Dr. Ramayan Singh *(M.Sc., M.Phil., Ph.D.)*

Associate Professor

Department of Mathematics
National Institute of Technology Jamshedpur, India

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*Area of Research Interest***:**

- Heat and Mass Transfer
- Boundary Layer Theory
- Magnetohydrodynamics (MHD)
- Numerical Methods
- Ordinary and Partial Differential Equations

*Core Subjects Covered (Ph.D., PG &UG)***:**

- Numerical Methods and Its Applications
- Computational Techniques
- Mathematics-I
- Mathematics-II
- Mathematics-III
- Integral Equations and Transforms

Membership of Professional Bodies

- The Indian Society for Technical Education (Life Member), LM-28770

Teaching Experience

- Working as an Associate Professor in the **Department of Mathematics, National Institute of Technology, Jamshedpur (Jharkhand), India** (June 1996 – till date).

- Worked as Assistant Professor in the **Department of Mathematics, B.I.T Sindri, Dhanbad, India** (February 1986-December, 1993).

Manuscripts published in International Journals	• **R. Singh** (with A. Kumar, Mikhail A. Sheremet), Analysis and modeling of magnetic dipole for the radiative flow of non-Newtonian nanomaterial with Arrhenius activation energy, *Mathematical Methods in the Applied Sciences*, (2021), DOI:10.1002/mma.7124.

- **R. Singh** (with R. Tripathi, A. Kumar, V. K. Chaurasiya), Minimization of entropy production in the transient thermocapillarity flow of $(Al_2O_3 - Cu)$ hybrid nanoliquid film over a disk, *Indian Journal of Physics*, (2021) DOI: 10.1007/s12648-021-02100-6.

- **R. Singh** (with A. Kumar, R. Singh, R. Tripathi, V. K. Chaurasiya), Simultaneous effects of nonlinear thermal radiation and Joule heating on the flow of Williamson nanofluid with entropy generation, *Physica A: Statistical Mechanics and its Applications*, (2020), https://doi.org/10.1016/j.physa.2019.123972.

- **R. Singh**, (with A. Kumar, R. Singh, R. Tripathi, Mikhail A. Sheremet), Entropy generation on double diffusive MHD Casson nanofluid flow with convective heat transfer and activation energy, (2020), *Indian Journal of Physics).* DOI.org/10.1007/s12648-020-01800-9.

- **R Singh** (R Kumar, SA Edalatpanah, S Jha) : A Pythagorean fuzzy approach to the transportation problem - *Complex & intelligent systems* vol:5 pp:255-263 (2019)

- **R. Singh** (with Ranjan Kumar, Sripati Jha): A different approach for solving the shortest path problem under mixed fuzzy environment - *IGI Global* vol:9 pp:132-161 (2020)

- **R. Singh** (with A. Kumar and R. Tripathi) Entropy generation and regression analysis on stagnation point flow of Casson nanofluid with Arrhenius activation energy, (2019), *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, (2019) 41, 306.

- **R. Singh** (with A. Kumar, R. Tripathi and G. S. Seth), Three Dimensional Magnetohydrodynamic Flow of Micropolar CNT-based Nanofluid through a Horizontal Rotating Channel: OHAM Analysis, *Indian Journal of Physics*, (2019) 93, 1-14, DOI.org/10.1007/s12648-019-01460-4.

- **R. Singh** (with A. Kumar, M. I. Khan and T. Hayat), Entropy generation in flow of Carreau nanofluid, *Journal of Molecular Liquids*, (2019), 278, 677 – 687.

- **R. Singh** (with A. Kumar, G. S. Seth and R. Tripathi), Soret Effect on Transient Magnetohydrodynamic Nanofluid Flow Past a vertical Plate Through a Porous Medium with Second Order Chemical reaction and

Radiation Effect, *International Journal of Heat and Technology* (2018), 36 (4), 1430-1437.

- **R. Singh** (with A. Kumar, G. S. Seth and R. Tripathi), Double Diffusive Magnetohydrodynamic Natural Convection Flow of Brinkman Type Nanofluid with Diffusion-Thermo and Chemical Reaction Effects, *Journal of Nanofluids* (2017), 7, 338–349.

- **R. Singh** (with R. Kumar and S. Jha), Shortest Path Problem in Network with Type-2 Triangular Fuzzy Arc Length, *Journal of Applied Research on Industrial Engineering.* 2017, 4(1), 1-7.

- **R. Singh (**with L. Rakesh and M. Kr. Singh), A Fuzzy Logic Approach to De-Noise a Gaussian Noise in Images, *International Journal of Computer Information systems,* 2015, 9 (3).

