

## Bio- Data

Name : **Dr. P.PRAKASH**

Designation : Associate Professor  
Head (i/c) in Statistics

Address for communication : **Department of Mathematics**  
Periyar University  
Salem – 636 011  
Tamil Nadu, INDIA  
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**Area of Interest:** Differential Equations, Numerical Analysis

Professional Experience:

| S. No. | Positions held      | Name of the Institutions                                      | Duration   |            | Years of Experience       |
|--------|---------------------|---------------------------------------------------------------|------------|------------|---------------------------|
|        |                     |                                                               | From       | To         |                           |
| 1.     | Lecturer            | Sri Krishna College of Engineering and Technology, Coimbatore | 06.01.2003 | 14.06.2003 | 5 months 9 days           |
| 2.     | Assistant Professor | Periyar University                                            | 09.12.2004 | 03.01.2016 | 11 years 0 months 26 days |
| 3.     | Associate Professor | Periyar University                                            | 04.01.2016 | Till date  |                           |

## Fellowship

- Selected for the international **Research Excellence Program USC-India (PEIN)** for doing collaborative research works with the faculties in the Department of Mathematical Analysis, University of Santiago de Compostela, **Spain** during from **24<sup>th</sup> April to 20<sup>th</sup> May 2014**.
- Selected for the international **Research Excellence Program USC-India (PEIN)** for doing collaborative research works with the faculties in the Department of Mathematical Analysis, University of Santiago de Compostela, **Spain** during from **15<sup>th</sup> April 2013 to 14<sup>th</sup> May 2013**.
- Selected and availed international **Post Doctoral Fellow** under BK21 at the Department of Mathematics, Yonsei University, Seoul, **South Korea** under Prof. J. H. Kim during from **1st October 2003 – 7<sup>th</sup> December 2004**.

**Research Projects:**

| S.No | Title of the Project                                                 | Funding Agency   | Duration  | Amount sanctioned |
|------|----------------------------------------------------------------------|------------------|-----------|-------------------|
| 1.   | Qualitative Behavior of Solutions of Fuzzy Differential Equations    | DST<br>New Delhi | 2007-2010 | 2,52,000/-        |
| 2.   | Mixed and Hybrid Finite Element Methods and Optimal Control Problems | NBHM<br>Mumbai   | 2011-2014 | 10,97,400/-       |
| 3.   | Inverse Problems for Hyperbolic Partial Differential Equations       | UGC<br>New Delhi | 2012-2015 | 9,29,800/-        |

**Supervision:**

|                             |           |
|-----------------------------|-----------|
| <b>Ph.D. Degree Awarded</b> | <b>08</b> |
| <b>Submitted</b>            | <b>01</b> |
| <b>Ongoing</b>              | <b>05</b> |

**Publications / Conferences**

|              | Journal  |               | Conference |               | Conference Proceedings |
|--------------|----------|---------------|------------|---------------|------------------------|
|              | National | International | National   | International |                        |
| <b>TOTAL</b> | <b>1</b> | <b>36</b>     | <b>7</b>   | <b>7</b>      | <b>3</b>               |

**Books Edited:**

*Differential Equations and Applications, Recent Advances*, (**Editor: P. Prakash**), Narosa Publisher, New Delhi 2014, **ISBN: 978-81-84-87-331-3**

**Conference Organized**

| S. No. | Title of the Programme                                                            | Sponsored by                             | Venue & Date                                        | Amount         |
|--------|-----------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------|----------------|
| 1.     | Fourth National Conference on Advances in Differential Equations and Applications | UGC-SAP<br>New Delhi                     | Periyar University,<br>Salem & March 23-24, 2017    | Rs. 60,000/-   |
| 2.     | Third National Conference on Advances in Differential Equations and Applications  | NBHM,<br>Mumbai and DST,<br>New Delhi    | Periyar University,<br>Salem & December 04-05, 2014 | Rs. 1,75,000/- |
| 3.     | Second National Conference on Advances in Differential Equations and Applications | NBHM,<br>Mumbai, DST and CSIR, New Delhi | Periyar University,<br>Salem & March 29-30, 2012    | Rs. 2,00,000/- |

|    |                                                                            |              |                                               |             |
|----|----------------------------------------------------------------------------|--------------|-----------------------------------------------|-------------|
| 4. | National Conference on Advances in Differential Equations and Applications | NBHM, Mumbai | Periyar University, Salem & October 7-8, 2010 | Rs.80,000/- |
|----|----------------------------------------------------------------------------|--------------|-----------------------------------------------|-------------|

### **Membership in the Professional Bodies:**

- ✓ Life Member: Indian Mathematical Society
- ✓ Life member: The Indian Science Congress (Membership No: L25945)

