

DEPARTMENT OF MATHEMATICS



Name	DR.R.VIJAYAKUMAR
Designation	ASSISTANT PROFESSOR
Qualification	M.Sc.,M.Phil.,P.G.D.C.A.,Ph. D.,
Date of Birth & Age as on 31-05-2024	44 Years & 2 Months
Working experience as on 31-05-2024	20 Years
Research experience: Field of interest/ Area of specialization	Bio-fluids Mechanics, Peristaltic Transport, Non-Newtonian Fluids, MHD Fluids, Nanofluids, Computational Fluid Dynamics.
Research Scholars	4
Details of Papers/Books Published	20 papers / 1 Book
Details of participation in conferences/seminar/Symposium	25
Details of conferences/ workshop/Seminars/Symposium organized	3workshop
Awards and Achievements	1
Administrative responsibilities in college	NaanMudhalvan Coordinator Assistant, Class Tutor, College discipline committee member, NAAC Assistant.
Membership in Academic/Professional bodies	THE INDIAN MATHEMATICS SOCIETY - 1/2020/121 Life Membership
Residential/Communication address	4/31 SomeswaranKoil Street, Panruti- 607106.
Other information, if any	Mini Project from Tamilnadu State Council For Higher Education

Details of Papers/Books Published

1. Nirmala P. Ratchagar and Vijayakumar R., Effect of couple stress and magnetic field on the unsteady convective diffusion in blood flow, *World Journal of Engineering*, 11(4), (2012), 403-412.
2. Nirmala P. Ratchagar and Vijayakumar R., Effects of magnetic field on the Red cell on nutritional transport in capillary-tissue exchange system, *International Journal of Mathematical Modelling & Computations*, 1(4), (2014), 1-15.
3. Nirmala P. Ratchagar and Vijayakumar R., Exact analysis of unsteady convective diffusion for blood flow with interphase mass transfer in magnetic field, *Bangmod International Journal of Mathematical & Computational Science*, 1 (1), (2015), 63-81.
4. Nirmala P. Ratchagar and Vijayakumar R., Effects of magnetic field on the unsteady convective diffusion in blood flow with and without chemical reaction, *Journal of Advanced Research in Dynamical and Control Systems*, 7 (4), (2015), 84-103.
5. Nirmala P. Ratchagar and Vijayakumar R., Hydromagnetic effect on inclined pulsating flow of blood in a multiple stenosed artery, *Malaya Journal of Matematik, Special Issue* (2), (2015), 396-403.
6. Nirmala P. Ratchagar and Vijayakumar R., Effects of couple stress and magnetic field on heat transfer and fluid flow characteristic of blood flow through a multi-stenosis arteries, *Annamalai University Science Journal*, 50(1), (2016), 15-26.
7. Nirmala P. Ratchagar and Vijayakumar R., Effect of buoyancy and magnetic field on unsteady convective diffusion of solute in a Boussinesq Stokes suspension bounded by porous beds, *Applications and Applied Mathematics: An International Journal (AAM)*, 12(1), (2017), 540-563.
8. Vijayakumar R., Influence of an Inclined Magnetic Field on Heat and Mass Transfer of the Peristaltic Flow of a Couple Stress Fluid with Varying Viscosity, *Solid State Technology*, 60(4), (2017), 70-81.
9. Vijayakumar R., Exact Analysis of Unsteady Convective Diffusion in Viscoelastic Fluid Flow: Joint Effects of Wall Absorption and Magnetic, *Solid State Technology*, 60(4), (2017), 82-101.
10. Nirmala P. Ratchagar and Vijayakumar R., "Dispersion of solute with chemical reaction in blood flow", *Bulletin of Pure and Applied Science*, Vol. 38E(Math & Stat.) No.1 May 2019, pp-385-395. DOI: 10.5958/2320-3226.2019.00042.0.
11. Nirmala P. Ratchagar and Vijayakumar R., Effect of interphase mass transfer on unsteady convective diffusion of blood flow through a porous medium with magnetic field, *Journal of Emerging Technologies and Innovative Research*, 6(5), (2019), 424-438.
12. Nirmala P. Ratchagar and Vijayakumar R., Unsteady solute dispersion in non-Newtonian fluid flow in a channel with effects of magnetic field and wall absorption, *Journal of Information and Computational Science*, 10(1), (2020), 1262-1286.
13. Nirmala P. Ratchagar and Vijayakumar R., Study The Impact Of Chemical Reaction On Electromagnetohydrodynamic Flow Of Blood In A Channel Bounded By Porous Layers, *Advances in Mathematics: Scientific Journal* 9 (2020), no.4, 2249–2266, doi.org/10.37418/amsj.9.4.86.
14. Nirmala P. Ratchagar and Vijayakumar R., Dispersion Of A Solute In A Couple Stress Fluid With Chemical Reaction Using Generalized Dispersion Model, *Advances in Mathematics: Scientific Journal* 9 (2020), no.4, 2233–2247, doi.org/10.37418/amsj.9.4.85.

