Dr. MADHUKESH J K

Assistant Professor, Department of Mathematics.

Faculty
Faculty of Basic and Applied Science

School / Program
School of Mathematical and Physical Sciences.

Faculty Introduction
Dr. Madhukesh J K received a Master's degree from Davangere University, Karnataka, India in 2015. He completed his Ph.D. degree from Davangere University, Karnataka, India under the guidance of Dr. B C Prasannakumara, in 2023. He completed his PostDoc Fellowship form Amrita School of Engineering, Bangalore (2023-2024). He is currently working as an assistant professor at GM University, Davangere. Dr. Madhukesh J K published more than 130 Research articles in reputed Scopus indexed journals, one book and two book chapter with h-index 34 and i10-index 84 and his works are cited over 3324 (present). His name has been included in Stanford University's List of the World's Top 2% of Scientists during the calendar year 2022, 2023 and 2024. His main area of research includes boundary layer flow, mathematical modeling, fluid and solid mechanics, Artificial Neural networks and optimization techniques.

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LinkedIn: https://www.linkedin.com/in/madhukesh-jk-31a39367/, Google Scholar: https://scholar.google.com/citations?user=8VKgNm0AAAAJ&hl=en, Research Gate: https://www.researchgate.net/profile/Jk-Madhukesh?ev=hdr_xprf, SCOPUS: https://www.scopus.com/authid/detail.uri?authorId=57222709395, PUBLONS ID: AAL-5436-2021

Qualifications

Post-Doctoral Fellow. (Fluid Mechanics)
Amrita School of Engineering, Bangalore, 2023-2024

Ph.D. (Fluid Mechanics)
Davangere University, Davanagere, 2023

M.Sc. (Mathematics)
Davangere University, Davanagere, Karnataka 2015

B.Ed. (Physics-Mathematics)
B.E.A College of Eduction, Davanagere, 2017

B.Sc. (PMCs)
Govt. First grade college, Davanagere, Karnataka 2013

Experience

Teaching

- 8.5 years.
- Lecturer at Siddaganaga PU Science College (2015-2016).
- Lecturer at SLPU Science college (2018-2019)
- Assistant Professor at DRM Science college (2019-2020)
- Post-Doctoral Fellow at Amrita School of Engineering (2023-2024)
- Assistant Professor at GM University (from 2024 – Present)

Research

- Fluid Mechanics
- Newtonian and non-Newtonian nanofluids.
- Heat and Mass transfer
- Numerical Simulation
- Artificial Neural Networks
- Optimization techniques

Training Program Attended

- Participated in 8 days workshop on “Computational Fluid Dynamics simulation using COMSOL Multiphysics software” held from 8th September to 15th September 2023 at REVA University, Bengaluru, Karnataka, INDIA.
- Participated in 2 days FDP on “Porous Medium – Theory to Industrial Applications” held from 29-01-2024 to 01-02-2024 at Government Engineering College, Haveri, Karnataka, INDIA.

Research Interest

- Fluid Mechanics
- Newtonian and non-Newtonian nanofluids.
- Heat and Mass transfer
- Numerical Simulation
- Artificial Neural Networks
- Optimization techniques

Awards & Achievements

- My name has been included in Stanford University's List of the World's Top 2% of Scientists during the calendar year 2022, 2023 and 2024.
- INDIA Top cited paper award 2023, physics, one of the top 1% most cited papers in IOP Publishing’s portfolio of journals from 2020-22 for the article. “Impact of thermophoretic particle deposition on heat and mass transfer across the dynamics of Casson fluid flow over a moving thin needle.”
- Received Chancellor's Research Excellence Award and honored by Dr. Akhilesh Gupta, Secretary, Science and Engineering Board (SERB), Govt. of India.