### **Complete List of Research Publications.**

1. A. Deiveegan, P. Prakash and J.J. Nieto, Optimization method for the inverse problem of identifying the source term in a wave equation, Electronic Journal of Differential Equations (To appear)
2. K.Manickam and P.Prakash, Mixed Finite Element Methods for Fourth Order Elliptic Optimal Control Problems , Numerical Mathematics: Theory, Methods and Applications, 9(4) (2016) 528-548.
3. P. Prakash, J.J. Nieto, S. Senthilvelavan and G. Sudha Priya, Fuzzy fractional initial value problem, Journal of Intelligent and Fuzzy Systems, 28 (2015) 2691–2704.
4. K. Mathiyalagan, R. Anbuviethya, R. Sakthivel, Ju H. Park and P. Prakash, Non-fragile  $H_\infty$  synchronization of memristor-based neural networks using passivity theory, Neural Networks, (To appear), Neural Networks, ISSN: 0893-6080.
5. S.Harikrishanan, P.Prakash and J.J.Nieto, Forced oscillation of solutions of a nonlinear fractional partial differential equation, Applied Mathematics and Computation, 254(2015) 14-19, ISSN: 0096-3003.
6. K. Manickam and P.Prakash, Optimization of spliting positive definite mixed finite element methods, International Journal of Applied Mathematics, 28(2) (2015) 111-127, ISSN 1311-1728.
7. R.Sakthivel, R.Anbuviethya, K.Mathiyalagan and P.Prakash, Combined  $H_\infty$  and passivity state estimation of memristive neural networks with random gain fluctuations, Neurocomputing, 168(2015) 1111-1120, ISSN : 0925-2312.
8. K.Mathiyalagan, R.Anbuviethya, R.Sakthivel, Ju H Park and P.Prakash, Reliable Stabilization for Memristor-based recurrent neural networks with time-varying delays, Neurocomputing, 153 (2015) 140-147, ISSN: 0925-2312.

9. R.Anbuviethya, K.Mathiyalagan, R.Sakthivel and P.Prakash, Non-fragile synchronization of memristive BAM networks with random feedback gain fluctuations, Communications in nonlinear sciences numerical simulation, 29 (2015) 427-440, ISSN : 1007-5704.
10. P.Prakash, S.Harikrishnan and M. Benchohra, Oscillation of certain nonlinear fractional partial differential equation with damping term, Applied Mathematics Letters, 43 (2015) 72-79, ISSN: 0893-9659.
11. P.Prakash, S.Harikrishnan, J.J.Nieto and J.-H.Kim, Oscillation of a Time Fractional Partial Differential Equation, Electronic Journal of Qualitative Theory of Differential Equations, 2014(1) 1-11, ISSN 1417-3875.
12. R. Anbuviethya, K. Mathiyalagan, R. Sakthivel, P.Prakash, Sampled-data state estimation for genetic regulatory networks with time-varying delays, Neurocomputing, 151 (2015) 737-744, ISSN: 0925-2312.
13. P.Prakash, J.J.Nieto, N.Uthirasamy and G.Sudha Priya, Solving Fuzzy Boundary Value Problem by Differential Transform Method, Neural, Parallel, and Scientific Computations, 22 (2014) 59-74, ISSN: 1061-5369.
14. S. Sivasankaran, V. Sivakumar, A. K. Hussein and P.Prakash, Mixed Convection in a Lid-Driven Two- Dimensional Square Cavity with Corner Heating and Internal Heat Generation, Numerical Heat Transfer, Part A, 65 (2014), 269-286, ISSN: 1521-0634.
15. S. Harikrishnan, P. Prakash and J.J. Nieto, Forced Oscillation of Nonlinear Impulsive Functional Hyperbolic Differential System, Communications in Applied Analysis, 18 (2014) 523 – 536, ISSN: 1083-2564.
16. P. Prakash and S. Senthilvelavan, Numerical Solution of Fuzzy Neutral Functional Differential Equations by Euler Method, Journal of Applied Nonlinear Dynamics, 4(1) (2015) 11-19, ISSN 2164-6473.
17. P. Prakash, N. Uthirasamy and G. Sudha Priya, Third order three point fuzzy boundary value problem under generalized differentiability, Journal of Applied Mathematics and Informatics, 32 (5-6), (2014) 791 – 805, ISSN: 2164-6473.

