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 Designation : Associate Professor- I
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Scopus Id : **60127424000**

Anna University Research Supervisor Id: **4370012**

1. Educational Qualification :

Degree	Branch / Specialization	Institute/University	Year of Passing
B. Sc.,	Mathematics	Alagappa Govt Arts College, Karaikudi/ Madurai Kamaraj University	2001
M. Sc.,	Mathematics	Alagappa University	2003
M. Phil.,	Mathematics	Alagappa University	2004
Ph. D.	Mathematics	PSG College of Technology, Coimbatore/ Anna University	2020

2. Professional/ Industry Experience : (in chronological order)

S.No	Designation	Institution/ Organization	Period	
			From	To
1	P.G Assist	S.L.R. Rotary Vidhyala, Matric Hr Sec. School , Rajaplayam	02.06. 2004	05.06.2006
2	Lecturer	S.Veerassamy Chettiar College of Engineering and Technology, Puligngudi	12.06.2006	20.08.2008
3	Lecturer	Tamilnadu College of Engineeing, Coimbatore.	30.06.2008	19.07.2010
4	Assistant Professor	PPG Institute of Technology, Coimbatore.	23.07.2010	20.06.2013
5.	Assistant Professor(Sl.Gr)	Sri Ramakrishna institute of Technology, Coimbatore	03.07.2013	31.05.2024
6.	Associate Professor -I	Ramco Institute of Technology, Rajapalayam	21.07.2025	

3. **Research Interest:** Mathematical modeling of ordinary and Partial Differential Equation Approximation Techniques, Numerical and Mathematical Analysis and Computational Mathematics, Fuzzy Differential Equations

4. Publications

Academic Year 2024-2025 Publications

1. M. Menaka, R. Manimaran, **S. Saravanakumar**, L. Rajendran, A. Eswari, "Analyzing dead core formation in catalyst pellets of various geometries under non-isothermal conditions," *Partial Differential Equations in Applied Mathematics*, Volume 13, 2025, 101092, ISSN 2666-8181 (Elsevier)
2. A. Eswari, Haydar Akca, **S. Saravanakumar**, "Spherical biocatalyst modeling: Non-isothermal reaction-diffusion with internal mass and heat transfer," *Journal of Alloys and Compounds Communications*, Volume 6, 2025, 100057, ISSN 2950-2845, <https://doi.org/10.1016/j.jacomc.2025.100057>. (Impact factor 5.8)
3. M. U. Maheswari, M. N. Devi, H. Akca, **S. Saravanakumar**, and A. Eswari, "Influence of weather elements on grapes growth, yield and disease incidence using epidemiological modelling," *Results Nonlinear Anal.*, vol. 8, no. 2, pp. 88–97, 2025. (Scopus)

Academic Year 2023-2024 Publications

1. A. Eswari, L. Maragatham, **S. Saravanakumar**, "Mathematical framework for exploring malaria transmission dynamics among human and mosquito communities," *Nonlinear Studies*, 31(3), 2024, pp. 735-746. (Scopus)
2. A. Eswari, **S. Saravanakumar**, "Chronoamperometric response of electrochemical reaction diffusion system: a new theoretical and numerical investigation for EC2 scheme," *J. Iranian Chem. Soc.*, 21, 2183–2199 (2024). <https://doi.org/10.1007/s13738-024-03063-1> (Impact factor 2.2)
3. **S. Saravanakumar**, A. Eswari, O.D. Makinde, N. Anbazhagan, Gyanendra Prasad Joshi, Woong Cho, "Analysis of temperature-dependent thermal conductivity and fin efficiency: Direct Akbari-Ganji method," *Case Studies in Thermal Engineering*, Volume 51, 2023, 103627, pp. 1-14, ISSN 2214-157X, <https://doi.org/10.1016/j.csite.2023.103627>. (Impact factor 6.8)

Academic Year 2022-2023 Publications

1. **S. Saravanakumar**, A. Eswari, Hydar Akca, "Analytical and numerical solution of the nonlinear differential equation for self-igniting reaction diffusion systems: Mathematical modelling approach," *International Journal of Nonlinear Analysis and Applications*, 14(2023), 107-116. ISSN: 2008-6822. (Scopus)
2. A. Eswari, **S. Saravanakumar**, "Studying on Crop Response Model for Grapes under Climate Change Scenario: Statistical Study Approach," *International Journal of Environment and Climate Change*, Volume 12, Issue 12, Page 883-894, 2022; Article no.IJECC.94914, ISSN: 2581-8627.