Publication / Patents

- Ph.D. Dissertation: Computational Modelling of Boundary Layer Flow of Nanofluid
- National Conference Papers:
- International Conference Papers:
- National Journal Papers:
- International Journal Papers: 130*
- **J. K. Madhukesh**, F. Sahar, B. C. Prasannakumara, and S. A. Shehzad, "Waste discharge concentration and quadratic thermal radiation influences on time-dependent nanofluid flow over a porous rotating sphere," Numerical Heat Transfer, Part B: Fundamentals, vol. 86, no. 7, pp. 2357–2375, Jul. 2025, doi: 10.1080/10407790.2024.2336205.
- K. Vinutha et al., "Use of wavelet-based neural networks for optimization of heat and mass transfer radiative hybrid nanofluid over a nonlinear stretching surface," Advances in Mechanical Engineering, vol. 17, no. 9, p. 16878132251371755, Sep. 2025, doi: 10.1177/16878132251371755.
- S. S et al., "Triple diffusive convection in a fluid layer under an A.C electric field," Advances in Mathematical Physics, vol. 2025, no. 1, Jan. 2025, doi: 10.1155/admp/9963822.
- G. K. Ramesh, **J. K. Madhukesh**, R. Das, N. A. Shah, and S.-J. Yook, "Thermodynamic activity of a ternary nanofluid flow passing through a permeable slipped surface with heat source and sink," Waves in Random and Complex Media, vol. 35, no. 2, pp. 3499–3519, Mar. 2025, doi: 10.1080/17455030.2022.2053237.
- **J. K. Madhukesh**, G. K. Ramesh, and Y. B. Revadakundi, "Thermal transport analysis of ternary hybrid nanofluid flow over a vertical cylinder with thermal radiation and chemical reaction," Thermal Advances., p. 100040, Apr. 2025, doi: 10.1016/j.thradv.2025.100040. Available: https://www.sciencedirect.com/science/article/pii/S3050463525000199
- G. S. Roopa, C. S. Vishalakshi, **J. K. Madhukesh**, and G. K. Ramesh, "Thermal investigation of Tiwari–Das and Xue nanofluid model on space and thermal-dependent heat source/sink over a spinning disk: A numerical study," Numerical Heat Transfer, Part A: Applications, pp. 1–16, Jun. 2025, doi: 10.1080/10407782.2025.2522315.
- U. Khan et al., "Thermal Conductivity Evaluation of Radiative Entropy Optimized Cross-Flow in Eyring–Powell Nanofluid Past a Permeable Deformable Sheet: The Case of Solar-Powered Ship Application," NANO, vol. 20, no. 02, p. 2450101, Feb. 2025, doi: 10.1142/S1793292024501017.
- **J. K. Madhukesh**, G. K. Ramesh, and Y. B. Revadakundi, "Thermal transport analysis of ternary hybrid nanofluid flow over a vertical cylinder with thermal radiation and chemical reaction," Thermal Advances., p. 100040, Apr. 2025, doi: 10.1016/j.thradv.2025.100040. Available: https://www.sciencedirect.com/science/article/pii/S3050463525000199

