



Dr. P. PALANIYANDI

Address:

Assistant Professor
Department of Physics
Nehru Memorial College (Autonomous)
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Personal Information:

Gender : Male
Date of Birth : 31 May 1975
Nationality : Indian

Academic Qualifications:

2006 Doctor of Philosophy (Ph.D.) in Physics
Bharathidasan University, Tiruchirapalli - 620 024
Tamil Nadu, India.
Highly Commended

1997 Master of Science (M.Sc.) in Physics
Bharathidasan University, Tiruchirapalli - 620 024
Tamil Nadu, India.
First Class

1995 Bachelor of Science (B.Sc.) in Physics
Bharathidasan University, Tiruchirapalli - 620 024
Tamil Nadu, India.
First Class

1992 Higher Secondary Course Certificate (HSC)
Board of Higher Secondary Education,
Tamil Nadu, India.
First Class

1990 Secondary School Leaving Certificate (SSLC)

Board of Secondary Education,
Tamil Nadu, India.
First Class

Teaching Particulars:

Teaching Experience : **Assistant Professor** in the Department of Physics,
Nehru Memorial College (Autonomous), Puthanampatti,
Tiruchirapalli - 621 007, Tamil Nadu, India
since **17 August 2007**

Subjects Handled (PG Level):

1. Classical Mechanics
2. Quantum Mechanics
3. Statistical Mechanics
4. Electromagnetic Theory
5. Mathematical Physics
6. Nuclear Physics

Subjects Handled (UG Level):

1. Quantum Mechanics
2. Properties of Matter and Sound
3. Mechanics
4. Thermal Physics
5. Optics
6. Electricity and Magnetism
7. Nuclear Physics

Research Particulars:

Title of the Thesis	:	Controlling and Synchronization of Chaos: Some Consequences and Applications.
Research Supervisor	:	Prof. M. Lakshmanan, Centre for Nonlinear Dynamics & Department of Physics, Bharathidasan University, Tiruchirapalli, Tamil Nadu, India.
Field of Research	:	Nonlinear Dynamics (Chaotic Dynamics).
Specialization	:	Modelling Chaotic Dynamical systems, Nonlinear Time Series Analysis, Coupled Map Lattices, Coupled Flow Lattices, Secure Communication & Cryptography, and Image Processing & Image Compression.

List of Publications**International Journals:**

1. **P. Palaniyandi** and M. Lakshmanan, "*Secure Digital Signal Transmission by Multistep Parameter Modulation and Alternative Driving of Transmitter Variables*", Int. Journal of Bifurcation and Chaos, **11**, 2031-2036 (2001).
2. **P. Palaniyandi** and M. Lakshmanan, "*Estimation of System Parameters and Predicting the Flow Function from Time Series of Continuous Dynamical Systems*", Phys. Lett. A **338**, 253-260 (2005).
3. **P. Palaniyandi** and M. Lakshmanan, "*Estimation of System Parameters in Discrete Dynamical Systems from Time Series*", Phys. Lett. A **342**, 134-139 (2005).
4. **P. Palaniyandi**, P. Muruganandam and M. Lakshmanan, "*Desynchronized Wave patterns in Synchronized Chaotic Regions of Coupled Map Lattices*", Phys. Rev. E **72**, 037205(1-4) (2005).
5. **P. Palaniyandi** and G. Rangarajan, "*Critical Lattice Size Limit for Synchronized Chaotic State in 1-D and 2-D Diffusively Coupled Map Lattices*", Phys. Rev. E **76**, 027202(1-4) (2007).
6. **P. Palaniyandi** and M. Lakshmanan, "*Controlled Parameter Modulations in Secure Digital Signal Transmissions*", Int. Journal of Bifurcation and Chaos **17**, 4187-4194 (2007).
7. **P. Palaniyandi**, P. Muruganandam and M. Lakshmanan, "*Coexistence of Synchronized and Desynchronized Patterns in Coupled Dynamical Systems*", Chaos, Solitons and Fractals **36**, 991-1018 (2008).

8. **P. Palaniyandi**, “Controlling Based Methods for Modelling Chaotic Dynamical Systems from Time Series”, *Chaos, Solitons and Fractals* **39**, 625-658 (2009).
9. **P. Palaniyandi**, “On Computing Poincaré Map by Hénon Method” *Chaos, Solitons and Fractals* **39**, 1877-1882 (2009).
10. **P. Palaniyandi** and G. Rangarajan, “A Mathematical Model for Storage and Recall of Images using Targeted Synchronization of Coupled Maps” *Scientific Reports* **7**, 8921 (2017).