Academic Year 2021-2022 Publications

1. S. Padma, N. Mehala, A. Eswari, M.E.G. Lyons, B. Manimegalai, L. Rajendran, **S. Saravanakumar**, "Mathematical Analysis for Electron Transfer Mediator/Heterogeneous Catalyst Composites in Polymer Modified Electrodes," *International Journal of Electrochemical Science*, 17, 1-14, 2022. (Impact factor 1.73)

2. **S. Saravanakumar**, L. Maragatham, A. Eswari, "Analysis for Malaria transmission dynamic between human and mosquito population. Part II: Effective infection rate using new technique," Matrix Science Pharma, 2021, 5, 7-13.

Academic Year 2020-2021 Publications

1. **S. Saravanakumar**, A. Eswari, L. Rajendran, Marwan Abukhaled, "A Mathematical Model of Risk Factors in HIV/AIDS Transmission Dynamics: Observational Study of Female Sexual Network in India," Applied Mathematics and Information Sciences, 14(6), 967-976, 2020. (Impact Factor 1.166)
2. A. Eswari, **S. Saravanakumar**, "New mathematical analysis for nonlinear simultaneous differential equation in micro-disk biosensor using hyperbolic function method," Journal of Electroanalytical Chemistry, Available online 7 November 2020. (Impact factor 4.464)

Academic Year 2019-2020 Publications

1. A. Eswari, **S. Saravanakumar**, "Mathematical analysis of Dengue fever infection in India," Advances in Mathematics: Scientific Journal, 8(2019) no.3, pp. 641-650. (Impact Factor 0.176)
2. A. Eswari, S. Varadha Raj, **S. Saravanakumar**, "Mathematical impact of SIR network model on varying size of the human population," Asia Mathematika, Volume 4, Issue 1, 2020, pp. 69-78.

Academic Year 2018-2019 Publications

1. **S. Saravanakumar**, B. Sridevi, A. Eswari, L. Rajendran, "Computational and Mathematical Analysis of Fuzzy Quota harvesting model in Fuzzy Environment using Homotopy perturbation method," Applied Mathematics and Information Sciences, 13, No S1, 239-245, 2019. (Impact Factor 1.166)
2. A. Eswari, **S. Saravanakumar**, S. Varadha Raj, V. Sabari Priya, "Analysis of Mathematical Modelling the Depletion of Forestry Resource: Effects of Population and Industrialization," Matrix Science Mathematic, 3(2), 2019, pp. 22-26. (Scopus)

Academic Year 2017-2018 Publications

1. **S. Saravanakumar**, B. Sridevi, A. Eswari, L. Rajendran, "Analysis of empirical fuzzy rate equations in homogeneous reaction diffusion Thomas model," Taga Journal of Graphic Sciences, February 2018, Vol.1, ISSN: 1748-0345 (online).
2. **S. Saravanakumar**, B. Sridevi, A. Eswari, L. Rajendran, "Modelling the depletion of atmospheric fuzzy plankton-oxygen dynamics in a lake due to photosynthetic activity of ecosystem under Climate change," International Journal of Mathematics and Systems, September 2018, ISSN: 2578-1839 (Online).

Academic Year 2016-2017 Publications

1. A. Eswari, **S. Saravanakumar**, N. Nijeethaa, "Analytical Solution Of Induced Resistance To Control Plant Disease Development In Agricultural Systems," Bulletin Of Mathematics And Statistics Research (BOMSR), Vol.4, Issue 2, April-June 2016, ISSN: 2348-0580.
2. M. Vijayakumar, **S. Saravanakumar**, S. Nagarani, "Dissipative Analysis For Random Time Varying Delay Sampled-Data Controller Design For Singular Networked Cascade Control System," International Journal of Advance Research in Science and Engineering (IJARSE), August 2016, Vol.5, Issue 08, ISSN: 2319-8354.

3. A. Eswari, **S. Saravanakumar**, “Adomian Decomposition Approach to a Mathematical Model and Analysis of Potentiometric and Amperometric Enzyme Electrodes,” *International Journal of Pharmacy and Paramacetical Research (IJPPR)*, Nov 2016, Vol.7, Issue 4, ISSN: 2349-7203.