15. Nirmala P. Ratchagar and Vijayakumar R., [Electromagnetohydrodynamic Flow of Blood on Unsteady Convective Diffusion of Solute in a Capillary Bounded by Porous Beds](#), *Advances in Fluid Dynamics*, 2020, pp.701-721.
16. Vijayakumar R and Nirmala P. Ratchagar., [Effect of Partial Slip and Magnetic Field on Couple Stress Fluid: Exact Solution](#), *Kala Sarovar*, 23(4) VI, 2020, pp.161-174.
17. Vijayakumar R and Nirmala P. Ratchagar, Mathematical Modeling of Synovial Joints with Chemical Reaction, *Journal of Physics: Conference Series*, 1724(1):012051, (2021), pp-1-11, doi:10.1088/1742-6596/1724/1/012051.
18. R.VijayaKumar ,P.RameshBabu, Khaja Hassan, *IOSR Journal of Mathematics (IOSR-JM)*, Radiation Effect on Unsteady Mixed Convective MHD Flow of Heat and Mass Transfer Over An Accelerated Infinite Vertical Porous Plate With Suction And Chemical Reaction *Volume 18, Issue 2 Ser. I (Mar. – Apr. 2022), PP 32-41*
19. Vijayakumar R and A. Jancy Rani, Hall and Ion Slip Influence on Unsteady MHD Convective Rotating Flow of Non-Newtonian Fluid through Porous Medium with Chemical Reaction, *International Journal of Mechanical Engineering* Vol. 7 No. 4 April, 2022 , 564-577.
20. Rao, R. S. D., Vijayakumar, R., & Murthy, V. V. (2022). Numerical study of Casson-Nanofluid flow past an exponentially stretching sheet filled by porous medium in presence of velocity and thermal slip effects. *International Journal of Health Sciences*, 6(S6), 2695–2725. <https://doi.org/10.53730/ijhs.v6nS6.9913>.

Book Published

1. “Dispersion of solute with Chemical reaction in Blood Flow”, Lambert Academic Publishing, Chisinau-2068, Republic of Moldova Europe. ISBN: 978-620-3-86969-9

Details of Papers/Books Published

1. Attended “National Conference on Mathematical Modelling”, Sponsored by NBHM, CSIR, UGC & TANCHE, March 26-28, 2009, Department of Mathematics, Annamalai University, Tamil Nadu, India.
2. Attended “In-Service Training Programme”, July 21-03, 2009. Faculty of science, Annamalai University, Tamil Nadu, India.
3. Attended “ UGC Sponsored ORIENTATION COURSE”, 05.06.2010-01.06.2010, Academic Staff College, Pondicherry University, India.
4. Attended “National Conference on Recent Trends in Fuzzy Mathematics”, June 14-15, 2010, Department of Mathematics, Annamalai University, Tamil Nadu, India.
5. Attended “ UGC Sponsored REFRESHER COURSE in Mathematics”, 10.06.2011-30.06.2011, Academic Staff College, Pondicherry University, India

6. Attended “Advanced workshop on Latex and Matlab” Dec 01-03, 2011. Organized by Department of Mathematics, K.S.Rangasamy college of arts and science ,Tiruchengode , Tamil Nadu, India.
7. Participated and presented a paper entitled “Numerical Simulation of Viscoelastic flow through a Nozzle” in the “National Workshop on Computational Simulation and Analysis for Scientists and Engineering”, Sponsored by UGC, March 01-02, 2012. The Gandhigram Rural Institute-Deemed University,Gandhigram, Tamil Nadu, India.
8. Participated and presented in the two day National Conference on “ Global Perspectives on water on water resources and Environment(GloWaRE 2012)” March 22-23, 2012. Department of Civil Engineering, Annamalai University, Tamil Nadu, India.
9. Attended “Workshop on Positive Attitude and Constructive Thinking(PACT)”, Aug 09-11, 2012, Annamalai University, Tamil Nadu, India.
10. Attended “Two week ISTE workshop on Computational Fluid Dynamics”) under the National Mission on Education through ICT(MHRD),June 12-22, 2012. Conducted by IIT,Bombay, India.
11. Participated and **presented** a paper entitled “Analysis of nutrition transport through a stenosed capillary in the presence of magnetic field “ in the International conference on Mathematical methods and computation(ICOMAC 2014), Feb 13-14,2014. P.G & Research Department of Mathematics, Jamal Mohamed College ,Trichy, Tamil Nadu, India.
12. Participated and presented a paper entitled “Analysis of nutrition transport through a stenosed capillary under the effects of magnetic field and chemical reaction” in the “National Conference on Mathematical Modelling(NCMM 2014)”, Feb 21-22, 2014. Department of Mathematics, Annamalai University, Tamil Nadu, India.
13. Attended IQAC facilitated training programme on “Technology-Rich Class Room Management”, March 12-13, 2014, Staff training and development Centre and department of Lifelong Learning, Annamalai University, Tamil Nadu, India.
14. Participated and **presented** a paper entitled “ Effect of Magnetic field and couple stress on the unsteady convective diffusion in blood flow through a channel”, in the National conference on Challenges and Application of Computational mechanics(CACM 2014) March 21-22, 2014. Department of Mathematics, Annamalai University, Tamil Nadu, India.
15. Participated and **presented** a paper entitled “Hydromagnetic effect on inclined pulsating flow of blood in a multiple stenosed artery, National Conference on Applied Mathematics and Computer Simulation-Recent Trends, held during October 7 and 8, (2015), Organized by PG & Research Department of Mathematics, Tranquebar Bishop Manika Lutheran College, Porayar – 609 307, Tamilnadu, India.
16. Attended “National Seminar on Advances in Mathematics(AIM -2016) Feb 27, 2016. Organized by Department of Mathematics, Periyar Gov. Arts College, Cuddalore, Tamil Nadu, India.