- F. N. Jamrus et al., “Stability scrutinization of a non-Newtonian (Williamson) ternary hybrid nanofluid past a stretching/shrinking sheet,” Z Angew Math Mech, vol. 105, no. 2, p. e202300926, Feb. 2025, doi: 10.1002/zamm.202300926.
- V. Singh, N. B. Naduvinamani, K. Vinutha, B. C. Prasannakumara, **J. K. Madhukesh**, and A. Abdulrahman, “Sodium alginate-based MHD ternary nanofluid flow across a cone and wedge with exothermic/endothermic chemical reactions: A numerical study,” Numerical Heat Transfer, Part A: Applications, vol. 86, no. 22, pp. 7919–7938, Nov. 2025, doi: 10.1080/10407782.2024.2355520.
- R. P. Sharma, P. Srilatha, M. U. Hassan, U. Khan, **J. K. Madhukesh**, and S. Shukla, “Scrutinization of nanoparticle aggregation in the reactive dynamics of heat transport phenomenon with buoyancy forces,” Z Angew Math Mech, vol. 105, no. 5, p. e70010, May 2025, doi: 10.1002/zamm.70010.
- M. R. Gombi et al., “Repercussions of Nanofluid Flow and Internal Heat Generation Radiation on a Spiral Porous Fin with Variable Thermal Conductivity,” Partial Differential Equations in Applied Mathematics, p. 101211, Apr. 2025, doi: 10.1016/j.padiff.2025.101211. Available: https://www.sciencedirect.com/science/article/pii/S266681812500138X
- K. Vinutha, **J. K. Madhukesh**, N. Patil, and A. Abdulrahman, “Numerical analysis of heat and mass transfer in off-centered stagnation point Casson fluid flow over a rotating disc with thermophoretic particle deposition and artificial neural network-based optimization,” Engineering Applications of Artificial Intelligence, vol. 160, p. 112041, Aug. 2025, doi: 10.1016/j.engappai.2025.112041. Available: https://www.sciencedirect.com/science/article/pii/S0952197625020494
- B. M. Shettar, G. K. Ramesh, P. N. Hiremath, and **J. K. Madhukesh**, “MHD effects of oriented magnetic field on radiative Casson nanofluid flow over a stretchable surface,” Deleted Journal, vol. 2, no. 3, May 2025, doi: 10.1063/5.0252561. Available: https://pubs.aip.org/hgmri/ijfe/article/2/3/033101/3347665/MHD-effects-of-oriented-magnetic-field-on
- K. Vinutha, **J. K. Madhukesh**, K. V. Prasad, A. Kulshreshta, N. A. Shah, and M. Yar, “MHD Casson nanofluid flow over a three-dimensional exponentially stretching surface with waste discharge concentration: A revised Buongiorno’s model,” Applied Rheology, vol. 35, no. 1, p. 20250040, Apr. 2025, doi: 10.1515/arh-2025-0040.
- G. K. Ramesh, **J. K. Madhukesh**, P. N. Hiremath, and E. H. Aly, “Magnetized nanofluid flowing across an inclined microchannel with heat source/sink and temperature jump: Corcione’s model aspects,” Mod. Phys. Lett. B, vol. 39, no. 22, p. 2550073, Aug. 2025, doi: 10.1142/S0217984925500733.
- U. Khan et al., “Irreversibility analysis of cross-flow in Eyring–Powell nanofluid over a permeable deformable sheet with Lorentz forces,” Z Angew Math Mech, vol. 105, no. 2, p. e202300835, Feb. 2025, doi: 10.1002/zamm.202300835.
- J. Madhu et al., “Influence of waste discharge concentration and quadratic thermal radiation over oblique stagnation point Boger hybrid nanofluid flow across a cylinder,” Z Angew Math Mech, vol. 105, no. 3, p. e202300929, Mar. 2025, doi: 10.1002/zamm.202300929.

