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EDUCATION

- Alagappa University, India
  Ph.D in Lattice theory (Mathematics, Nov 2015)
- SET(State Eligibility Test for lectureship), Bharathiar University, 2012
- Alagappa University, India
  M.Phil in Mathematics, 2005(**Distinction**)
- Alagappa University, India
  M.Sc in Mathematics, 2004(**Distinction**)
- Madurai Kamraj University, India
  B.Sc in Mathematics, 2002(**Distinction**)

HONOURS AND AWARDS

- Best student award at undergraduate
- University topper at the undergraduate
- University topper at the postgraduate

TEACHING EXPERIENCE

- Working as a Guest Lecturer in Department of Mathematics, VSS Government Arts College, Pulanguruchi(November 2025-Till date)
- Worked as an Associate Professor in PG & Research Department of Mathematics, Vidhyaa Giri College of Arts & Science, Puduvayal(Feb 2022- Oct 2025))
- Worked as an Assistant Professor, Department of Mathematics, Vels Institute of Science and Advanced Studies, Pallavarem(June 2019- Oct 2021))
- Worked as an Associate Professor and Head, Department of Mathematics, Vidhyaa Giri College of Arts and Science, India (2016 to 2017, June 2018-May 2019)
- Worked as an Associate professor and Head, Department of Mathematics, Dr.Umayal Ramanathan college for women, India(2008-2015)
- Worked as a lecturer in Department of Mathematics, Shanmuganathan Engineering college, India(2005-2006)

RESEARCH EXPERIENCE

Number of Ph.D. students guiding:2(Affiliated to Alagappa University)-Thesis submitted
Number of Students awarded:02

ADDITIONAL RESPONSIBILITIES

- IQAC coordinator from 2021 to till date in Vidhyaa Giri College of Arts and Science
- Coordinator of IIC, Anti-Ragging and Annual report Committee(AISHE)
- Member of Library Committee in Vidhyaa Giri College of Arts and Science.
- Organized one day national seminar in pure and applied Mathematics at Dr. Umayal Ramanathan college for women, India on 4th Sep 2012
- Organized two days national conference in recent advances in Computer and Mathematical Sciences at Dr. Umayal Ramanathan college for women,India from 17th to 18th Oct 2015.
- Executed many Math related activities like Math Rangoli, Math modeling, Math connection, poster presentation.
- Assigned as Cultural coordinator, IQAC Coordinator in Dr.Umayal Ramanathan college for Women and coordinate with the various cells and clubs

TECHNICAL SKILLS & MEMBERSHIP

- MS Office(CECRI Certification)
- C and C++
- Latex
- Data analytics with Tableau
- Certification in NPTEL Exams
- Life time membership in IFERP
- ILETS appeared and scored 6 band in LSRW

COURSES TAUGHT

Undergraduate

Modern algebra, Linear Algebra, Integral Calculus, Differencial Calculus, Differential Equations, Theory of Equations and Numbers, Linear Programming, Graph theory, Statistics, Real Analysis, Mechanics, Numerical analysis, C Programming, Operations Research, Analytical Geometry, Sequences and series,Engineering Mathematics.

Post graduate

Algebra I, II Analysis I,II and Numerical analysis.

RESEARCH AREAS: Lattice theory and non-linear Mathematical Modelling

RESEARCH PUBLICATIONS

- "An internal construction for congruence relation in lattices", SG. Karpagavalli and C. Ganesa Moorthy, IOSR Journal of Mathematics, vol 10,issue 3,ver VI, 2014.

- "A representation for minimum congruence in lattices", C. Ganesa Moorthy and SG. Karpagavalli, International Research Journal of Pure Algebra, 4(10), 2014,614-616.

- "A completion for distributive lattices", C. Ganesa Moorthy and SG. Karpagavalli, IOSR Journal of Mathematics, vol 11, issue 2, ver II, 2015,73-75.

- "A congruence relation in partially ordered sets", C. Ganesa Moorthy and SG. Karpagavalli , Thai Journal of Mathematics, vol 13, issue 2, 2015, 399-403.

- "Reduction of quasi lattices to lattices", C. Ganesa Moorthy and SG.Karpagavalli, International journal of Mathematics Trends and Technology, Vol-65, Issue-4,Apr 2019.

- Dr. SG. Karpagavalli and D. Vidyadevi, "Fuzzy modular l-ideals in commutative l-m group", Journal of Critical Reviews ISSN-2394-5125 Volume 7, Issue 7, April 2020.

- Dr. SG. Karpagavalli and T. Sangeetha, "Normal filter and prime filter in generalized almost distributive fuzzy lattices", Journal of Critical Reviews ISSN-2394-5125 Volume 7, Issue 7, April 2020.