18. G.Sudha Priya and P.Prakash, Analytical and numerical solutions of an one dimensional fractional sub-diffusion equation with Neumann boundary conditions, Recent Advances: Differential Equations and Application, Narosa Publishing House, (2014) 1-13, ISBN: 978-81-84-87-331-3.
19. S. Harikrishnan and P.Prakash, Oscillation of neutral hyperbolic differential equation deviating arguments and damping term, Recent Advances: Differential Equations and Application, Narosa Publishing House, (2014) 114-119, ISBN: 978-81-84-87-331-3.
20. M. Benchohra, I. Medjadj, Juan J. Nieto and P. Prakash, Global Existence for Functional Differential Equations with State-Dependent Delay, Journal of Function Spaces and Applications, Volume 2013 (2013), 307-318, ISSN: 2090-8997.
21. R.Sakthivel, R. Anbuviya, K. Mathiyalagan, A. Arunkumar and P. Prakash, New LMI-based passivity criteria for neutral-type BAM neural networks with randomly occurring uncertainties, Reports on Mathematical Physics, 72(3), (2013) 263–286, ISSN: 0034-4877.
22. Juan J. Nieto, Abdelghani Ouahab and P. Prakash, Extremal Solutions and Relaxation Problems for Fractional Differential Inclusions, Abstract and Applied Analysis. Volume 2013 (2013) 1-9, ISSN: 1687-0409.
23. G.Sudha Priya, P.Prakash, J.J.Nieto and Z. Kayar, Higher Order Numerical Scheme for Fractional Heat Equation with Dirichlet and Neumann Boundary Conditions, Numerical Heat Transfer, Part B, 63 (2013) 540–559, ISSN: 1521-0626.
24. P. Prakash and V. Kalaiselvi, Numerical Solutions of Fuzzy Differential Equations by using Hybrid Methods, Journal of Fuzzy Information and Engineering, 4(4), (2012) 445-455, ISSN:1616-8666.
25. V. Sivakumar, S. Sivasankaran and P.Prakash, Numerical study of mixed convection in a lid-driven cavity with partial heating/cooling and internal heat generation, Heat Transfer Research, 43(5), (2012), 461-482, ISSN:2162-6561.
26. P. Prakash and S. Harikrishnan, Oscillation of solutions of impulsive vector hyperbolic differential equations with delays, Applicable Analysis, 91 (2012) 459-473, ISSN:1563-504X.

27. S. Sivasankaran, V. Sivakumar and P. Prakash, Numerical Study on Mixed Convection in a Lid-driven with Non-uniform Heating on Both Sidewalls, *International Journal of Heat and Mass Transfer*, 53 (2010) 4304–4315, ISSN: 0017-9310.
28. V. Sivakumar, S. Sivasankaran, P. Prakash and Jinho Lee, Effect of Heating Location and Size on Mixed Convection in Lid-driven Cavities, *Computers and Mathematics with Applications*, 59 (2010) 3053-3065, ISSN: 0898-1221.
29. P. Prakash, G. Sudha Priya and J.-H. Kim, Third Order Three-Point Fuzzy Boundary Value Problems, *Nonlinear Analysis: Hybrid Systems*, 3 (2009) 323-333, ISSN: 1751-570X.
30. P.Prakash and V.Kalaiselvi, Numerical Solutions of Hybrid Fuzzy Differential Equations by Predictor- Corrector Method, *International Journal of Computer Mathematics*, 86, No. 1, 2009, 121-134, ISSN: 0020-7160, 1029-0265.
31. P.Prakash and V. Kalaiselvi, Fuzzy Volterra Integral Equations with Infinite Delay, *Tamkang Journal of Mathematics*, 40 (2009) 19-29, ISSN:0049-2930.
32. P. Prakash, Existence Results for Fuzzy Delay Differential Equations with Nonlocal Conditions in Banach Spaces, *Proc. Nat. Conf. on Appl. Partial Diff. Eqns*, 2007, 135-141.
33. P. Prakash, Juan J. Nieto, J.-H. Kim and Rosana Rodr'iguez-L'opez, Existence of Solutions of Fuzzy Neutral Differential Equations in Banach Spaces, *Dynamic Systems and Applications*, 14 (2005), 407-418, ISSN: 1056-2176.
34. K. Balachandran and P. Prakash, On Fuzzy Volterra Integral Equations with Deviating Arguments, *Journal of Stochastic Analysis and Applications*, 2 (2004), 69-76, ISSN: 1532-9356.
35. K. Balachandran and P. Prakash, Global Existence of Solutions of Fuzzy Integrodifferential Equations, *Differential equations and applications*, Nova Sci. Publ., Hauppauge, New York, 35-44, 2004, ISBN 1-59033-859-6.
36. K. Balachandran, P.Prakash, S. Karunanithi and M. Kanakaraj, Existence of Solutions of Fuzzy Integrodifferential Equations, *Far East Journal of Applied Mathematics*, 7 (2002), 239-255.