- K. Karthik, **M. J K**, S. Kiran, N. K V, B. C. Prasannakumara, and G. Fehmi, "Impacts of thermophoretic deposition and thermal radiation on heat and mass transfer analysis of ternary nanofluid flow across a wedge," International Journal of Modelling and Simulation, vol. 45, no. 5, pp. 1688–1700, Sep. 2025, doi: 10.1080/02286203.2023.2298234.
- K. Vinutha et al., "Impact of Autocatalytic Chemical Reactions and Convective Boundary Conditions on NaC6H7O6–SiO2 -Based Nanofluid Oblique Stagnation Point Flow Across a Stretching Sheet," NANO, vol. 20, no. 03, p. 2450097, Mar. 2025, doi: 10.1142/S1793292024500978.
- A. Rauf, G. K. Ramesh, S. Fatima, S. A. Shehzad, **J. K. Madhukesh**, and M. K. Siddiq, "Horizontal Magnetic Field Influence on Fluid Flow Across a Variable Thickness Rotating Disk With Stretching and Melting Phenomenon," Heat Trans, vol. 54, no. 3, pp. 2184–2193, May 2025, doi: 10.1002/htj.23285.
- J. Madhu, **J. K. Madhukesh**, K. V. Prasad, and A. Kulshreshta, "Exact solutions for nanoparticle aggregation and porous medium effects over a stretching surface," Multiscale and Multidiscip. Model. Exp. and Des., vol. 8, no. 2, p. 134, Feb. 2025, doi: 10.1007/s41939-024-00724-9.
- R. Ashrith et al., "Endothermic and exothermic reactions and stagnation point nanofluid flow over a porous stretched surface with a revised Buongiorno model," South African Journal of Chemical Engineering, Feb. 2025, doi: 10.1016/j.sajce.2025.02.003. Available: https://www.sciencedirect.com/science/article/pii/S1026918525000149
- **J. K. Madhukesh** and G. K. Ramesh, "Effectiveness of kerosene/water conveying ternary (Cu–SiO2 –Al2 O3) nanoparticles flowing in vertical cylinder subjected to a melting phenomenon," Journal of Taibah University for Science, vol. 19, no. 1, p. 2466870, Dec. 2025, doi: 10.1080/16583655.2025.2466870.
- H. A. H. Alzahrani, A. Alsaiari, **J. K. Madhukesh**, R. Naveen Kumar, and B. M. Prasanna, "Effect of thermal radiation on heat transfer in plane wall jet flow of Casson nanofluid with suction subject to a slip boundary condition," Waves in Random and Complex Media, vol. 35, no. 1, pp. 1212–1229, Jan. 2025, doi: 10.1080/17455030.2022.2030502.
- K. Vinutha, K. Sajjan, B. Kanabar, **J. K. Madhukesh**, and A. Abdulrahman, "Crank–Nicolson finite-difference method for analysing pollutant discharge in nanofluid mixed convection systems," Pramana - J Phys, vol. 99, no. 3, p. 129, Aug. 2025, doi: 10.1007/s12043-025-02989-2.
- **J. K. Madhukesh**, B. C. Prasannakumara, M. Kouki, and N. A. Shah, "Crank Nicolson and response surface methodology-based simulation to analyze the thermophoretic particle deposition of nanofluids over an infinite porous plate under mixed convection: a sensitivity analysis," J Therm Anal Calorim, Oct. 2025, doi: 10.1007/s10973-025-14816-2.
- T. G. K, N. K V., B. Kanabar, S. V, K. Vinutha, and **M. J. K**, "Combined effects of thermal radiation and thermophoretic particle deposition in stagnation point flow over Howarth's wavy porous circular cylinder," International Journal of Thermofluids, p. 101271, May 2025, doi: 10.1016/j.ijft.2025.101271. Available: https://www.sciencedirect.com/science/article/pii/S2666202725002186

- K. Vinutha, P. Srilatha, A. Zaib, **J. K. Madhukesh**, U. Khan, and M. U. Hassan, "Aspects of elastic deformation and nanomaterials past a deviating cone and wedge elongational surfaces driven by a waste discharge concentration," Z Angew Math Mech, vol. 105, no. 1, p. e202400452, Jan. 2025, doi: 10.1002/zamm.202400452.
- **J. K. Madhukesh** and G. K. Ramesh, "ANOVA-based Taguchi approach to optimise the rate of heat transport for the magnetised nanofluid across an exponential surface," Chemometrics and Intelligent Laboratory Systems, vol. 265, p. 105494, Jul. 2025, doi: 10.1016/j.chemolab.2025.105494. Available: https://www.sciencedirect.com/science/article/abs/pii/S0169743925001790
- K. Vinutha, **J. K. Madhukesh**, K. V. Prasad, A. Kulshreshta, N. A. Shah, and M. Yar, "MHD Casson nanofluid flow over a three-dimensional exponentially stretching surface with waste discharge concentration: A revised Buongiorno's model," Applied Rheology, vol. 35, no. 1, Jan. 2025, doi: 10.1515/arh-2025-0040.

Professional Membership

- International Association of Engineers. (Membership No. 289872) (Life Member)

Awards & Recognitions

- Received Chancellor's Research Excellence Award and honoured by Dr. Akhilesh Gupta, Secretary, Science and Engineering Board (SERB), Govt. of India.
- Editorial Member for Scientific Reports - Nature Portfolio.

Administrative Responsibilities

- **Department Level:** Research Coordinator, Proctor.
- **University Level:** ERP Coordinator, PG Manager.

Workshops / FDPs / Seminars Attended

- Vibrant Advocacy for Advancement and Nurturing of Indian Languages (VAANI) on Sustainable Development and Future trends: Innovations in AI and Quantum Technology.
- Advanced Mathematical Applications – D.R.M Science College, Davangere.

Workshops / FDPs / Seminars Organized

- Two Days National Webinar Series on Recent Developments in Mathematics – 2021 (NWSRDM-2021) at Davangere University.

Projects Guided

- UG Projects: 03
- PG Projects: 04

Funded Projects / Grants Received

- Nil

Any Other Contributions