17. Attended “National Workshop on Statistics data Analysis using SPSS”, March 12-13, 2018. Department of Statistics, Periyar Govt. Arts College, Cuddalore, Tamil Nadu, India.
18. Attended “National Workshop on Computational methods in Statistics using SPSS and R”, Sponsored by IQAC and DST-PURSE II, Nov 26-27, 2018. Department of Statistics, Annamalai University, Tamil Nadu, India.
19. Attended “Two week course on RESEARCH METHODOLOGY (RM-2018)”, Sponsored by DST, held from 10.12.2018 to 23.12.2018.
20. Attended “International Workshop on Crystalline Materials and Applications, Jan 03-05, 2019. Crystal Growth Centre, Anna University, Chennai, Tamil Nadu, India.
21. Participated and **presented** a paper entitled “ Effect of Interphase mass transfer on unsteady convective diffusion of blood with magnetic field”, in the International conference on Pure and Applied Mathematics, Feb 15-16, 2019. Organized by PG & Research Department of Mathematics, St. Joseph’s College of Arts and Science, Cuddalore , Tamil Nadu, India.
22. Participated and **presented** a paper entitled “ International conference on Changing contours of blue economy-promises and challenges(ICBE 2019) Feb 06-08, 2019. Department of Mathematics, Annamalai University, Tamil Nadu, India.
23. Participated and **presented** a paper entitled “Dispersion of solute with chemical reaction in blood flow“ in the International conference on Mathematical methods and computation(ICOMAC 2019), Feb 20-21, 2019. P.G & Research Department of Mathematics, Jamal Mohamed College ,Trichy, Tamil Nadu, India.
24. **Invited Speaker** and Chaired a session in the “4th International Conference on emerging trends in multidisciplinary research”held at Shanmuga industries arts and science college, Tiruvannamalai. Feb 24,2019. Organized by Arunai International research foundation & Shanmuga Industries Arts and Science College.
25. Participated and **presented** a paper entitled “Heat transfer and fluid flow characteristics of blood flow through an inclined porous multistenosed arteries with magnetic field “ in the International conference on Recent advancements in pure and applied mathematics, Feb 25,2019. Organized by P.G & Research Department of Mathematics, Government arts college, Kumbakonam, Tamil Nadu, India.

Details of conferences/ workshop/Seminars/Symposium organized

1. **Organized** : National Workshop on Publication Ethics & Plagiarism Check, 05th March, 2020 (PG & Research Department of Mathematics, Periyar Government Arts College, Cuddalore) .
2. **Organized** : Fostering Interdisciplinary Research In Applied Sciences, June 19th & 20th ,2020 (PG & Research Department of Mathematics, Periyar Government Arts College, Cuddalore).

3. **Organized:** Two Days Online Workshop "STATISTICAL ANALYSIS USING 'R' AND 'SPSS'(SARS-2022)", held on 08th & 09th, April 2022. (PG & Research Department of Mathematics, Periyar Government Arts College, Cuddalore)

Mini Project

1. "Students Mini Projects" (Tamilnadu State Council For Higher Education).
Students Name: Sasikumar.P – Rs.15000- Academic year 2021-2022.
Title: To Study on Electrohydrodynamic Flow of Blood on Unsteady Convective
Diffusion of Solute in a Capillary with Interphase Mass Transfer