Proceedings:

1. M. Lakshmanan, T. Kanna, and **P. Palaniyandi**, “Nonlinear Dynamics: From Theory to Technology” in *Nonlinear Systems* by R. Sahadevan and M. Lakshmanan (Eds.), (Narosa Publishing company, New Delhi 2002, pp. 3-28).
2. **P. Palaniyandi** and M. Lakshmanan, “Controlling Based Method for Estimating the System Parameters and Predicting the Flow Function from Time Series” in *Nonlinear Systems and Dynamics* by M. Lakshmanan and R. Sahadevan (Eds.) (Allied Publishers Pvt. Ltd., Chennai 2006, pp. 179-182).

Conferences/School Participated:

1. Participated the VII Ramanujan symposium on “Recent Development in Nonlinear Systems” during February 14-16, 2001, at the Ramanujan Institute for Advanced Study in Mathematics, University of Madras, Chennai, **INDIA**.
2. Participated and presented a poster in National Conference on “Recent Advances In Nonlinear Science”, during July 31 - August 1, 2002, at the Indian Institute of Science, Bangalore, **INDIA**.
3. Participated the First National Conference on “Nonlinear Systems and Dynamics”, (NCNSD-2003) during December 28-30, 2003, at the Indian Institute of Technology, Kharagpur, **INDIA**.
4. Participated the International Conference on “Nonlinear Phenomena” during January 5-10, 2004, at the Indian Institute of Science, Bangalore, **INDIA**.
5. Participated and presented a paper in Young scientists session of School- forum on “COUPLED MAP LATTICES 2004” during June 21 - July 2, 2004, at the Institute Henri Poincaré, Paris, **FRANCE**.
6. Participated and presented a poster in “Perspectives in Nonlinear Dynamics”, during July 12-15, 2004 at the Institute of Mathematical Sciences and Indian Institute of Technology, Chennai (A satellite meeting of the STATPHYS 22 Conference, 4-9 July, 2004, Bangalore, India), **INDIA**.

7. Participated and presented a poster in "*Ruhuna International School on Computational and Mathematical Physics*", (RISCMAP) during 20 December - 31 December 2004, at the University of Ruhuna, Matara, **SRI LANKA**.
8. Participated the International Conference on "*Nonlinear Dynamical Systems*" during 14 - 16, February 2008, at the Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli, **INDIA**.
9. Participated the International Conference on "*Nonlinear Dynamical Systems and Turbulence*" during 17 - 22, July 2008, at the Department of Mathematics, Indian Institute of Science, Bangalore, **INDIA**.
10. Participated the National Seminar on "*Frontier Topics in Fundamental Physics*" during 30 - 31, March 2009, at the Centre for Nonlinear Dynamics, Department of Physics, Bharathidasan University, Tiruchirapalli, **INDIA**.
11. Participated the school-cum-workshop on "*Parallel Computing for Scientific Applications*" during 10 - 14, April 2012, at Inter University Accelerator Centre, New Delhi, **INDIA**.
12. Participated the Science Academies' "*Refresher Course in Refresher Course in Statistical Physics*" during 29 April - 12 May 2012, at Nehru Science and Arts College, Kanhangad, Kerala, **INDIA**.
13. Participated the International Conference on "*Networks in Biology, Social Science and Engineering*" during July 12 - 14, 2012 at Indian Institute of Science, Bangalore, **INDIA**.
14. Participated the International Conference on "*Limit Theorems in Probability*" during January 09 - 11, 2013 at Indian Institute of Science, Bangalore, **INDIA**.
15. Participated Science Academies' "*Refresher Course in Quantum Mechanics*" during 5 - 18 May 2014, at Bishop Moore College, Mavelikara, Kerala, **INDIA**.
16. Participated the Workshop on "*Authenticated Encryption*" during September 19 - 22, 2016 at Indian Statistical Institute, Kolkata, **INDIA**.
17. Participated Science Academies' "*Refresher Course in Quantum Mechanics*" during 12 - 26 May 2018, at VIT-Chennai, Chennai, **INDIA**.

Computer Skill:

- Administrative knowledge in Unix based operating systems.
- Programming knowledge in FORTRAN and C.
- Working experience in Matlab, Gnuplot, Maple, Mathematica, etc.,