37. K. Balachandran and P. Prakash, Existence of Solutions of Nonlinear Fuzzy Volterra Integral Equations, Bulletin of the Calcutta Mathematical Society, 94 (2002), 147-152.
38. K. Balachandran and P. Prakash, Existence of Solutions of Fuzzy Delay Differential Equations with Nonlocal Condition, Journal of the Korea Society for Industrial and Applied Mathematics, 6 (2002), 81-89, ISSN: 1229-0645.
39. K. Balachandran and P. Prakash, Existence of Solutions of Nonlinear Fuzzy Volterra- Fredholm Integral Equations, Indian Journal of Pure and Applied Mathematics, 33 (2002), 329-343, ISSN: 0975-7465 (**Springer**).
40. K. Balachandran and P. Prakash, Existence of Solutions of Nonlinear Fuzzy Integral Equations in Banach Spaces, Libertas Mathematica, XXI (2001), 91-97.

#### **Invited Talks Delivered in Conferences**

- **Delivered a lecture** in the 19<sup>th</sup> Ramanujan Symposium on Recent Trends in Nonlinear Partial Fractional Differential Equations held at Ramanujan Institute for Advanced Study in Mathematics, **University of Madras, Chennai** during March 2-4, 2016.
- **Delivered a lecture** on Higher Order Numerical Scheme for Fractional Heat Equation held in Santiago de Compostela, **Spain** on May 7<sup>th</sup> 2013
- **Participated and delivered a contributed lecturer** in the 7<sup>th</sup> International Congress of Industrial and Applied Mathematics during July 18 – 22, 2011, Vancouver, **Canada**.
- **Delivered an invited lecture** in the Workshop on “General Topology” held at Periyar University, Salem during March 4-5, 2005.
- **Delivered an invited lecture** in 8<sup>th</sup> International Conference on Nonlinear Functional Analysis and Applications, Kyungnam University and Gyeongsang National University, **South Korea**, August 9-13, 2004.
- **Delivered an invited lecture** in North East Normal University, Changchun, **China** during June 21-25, 2004.

**Refresher Course/Orientation Course attended:**

- Participated in the 72nd Orientation courses held at the Academic Staff College, Bharathiar University, Coimbatore from 30.10.2008 to 27.11.2008.
- Participated in the Refresher Course in Mathematics, Batch XXVII held at the UGC-Academic Staff College, University of Madras, Chennai from 11.11.2011 to 01.12.2011

**Research Collaborators:**

- Research collaboration with **Professor J.-H. Kim**, Yonsei University, Seoul, **South Korea**.
- Research collaboration with **Professor J.J. Nieto**, Universidad of Santiago de Compostela, **Spain**.
- Research collaboration with **Professor Benchohra**, University of Sidi Bel Abbes, **Algeria**.

**Participation in Conferences/Symposia**  
**International Level**

1. **Paper presented** in the **International Conference on Differential Equations and Applications (ICDEA – 2017)** held at Bharathiar University, Coimbatore during March 15-16, 2017.
2. **Paper presented** in the “**International Conference on Nonlinear Dynamical Systems** ” held at Bharathiar University, Coimbatore during March 24-26, 2016.
3. **Paper presented** in the “**8<sup>th</sup> International Congress on Industrial and Applied Mathematics**”, held at Beijing, China during August 10-15 2015.
4. **Paper presented** in the “**Indian Science Congress Association**” held at University of Mumbai, Mumbai during January 03-07, 2015.
5. **Paper presented** in the “**International Conference on Frontiers Mathematical Science with Applications**” held at Calcutta Mathematical Society, Calcutta during December 07-09, 2012.
6. **Paper presented** in the “**7<sup>th</sup> International Congress on Industrial and Applied Mathematics**”, held at Vancouver, British Columbia, **Canada** during July 18-22, 2011.
7. **Paper presented** in the “**International Conference on Industrial Mathematics**” held at the Indian Institute of Technology, Bombay during December 7-9, 2002.



## **National Level**

- 1. Paper presented** in the “**National Conference on Partial Differential Equations**” held at the Bharathiar University Coimbatore during January 30-31, 2014.
- 2. Paper presented** in the “**One day Seminar on Partial Differential Equations in Commemoration of Professor E.K.Ramasami’s Retirement**” held at the Bharathiar University Coimbatore on 06.11.2009.
- 3. Paper presented** in the “**National Conference on Applications of Partial Differential Equations**” held at the Bharathiar University Coimbatore during March 24-25, 2007
- 4. Paper presented** in the “**XIII Ramanujan Symposium on Nonlinear Differential Equations**” held at the Ramanujan Institute, Chennai, India during February 08-10, 2006.
- 5. Paper presented** in the “**National Conference on Partial Differential Equations and Applications**” held at the Bharathiar University Coimbatore during March 10 - 11, 2005.
- 6. Paper presented** in the **KSIAM 2004** Annual Meeting and Conference held at Gyungju, **SOUTH KOREA** during December 3 - 4, 2004.
- 7. Paper presented** in the “**National Seminar and its Applications**” held at the University of Burdwan, Burdwan, West Bengal during December 26-28, 2001.