Dr. Lakshmi Rani Basumatary

M.Sc. (G.U.), M.Phil. (D.U.), Ph.D (D.U.)

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Education Profile

- **Doctor of Philosophy** [2016– 2022]
  Department of Mathematics, University of Delhi, Delhi
  Supervisor: *Prof. Vusala Ambethkar*
  Thesis title: *Heat and Mass Tranfer Analysis of Free and Forced Convection in Horizontal Rectangular Enclosure with Wall Heat and Concentration Sources*
- **Master of Philosophy** [2013– 2016]
  Department of Mathematics, University of Delhi, Delhi
  Supervisor: *Prof. Vusala Ambethkar*
  Dissertation title: *Some Complete General Solutions of Steady and Unsteady Stokes Equations*
- **Master of Science** [2010– 2012]
  Department of Mathematics, Gauhati University, Assam
  Major: *Mathematics*
- **Bachelor of Science** [2006– 2010]
  Department of Mathematics, Gauhati University, Assam
  Major: *Mathematics*
  Additional subjects: *Physics, Chemistry*

Skills

- **Programming lanuguages:** C, Python: beginner
- **Miscellaneous:** LaTeX, MATLAB, MATHEMATICA

Publications

Publications in internationally reviewed journals

- Heat Transfer Analysis of Forced Convective Flow within an Enclosure
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  J. Math. Comput. Sci., 11, 2021, pp. 7832–7843
- Heat and Mass Transfer Analysis of Combined Convection in a Horizontal Rectangle
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  Heat Transfer: Wiley, 50(6), 2021, 5607–5626
- Numerical Solutions of Steady Free Convective Flow in a Rectangular Region with Discrete Wall Heat and Concentration Sources
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  J. Appl. Math. Comput. Mech., 18(4), 2019, pp. 5–18
- Solution of Viscous Flow in a Rectangular Region by Using the Hybrid Finite Volume Scheme
  Vusala Ambethkar, **Lakshmi Rani Basumatary**

J. Appl. Math. Comput. Mech., 18(3), 2019, pp. 17–30

- A Numerical Method for Viscous Flow in a Driven Cavity with Heat and Concentration Sources Placed on its Side Wall
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  J. Appl. Math. Comput. Mech., 17(3), 2018, pp. 17–30
- Mixed Convective Flow in Horizontal Rectangular Enclosure with a Wall Heat Source: A Numerical Study
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  Communicated, 2020
- Mass Transfer Driven Convective Flow in Rectangular Enclosure with Concentrated Top Wall
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  Communicated, 2020
- Finite Volume Solutions for the Fluid Flow and Energy Equations at Various Reynolds numbers
  Vusala Ambethkar, **Lakshmi Rani Basumatary**
  Communicated, 2021

CONFERECES PRESENTED PAPERS

- *Free convective flow in a rectangular region with a wall heat source: A Numerical Study* [December 2019]
  ICMMA Conference, New Delhi, India
- *Natural convection with heat transfer in a rectangular enclosure containing one discrete heater* [July 2019]
  ICIAM Conference, Valencia, Spain
- *A Hybrid Finite Volume Scheme for Solutions of Viscous Flow in Rectangular Enclosure* [January 2019]
  ICRDTCDE Conference, New Delhi, India
- *Numerical study of natural convection, heat and mass transfer in rectangular enclosure* [December 2018]
  ICMMC Conference, New Delhi, India

WORKSHOPS/ CONFERENCES ATTENDED

- **International Workshop on Numerical Methods in Scientific Computing** [February 2020]
  Department of Mathematics, SAU, New Delhi
- **Workshop on Data Science and Programming with Python** [January 2020]
  Department of Statistics, University of Delhi
- **Application of Computational Fluid Dynamics Techniques in Heat Transfer and Energy Systems** [June 2019]
  NIT, Tiruchirappalli
- **National Research Scholars' Seminar** [December 2018]
  Department of Mathematics, University of Delhi
- **Scientific Computations with Python** [November 2018]
  E & ICT Academy, NIT Warangal
- **Research Scholar Seminar** [February 2015]
  Department of Mathematics, University of Delhi
- **Workshop on Research Metrics** [February 2015]
  Research Council & Delhi University Library System
- **Workshop on Information Literacy & Competency** [February 2014]
  University Library System, University of Delhi

Research Interests

- Fluid Mechanics and Dynamics
- Steady and Unstesdy Stokes Equations
- Heat and Mass Transfer Analysis
- Free and Forced Convection
- Finite Volume Method
- Finite Difference Method

Teaching experiences

- **Fluid Dynamics** [January 2019– May 2019]
  M.Sc. 2nd Semester, Department of Mathematics, University of Delhi
- **Fluid Dynamics** [January 2018– May 2018]
  M.Sc. 2nd Semester, Department of Mathematics, University of Delhi
- **Fluid Dynamics** [January 2017– May 2017]
  M.Sc. 2nd Semester, Department of Mathematics, University of Delhi

Declaration

I hereby certify that all the information furnished above is correct to the best of my knowledge.

(Lakshmi Rani Basumatary)