

ATHIRA K

Ragam, Sankaranellur (PO), Kuthuparamba (VIA), Kannur, 670643.

Phone: +91-9656770779

Email: athirakinakkal2022@gmail.com



Education

- **PhD (Research Scholar) in Applied Mathematics**
Department of Statistics and Applied Mathematics,
Central University of Tamil Nadu
Month and Year of Registration: 26-March-2021
Pre-Thesis Seminar Completed on: 21-January-2026
Thesis Submission Expected on: 30-March-2026
ORCID: 0009-0002-9855-7466
- **M.Sc Mathematics**
Institution: Department of Mathematical Sciences, Kannur University Campus,
Mangattuparamba, 670567
University: Kannur University
Marks: 95%
Year of Passing: May 2018
- **B.Sc Mathematics**
Institution: Pazhassi Raja NSS College, Mattannur, Kannur, Kerala, 670702
University: Kannur University
Marks: 90%
Year of Passing: May 2016

Research Area

- **Computational Fluid Dynamics**
- **Research Interests:** Fluid Dynamics, Numerical Methods, Heat and Mass Transfer, Fractional Differential Equations, Supersonic and Hypersonic Flows, Boundary Layer Theory, and Magnetohydrodynamics. My research focuses on integrating mathematical modeling with physical principles to analyze complex fluid systems and enhance computational methods for their simulation.

Publications from Present Research Work

- **Athira, K.** & Narsimhulu, D. (2025). Tarig Projected Differential Transform Method for Solving Time-Fractional Gas Dynamics Equation. *IAENG International Journal of Applied Mathematics*, 55(9), 2732–2751. (Peer reviewed; UGC CARE listed; indexed in Scopus and EI Compendex; Q3). International Association of Engineers, Hong Kong. ISSN: 1992-9986 (Online); 1992-9978 (Print).
Available at: https://www.iaeng.org/IJAM/issues_v55/issue_9/IJAM_55_9_09.pdf

- **Athira, K.**, Narsimhulu, D., & Prasad, D. N. (2025). Numerical Investigation of Convective Heat Transfer Effect on Divergent Shock Waves in Ideal Magnetogasdynamics. *Journal of Heat and Mass Transfer Research (JHMTR)*. Article in Press, Accepted Manuscript Available Online from 24 July 2025. DOI: 10.22075/jhmtr.2025.35432.1611. (Peer reviewed; indexed in Scopus; Q2). Semnan University Press, Iran. ISSN: 2383-3068 (Online); 2345-508X (Print). DOI: doi:10.22075/jhmtr.2025.35432.1611
- Narsimhulu, D., **Athira, K.**, & Prasad, D. N. (2025). Supersonic to hypersonic transition of magnetized shocks with viscous dissipation. *Physics of Fluids*, 37(9), 096131. (Peer reviewed; UGC CARE listed; indexed in Scopus, Web of Science, SCI/SCIE, PubMed; Q1). American Institute of Physics (AIP), USA. ISSN: 1089-7666 (Online); 1070-6631 (Print). DOI: doi:10.1063/5.0288350
- **Athira, K.**, Narsimhulu, D., & Brahmanandam, P. S. (2025). Numerical Solutions of Time-Fractional N-W-S and Burger's Equations Using the Tarig Projected Differential Transform Method (TPDTM). *Contemporary Mathematics*, 6(3). (Peer reviewed; indexed in Scopus, Web of Science, PubMed; Q1). Universal Wiser Publisher, Singapore. ISSN: 2705-1056 (Online); 2705-1064 (Print). DOI: 10.37256/cm.6320256239
- **Athira, K.**, Narsimhulu, D., & Prabhakar, N. B. S. (2025). Effect of Modes of Heat Transfer on Converging Shock Waves in Non-Ideal Magnetogasdynamics. In: *Planning of Sustainable Energy Systems in Urban Built Environments*. Editors: Mohan Lal Kolhe, Pushpendra Singh, Shweta Rani, Prashant Kumar. Apple Academic Press (Taylor & Francis Group, CRC Press), UK. (Peer reviewed; indexed in Scopus). ISBN: 9781779640642 (Hard); 978-1-77964-065-9 (E-book). Available at: Book Details / Publisher Page
- Narsimhulu, D., & **Athira, K.** (2025). The Novel Hybrid Approach for Solving Time-Fractional Fokker–Planck Equations by the Tarig Projected Differential Transform Method. *Journal of Mathematical Analysis and its Contemporary Applications*, 7(3), 77–113. DOI: 10.30495/macj.2025.2063976.1141. (Peer reviewed; indexed in J-Gate, Google Scholar, Publons). Research and Science Group Ltd., Iran. ISSN: 2716-9898 (Online). Available at: https://www.macajournal.com/article_728421.html
- “The Impact of Heat Transfer Modes on Converging Magnetized Non-Planar Shock Waves in Mixtures of Non-Ideal Gases and Solid Particles” (Revised manuscript under review).
- “Analysis of Artificial Viscosity Effects on Shock Structures in Ideal Magnetohydrodynamics” (Revised manuscript under review).
- “Tarig Projected Differential Transform Method (TPDTM) for Solving Time–Fractional Coupled Gas Dynamic Equations” (Manuscript under preparation for communication).
- “Effect of Artificial Viscosity on Shock Wave Propagation in the Generalised Non-Ideal Dusty Gas Under the Influence of All Modes of Heat Transfer” (Revised manuscript under review).
- “Numerical Simulations on Supersonic and Hypersonic Shock Waves with the Effect of Magnetic Field in Mie–Grüneisen Equation of State” (Manuscript under preparation for communication).

Technical Skills

- Programming / Tools: MATLAB, Mathematica, Maple.
- Software: MS Office, LaTeX
- Research Methods: Numerical Methods, Computational Modeling, Simulation of PDEs

Awards / Fellowships

- (UGC), New Delhi, India, through the Savitribai Jyotirao Phule Fellowship for Single Girl Child (SJSGC) [F. No.82-7/2022 (SA III)].
- Qualified CUCET (2020); Joined PhD program at Central University of Tamil Nadu in 26-March 2021
- Secured 1st Rank in M.Sc Mathematics Entrance exam of Kannur University (2016).
- Secured Second position in M.Sc Degree at Kannur University Campus.
- Secured Second position in B.Sc Degree at PRNSS Mattannur.

Teaching and Research work Experience

- Worked as a Teaching Assistant in Kannur University campus, Mangattuparamba for four months.
- Worked as an Assistant Professor for 1 year at St Thomas College of Engineering and Technology Mattannur.
- Worked under the guidance of Dr. TV Ramakrishnan (Head of the Department, Department of Mathematical Sciences, Mangattuparamba) for a project on “Introduction to Hypergraph” in M.Sc Degree level.