- **R. Singh** (with S. Biswas and S. Jha)**,** A Fuzzy Mathematics Approach in Measuring Air Pollution from Motor Vehicles, *Computational Ecology and Software,* 2012, 2 (3): 160-168.

- **R. Singh** (with S. Biswas and S. Jha), A Fuzzy Preference Relation Based Method for Face Recognition by Gabor Filters, *International Journal of Information Technology and Computer Science,* of 2012, 6, 18-23.

- **R. Singh** (with G.S. Seth and N. Mahto), Oscillatory Hydromagnetic Couette Flow in a Rotating System, *Ind. J. Tech.,* 26, 329-333.

Book Chapter

- **R. Singh** (with A. Kumar and R. Tripathi), Heat Transfer Analysis of CNT-Nanofluid between Two Rotating Plates in the Presence of Viscous Dissipation Effect, *Mathematical Modelling and Scientific Computing with Applications,* doi.org/10.1007/978-981-15-1338-1_21. (2020).

Workshop and Institute Attended

2008	*"National Workshop on Multivariate Analysis and Statistical Inferences"* during December 22-26, 2008, organized by National Institute of Technology (NIT), Jamshedpur, India.
2008	*"Human Resources Training: Challenges and Opportunities"* during February 09-10, 2008, organized by National Institute of Technology (NIT), Jamshedpur, India.
2005	*"Finite Elements Methods and Its Application"* during June 27 to July 08, 2008, organized by National Institute of Technology (NIT), Jamshedpur, India.
2002	*"Some Aspect of Modelling and Simulation of Electrical Systems"* during December 24 to January 06, 2002, organized by Regional Institute of Technology (RIT), Jamshedpur, India.

2001	*"Energy Technology and Management Sustainable Perspective"* during June 18-30, 2001, organized by BIT Mesra, Ranchi, India.
2001	*"Teachers Roles in Engineering Education"* during December 25 to January 13, 2001, organized by Regional Institute of Technology (RIT), Jamshedpur, India.
1999	*"Mathematical Theory of Film Lubrication with Special Emphasis on Non-Newtonian Fluid"* during January 04 to January 16, 1999, organized by Regional Engineering College (REC), Silchar, India.

Ph.D Students Guided (and Ongoing)

- Amit Kumar (Ph.D. Degree Awarded)
  Title: *A Treatise of the Magnetohydrodynamic Flow of Non-Newtonian Fluids over Different Geometries. (2021)*

- Ranjan Kumar (Ph.D. Degree Awarded)
  Title: *Study on Fuzzy Shortest Path Problems (2020)*

- Vineet Kumar Chaurasiya (Ph.D. Ongoing)
  Title: *Analytical and Numerical study of Magnetohydrodynamics Fluid Flow Problems with Heat and mass Transfer.*

- Ajay Kumar Kar (Ph.D. Ongoing)
  Title: *Computational Numerical study of Magnetohydrodynamics Fluid Flow Problems.*

PG Students Guided

- Sonu Lamba (PG)
  Title: *Controllability, Observability and Stability of Artificial Satellite Problem.*

- Gangesh Kumar Singh (PG)
  Title: *Green's Function for torsional wave in cylindrically monoclinic material.*

- Debraj Giri (PG)
  Title: *Influence of Hall Current with CNTs Suspended Nanofluid in a Rotating Channel*

- Asutosh Ojha (PG)
  Title: *Heat Transfer of Al_2O_3-Water Nanofluid in A Rotating Channel with Thermal Radiation Effect*

- Somya Mittal (PG)

Title: *Analysis of Hydromagnetic Natural Convection Heat and Mass Transfer Flow with Dufour Effect over an Exponentially Accelerated Vertical Plate.*

- Abhilasha Singh (PG)
  Title: **Duality in Semi Infinite Fractional Programming involving (H_p,r)-invex Functions**.

- Monika Minz (PG)
  Title: *Steady State Queue length Distribution of a Poisson Arrival Queue of (M/G/1) Model.*

- Srishti Gupta (PG)
  Title: *Queue length Distribution of a Batch-Service Queue with Poisson Arrival of M/G(1b)/1 Model.*

- Anant Pratap Singh, (PG)
  Title: *Second Order Fractional Symmetric duality invariational problems over cone constraints.*

- Mohd Suhail (PG)
  Title: *Effect of Hall Current On Magnetohydrodynamic Natural Convection Heat and Mass Transfer Flow Past a Vertical Plate.*

- Bhagmat Hansdah (PG)
  Title: *Finite Difference Method.*

- Radheshwar (PG)
  Title: *Contact Tracing Of Covid-19 Using Blochain Technology.*

- Nikhil Kumar Choudhary (PG)
  Title: **Solving Ordinary Differential Equations using MATLAB.**