Academic Year 2015-2016 Publications

1. **S. Saravanakumar**, A. Eswari, L. Rajendran, “Mathematical analysis of immobilized enzyme with reaction-generated pH change on the kinetics using Asymptotic methods,” *International Journal of Advanced Multidisciplinary Research (IJAMR)*, 2(8), 2015, pp. 98–119, ISSN: 2393-8870.

Conference Publications

- **S. Saravanakumar**, “Computational and mathematical analysis of fuzzy quota harvesting model in fuzzy environment using Homotopy perturbation method,” *NCETMAET 2018*, March 2018, Department of Mathematics, Hindustan Institute of Technology and Science, Chennai.
- **S. Saravanakumar**, A. Eswari, “Analytical solution of non-linear differential equations in biological control: Homotopy perturbation approach,” *RACS 2017*, October 2017, Department of Chemistry, Sri Ramakrishna Institute of Technology, Coimbatore.
- **S. Saravanakumar**, “Dissipative Analysis For Random Time Varying Delay Sampled-Data Controller Design For Singular Networked Cascade Control System,” in *6th International Conference on Recent Innovations in Science, Engineering and Management (ICRISEM-16)*, Department of Mechanical Engineering, IIMT College of Engineering, Greater Noida, Uttar Pradesh, India.
- **S. Saravanakumar**, A. Eswari, “Theoretical analysis of immobilized enzyme with reaction-generated pH change on the kinetics system,” *MATAM 2015*, April 2015, Department of Mathematics, PSNA College of Engineering & Technology, Dindigul.
- **S. Saravanakumar**, Dr. B. Sridevi, M. Vijayalakshmi, “A New Type of Intuitionistic Fuzzy Generator,” *Proceedings of National Workshop on Fuzzy Systems & Soft Computing in Industrial Applications – NWFS 2012*, December 21-22, 2012, Department of Mathematics, PSG College of Technology, Coimbatore.

5. Book/Book chapter publications

1. “Fundamentals Frontiers Exploring Core Sciences: Mathematical analysis of Advection Dispersion Equation of Pollutant Concentration of Cooum River using Laplace Transformation,” *Unika Prakashan*, Jorhat, Assam, 2024.
2. “Surfactant based electrochemical metal-organic framework sensor application: A modeling approach,” in *Surfactant Based Electrochemical Sensors and Biosensors*, 2024, Pages 87–105. DOI: [10.1016/B978-0-443-15493-5.00020-8](https://doi.org/10.1016/B978-0-443-15493-5.00020-8)
3. “Model Analysis for Grapes under Weather Conditions Using Various Statistical Study Approach,” in *Emerging Issues in Agricultural Sciences*, Vol. 6, July 29, 2023, Pages 167–182. DOI: [10.9734/bpi/eias/v6/10214F](https://doi.org/10.9734/bpi/eias/v6/10214F)
4. “Nonlinear analysis for Malaria transmission dynamic between human and mosquito population. Part I: Effective infection rate using new technique,” in *Analysis of Mathematical Science and Its Applications*, June 2020. ISBN: 978-81-947154-8-1
5. “A Mathematical Breast Cancer Model with Chemotherapy Treatment with Ketogenic Diet and Immune Booster: An Optimal Strategy,” in *Advances in Mathematical and Statistical Modelling*, October 2021. ISBN: 978-3-96492-334-9