- Dr. SG. Karpagavalli and A. Nasreen Sultana, "Pseudo-complementation on almost distributive fuzzy lattice", Journal of Critical Reviews ISSN-2394-5125 Volume 7, Issue 7, April 2020.

- Dr. SG. Karpagavalli and K. Rekhalakshmi, "Dual of B-almost distributive fuzzy lattice ", Journal of Critical Reviews ISSN-2394-5125 Volume 7, Issue 11, June 2020.

- Dr. SG. Karpagavalli and D. Vidyadevi, "Fuzzy Modular Lattice Ordered M Group", AIP Conference Proceedings 2282, 020001, June 2020.

- Dr. S.G. Karpagavalli and T. Sangeetha, "Normal ideals in generalized almost distributive fuzzy lattices", AIP Conference Proceedings 2282, 020003, June 2020.

- K. Ranjani, R. Swaminathan, S.G. Karpagavalli, “Mathematical modelling of a mono-enzyme dual amperometric biosensor for enzyme-catalyzed reactions using homotopy analysis and Akbari-Ganji methods”, International Journal of Electrochemical Science

- SG.Karpagavalli,” Reaction kinetics of amperometric enzyme electrode in various geometries using the Akbari-Ganji method, Vol.18(9),100240 (2023), International Journal of Electrochemical Science
- SG.Karpagavalli,” A theoretical investigation of steady-state concentration processes at a carrier-mediated transport model using Akbari-Ganji and differential transform methods”, 8(2023), 100594, Partial Differential Equations in Applied Mathematics

- SG.Karpagavalli**,** "Mathematical modelling of three-layer amperometric biosensor and analytical expressions using homotopy perturbation method "11(2024); 100755., Partial Differential Equations in Applied Mathematics

- SG.Karpagavalli**, "**Investigation of a Mathematical Model and Non-Linear Effects Based on Parallel-Substrates Biochemical Conversion", Vol.5(2),2198-2210(2024)., Contemporary Mathematics
- SG.Karpagavalli," Mathematical Modelling and Application of Analytical Methods for A Non-Linear EC_2E Mechanism in Rotating Disk Electrode", Vol.22(92) (2024)., International Journal of Analysis and Applications
- SG.Karpagavalli, "A study on analytical non-linear theory of the porous fin in heat transfer using Akbari-Ganji method",Proceedings (Vol. 3160, No. 1), (2024, August), AIP Conference Proceedings.
- SG.Karpagavalli," Theoretical analysis through non-linear mathematical modelling of the immobilised enzyme kinetics and mass transfer limitations under non-steady state condition: HPM and DAGM", Vol.35(3s), (2025), Panamerican Mathematical Journal

- SG.Karpagavalli, "Mathematical modelling and analytical expressions for steady-state concentrations of non-linear glucose-responsive composite membranes for closed-loop insulin delivery: Akbari-Ganji and differential transform methods2025; 13(3), 194-204, American Journal of Applied mathematics.

- SG.Karpagavalli, "Mathematical Modelling and Analysis of the Non-Linear Multi-Layer Amperometric Biosensor with Degradation of Concentrations Derived by Analytical Expressions in Chemical Sciences,2025, 14(3), 164-182., Applied and Computational Mathematics

- Nebiyal, R. Swaminathan, S.G. Karpagavalli, "Reaction kinetics of amperometric enzyme electrode in various geometries using the Akbari-Ganji method", International Journal of Electrochemical Science

- Reena, S.G. Karpagavalli, R. Swaminathan," Theoretical analysis and steady-state responses of the multienzyme amperometric biosensor system for nonlinear reaction-diffusion equations", International Journal of Electrochemical Science.

- A. Reena, S.G. Karpagavalli, R. Swaminathan, "Mathematical analysis of urea amperometric biosensor with Non-Competitive inhibition for Non-Linear Reaction-Diffusion equations with Michaelis-Menten kinetics" Results in Chemistry

- K. Ranjani, R. Swaminathan, S.G. Karpagavalli "A theoretical investigation of steady-state concentration processes at a carrier-mediated transport model using Akbari-Ganji and differential transform methods" Partial Differential Equations in Applied Mathematics.

