics* 222, 729-744 (2013).

11. "Anticipating, complete and lag synchronizations in RC phase-shift network based coupled Chua's circuits without delay", **K. Srinivasan**, D.V. Senthilkumar, I. Raja Mohamed, K. Murali, M. Lakshmanan and J. Kurths, *CHAOS* 22, 023124 (2012).

12. "Synchronization transitions in coupled time-delay electronic circuits with a threshold nonlinearity", **K. Srinivasan**, D.V. Senthilkumar, K. Murali, M. Lakshmanan and J. Kurths, *CHAOS,* 21, 023119 (2011).

13. "Observation of chaotic beats in a driven memristive Chua's circuit", A. Ishaq Ahamed, **K. Sinivasan**, K. Murali and M. Lakshmanan, *Int. J. Bifurcation and Chaos*, 21, 737-757 (2011).

14. "Design of time delayed chaotic circuit with threshold controller", **K. Srinivasan**, I. Raja Mohamed, K. Murali, M. Lakshmanan and Sudeshna Sinha, *Int. J. Bifurcation and Chaos,* 21, 725-735 (2011).

15. "Experimental confirmation of chaotic phase synchronization in coupled time-delayed electronic circuits", D.V. Senthilkumar, **K. Srinivasan**, K. Murali, M. Lakshmanan and J. Kurths, *Phys. Rev. E (Rapid Communication)* 82, 065201 (2010).

16. "Experimental realization of strange nonchaotic attractors in a nonlinear series LCR circuit with nonsinusoidal force", **K. Srinivasan**, D.V. Senthilkumar, R. Suresh, K. Thamilmaran and M. Lakshmanan, *Int. J. Bifurcation and Chaos* 19, 4131–4163 (2009).

17. "Classification of bifurcations and chaos in Chua's circuit with effect of different periodic forces", **K. Srinivasan**, K. Thamilmaran and A. Venkatesan, *Int. J. Bifurcation and Chaos* 19, 1951-1973 (2009).

18. "Effect of nonsinusoidal periodic forces in Duffing oscillator: Numerical and analog simulation studies", K. **Srinivasan**, K. Thamilmaran and A. Venkatesan, *Chaos, Solitons & Fractals* 40, 319-330 (2009).

19. "Bubbling route to strange nonchaotic attractor in a nonlinear series LCR circuit with a nonsinusoidal force", D.V. Senthilkumar, **K. Srinivasan**, K. Thamilmaran and M. Lakshmanan, *Phys. Rev. E* 78, 066211(10) (2008).

20. "Multiple period doubling bifurcation route to chaos in periodically pulsed Murali-Lakshmanan-Chua (MLC) circuit", **K. Srinivasan**, *Int. J. Bifurcation and Chaos* 18, 541-555 (2008).

21. "Multiple period-doubling bifurcation route to chaos in periodically pulsed chaotic oscillators", S. Parthasarathy and **K. Srinivasan**, *Proc. of Dynamic Systems and Applications* 4, 52-60 (2004).

List of Publications in Refereed International Conference Proceedings

22. "Lag and anticipating synchronization in one way coupled Chua's circuit", I. Raja Mohamed and **K. Srinivasan,** *IEEE Proc. of* Devices, Circuits and Systems (ICDCS), 14685241 (2014) DOI: 10.1109/ICDCSyst.2014.6926128.

23. "Simple nonautonomous Wien-bridge oscillator based chaotic circuit", R. Rizwana, I. Raja Mohamed, **K. Srinivasan** and M. Inbavalli, *IEEE Proc. of* Devices, Circuits and Systems (ICDCS), 14685176 (2014) DOI: 10.1109/ICDCSyst.2014.6926121.

24. "Phase-flip transition in coupled time-delayed piecewise linear electronic circuits" B. Akila, **K. Srinivasan**, P. Muruganandam and K. Murali, *IEEE Proc. of* Devices, Circuits and Systems (ICDCS), 14685224 (2014) DOI: 10.1109/ICDCSyst.2014.6926191.

25. "Bifurcation and chaos in MLC circuit with simple nonlinearity", **K. Srinivasan**, K. Thamilmaran and A. Venkatesan, *Nonlinear dynamics : concepts and applications* edited by M. Daniel and S. Rajasekar (Narosa 2009) pp. 319.

List of Publications in Refereed National Conference Proceedings

26. "Realization of chaotic Murali-Lakshmanan-Chua (MLC) circuit with RC phase shift network", M. Inbavalli**,** R. Rizwana, **K. Srinivasan** and I. Raja Mohamed, *Proc. of national conference on advances in materials science & nonlinear science* - AMSN 2016 (PP. 123-125).

27. "Analytical analysis of lag, anticipatory and complete synchronization in a RC network based coupled Chua's circuit", R. Gladwin Pradeep**, K. Srinivasan,** V.K. Chandrasekar, K. Murali and M. Lakshmanan, *Proc. of national conference on advances in materials science & nonlinear science* - AMSN 2016 (PP. 129-131).

28. "Multiple period-doubling bifurcation route to chaos in periodically pulsed Morse oscillator", **K. Srinivasan** and S. Parthasarathy, *Proc. of Second National Conference on Nonlinear Systems & Dynamics* – NCNSD 2005.

Presented at Conferences and Workshops

29. "Synchronization transitions in chaotic time-delay electronic circuits", **K. Srinivasan**, D. V. Senthilkumar, K. Murali, M. Lakshmanan and J. Kurths, presented at the *sixth National Conference on Nonlinear Systems and Dynamics (NCNSD-2011).*