6. Funded Projects

S.No.	Title of the project	Funding Agency	Duration	Amount	Status

7. Ph.D. guidance

Sl.No	Scholar name	University	Topic	Status

8. Short term Courses / Seminars /FDP/Workshop/ConferenceAttended:

Sl.No	Title of the event	Organized by
FDPS		
1	NEP 2020 Orientation & Sensitization Programme (12.02.2024 – 21.02.2024)	Coimbatore Institute of Technology, Coimbatore
2	Intensive Training in Algebra, Analysis, Topology, and Applications (27.05.2024 – 01.06.2024)	Manipal Institute of Technology, Manipal
3	Current Trends & Application of Mathematics (21.09.2022 – 04.10.2022)	Vel Tech, Chennai
4	Introduction to Statistical Software (27.06.2021 – 28.06.2021)	Govt. Arts and Science College, Kangayam
5	Universal Human Values: Inculcating UHV in Technical Education (26.07.2021 – 30.07.2021)	AICTE
6	Recent Trends in Mathematics (02.06.2020 – 06.06.2020)	SNS College of Technology, Coimbatore
7	Online Teaching via Google LMS during COVID-19 Pandemic (28.05.2020 – 30.05.2020)	C. Abdul Hakeem College, Melvisharam
8	Descriptive Statistics through R – Programming (23.05.2020 – 28.05.2020)	KPR Institute of Engineering and Technology, Coimbatore
9	Applications of Mathematics (19.05.2020 – 22.05.2020)	KPR College of Arts, Science & Research
10	COVID-19 Pandemic: Strategies for Effective Work-Life Balance of Academicians (04.05.2020 – 08.05.2020)	Karpagam College of Engineering
Workshops		
1	Innovation Ambassador (AI) Training by AICTE Institution Innovation Council (August 2022)30 contact Hours	MoE's Innovation Cell & AICTE
2	Mentoring and Counselling Skills (04.08.2021 – 08.08.2021)	NITTTR Chennai
3	Examination Reforms (08.07.2021 – 10.07.2021)	AICTE & CHITKARA University, Chandigarh, Punjab

9. Short term Courses / Seminars /FDP/Workshop/Conference organized:

Updated as on 05.06.2026

Sl.No	Title of the event	Organized by	Date	
			From	To
1	Organizing Committee Member – International Virtual Conference on “Recent Trends in Applied Mathematics (ICRTAM – 2023)”	Sri Ramakrishna Institute of Technology, Coimbatore	07.07.2023	07.07.2023
2	Organizing Committee Member – International Virtual Conference on “Recent Trends in Applied Mathematics (ICRTAM – 2022)”	Sri Ramakrishna Institute of Technology, Coimbatore	07.10.2022	07.10.2022
3	Organizing Committee Member – International Virtual Conference on “Global Advance Trends in Applied Mathematics, Physical Sciences and Humanities (ICGAMPH – 2021)”	Sri Ramakrishna Institute of Technology, Coimbatore	21.10.2021	21.10.2021
4	Faculty Development Programme on “Random Processes and Queueing Theory” Models	Sri Ramakrishna Institute of Technology, Coimbatore	19.12.2016	22.12.2016

10. Online Courses

S. No	Course title	University	Date
1	Linear Algebra	NPTEL	Jun-July 2026
2	Design Thinking –A Prime	NPTEL	Jan-Feb2025
3	The Joy of Computing Using Python	NPTEL	Jun-July 2024
4	Vision of Geometry	NPTEL	Aug- Sep 2023
5	Create a Google Ads Video Campaign	Coursera	11.06.2021
6	Introduction to Data Analysis using Microsoft Excel	Coursera	06.09.2022
7	Introduction to Microsoft Excel	Coursera	06.09.2022

Updated as on 05.06.2026

8	Cambridge English Entry Level Certificate in ESOL International (Entry 2) (Business)	BEC	27.09.2019
9	Mathematics for Machine Learning: Linear Algebra	Coursera	22.05.2020
10	Introduction to Linear Models and Matrix Algebra	edX	06.06.2020
11	Developing the SIR Model	Coursera	23.06.2020
12	Introduction to Dynamical Models in Biology	NPTEL	April 2018

11. **Patents filed:** - INGP2534 - AI-Driven Mathematical Forecasting System Using Hybrid Regression Models for Dynamic Event Prediction in Financial and Meteorological Applications

12. Awards, Recognition & Achievements :

- Received the beloved lecture award from Alumni Association from Tamilnadu College of Engineering on 15.8.2022

13. Any others (Board of studies/Governing Council/Staff Selection/ Reviewer/other duties)

- Resource person for the seminar Application of Discrete Fourier Transform and Discrete Wavelet Transform in Image Processing at our college on 27.01.2023.
- Reviewer in Asian Journal of advances in Medical Sciences.
- Reviewer and Program committee member in IEEE World Conference on Applied Intelligence and Computing (AIC2022) during June 17-18, 2022 Reviewed research articles in IEEE Technical sponsored conference (ICAECA) on October 8 & 9th, 2021.
- Resource person for first year induction Program at Sri Ramakrishna Institute of Technology.