BOOKS PUBLISHED

- Differential Calculus- Dr.SG.Karpagavalli & Dr.R.Swaminathan
- Integral Calculus- Dr.SG.Karpagavalli & Dr.R.Swaminathan
- Trigonometry- Dr.SG.Karpagavalli & Dr.R.Swaminathan

PARTICIPATION

- Three days international conference on Advances in Mathematics and Statistics organized by Bishop Heber College, Trichirapalli, India from 5^{th}-7^{th} Jan 2012.
- One day seminar on recent trends in Mathematics organized by department of Mathematics, University College of Engineering, Pattukkottai, India, on 27^{th} Mar 2015
- Two days international conference on Applications of Mathematics in Alagappa University on Feb 2017
- One day state level seminar on Recent trends in Mathematics on 15.03.2019 organized by Seethalakhsmi Achi college for women,Pallathur.
- International Conference on "Recent Advancement In Applied Mathematics (ICAAM'19)" organized by S.I.V.E.T College on November 22, 2019.

- Two Days FDP on Research Methodology by Jeppiaar Institute of Technology,Sriperumbudur

1-2 June 2020

- Workshop on Mathematical Analysis by Loyola College on 8.06.2020-13.06.2020
- Webminar on Recent Advancement of Fuzzy theory by VISTAS on 9.06.2020
- FDP on Introduction to Fuzzy sets and Generalizations by Mepco Schlenk Engineering College on10.06.2020
- Workshop on Researcch Article Writing organized by Annamalai University on 22.06.2020
- International Conference on Mathematical Modelling & computational Science by Lincoln University college, Malaysia 0n 14-15 Aug 2020

Paper presentations

- Fourth National Conference on Recent Trends in Mathematics and its Applications (NCRTMA'20) presented a paper titled "Fuzzy modular lattice ordered m-group", organized by the Department of Mathematics, SRM University on march 13, 2020.

- Fourth National Conference on Recent Trends in Mathematics and its Applications (NCRTMA'20) presented a paper titled "Normal ideals in generalized almost distributive fuzzy lattices", organized by the Department of Mathematics, SRM University on march 13, 2020.

- 10^{th} International Conference on Science and Innovative Engineering, presented a paper titled "Fuzzy Modular l-ideal in commutative l-m group", organized by the Department of Mathematics, Jawahar Engineering College on march 29, 2020.

- 10^{th} International Conference on Science and Innovative Engineering, presented a paper titled " Normal filter and prime filter in generalized almost distributive fuzzy lattices", organized by the Department of Mathematics, Jawahar Engineering College on march 29, 2020.

- 10th International Conference on Science and Innovative Engineering, presented a paper titled "Pseudo-complementation on almost distributive fuzzy lattice", organized by the Department of Mathematics, Jawahar Engineering College on march 29, 2020.

- 10th International Conference on Science and Innovative Engineering, presented a paper titled "Dual of B-almost distributive fuzzy lattice", organized by the Department of Mathematics, Jawahar Engineering College on march 29, 2020.
- International conference on Frontier areas in chemical technologies 2022 (Facts 2022). Paper titled "Theoretical analysis of transient equation in Rotating disk electrode"at Alagappa University, Karaikudi on 16-18 Feb 2023
- International conference on fluid flows and energy storage materials, paper titled "A Theoretical Analysis on Reiner-Rivlin Nanofluid Flow Model over a Stretchable Rotating Disk by Homotopy Analysis Method" at Malla reddy University, Hyderabad on17-18 March 2023
- Recent development and techniques in pure and applied Mathematics (ICRDTPAM-2023) paper titled "Mathematical Modelling and Application of Analytical Methods for a ECE non-Linear EC_2E Mechanism in Rotating Disk Electrode" at Alagappa University, Karaikudi on 23-24 March 2023
- International conference on Frontier areas in chemical technologies 2022 (Facts 2022). Paper titled "Theoretical Analysis of steady-state concentration in transport processes of Amperometric Biosensor using Akbari-Ganji method" at Alagappa University Karaikudi, on 16-18 Feb 2023
- International conference on fluid flows and energy storage materials, paper titled, "A study on Analytical Non-linear theory of the porous fin in Heat transfer using Akbari-Ganji method" at Malla reddy University, Hyderabad on17-18 March 2023
- Recent development and techniques in pure and applied Mathematics (ICRDTPAM-2023) paper titled "Mathematical modelling and an analytical solution for the degradation of concentrations in Biosensor using the Homotopy Perturbation method" at Alagappa University, Karaikudi on 23-24 March 2023

- International conference on Research trends in Mathematics (ICRTM 2022), paper titled “Approximate analytical expressions for steady state concentration processes at a carrier-mediated transport using Akbari-Ganji method” at Vellore Institute of technology, Chennai, on 22 Dec 2023.

PATENT PUBLISHED

Title: WIRELESS REMOTE-CONTROL SYSTEM FOR ATTACHABLE L BEND PROPELLER SYSTEM FOR BOATS