CURRICULUM VITAE

Personal Information:

Name: Dr SUMEETA SINGH

Email: sumeeta2304singh@gmail.com, sumeeta2304bhadauria@gmail.com

Date of Birth: March 23, 1992

Father's Name: Shri Hari Bakhsh Singh

Mother's Name: Smt Kamlesh Singh

Nationality: Indian

Thesis Supervisors: Dr. Gorakh Nath and Dr. Pankaj Srivastava

Department of Mathematics

MNNIT Allahabad, Prayagraj--211004, India.

Email: gnath@mnnit.ac.in, drpankaj23@gmail.com

Areas of Interest:

Differential Equations, Fluid Dynamics, Shock Waves, Numerical Analysis, Lie Group Theoretic Method.

Educational Qualification:

- Ph.D. (Mathematics) from MNNIT Allahabad, 2021.

- DST INSPIRE Fellow

- GATE 2016, All India ranking – 286.

- JAM 2012, All India ranking – 497.

- M. Sc. (Mathematics and Scientific Computing), 2014, CPI: 9.29, MNNIT Allahabad, Prayagraj, India.

- B. Sc. (Physics, Chemistry, Mathematics), 2012,
  Division: First (62.15%), P.P.N. P.G. College, Kanpur, India.

- Intermediate (Science Group), 2009
  Division: First (86.6%), C.B.S.E. Board

- High School, 2007,
  Division: First (91.4%), C.B.S.E. Board.

Honours And Recognitions:

- Gold Medal in MSc.

- Academic excellence award from Kendriya Vidyalaya No. 1, Chakeri for scoring highest marks in school in Mathematics in intermediate exams.

List of Publications:

1. G. Nath and **Sumeeta Singh**, Flow behind magnetogasdynamic exponential shock wave in self-gravitating gas, International Journal of Non-Linear Mechanics, Volume 88, (2017):102-108, SCI, Impact Factor:2.985.
   DOI: 10.1016/j.ijnonlinmec.2016.11.001. ISSN 0020-7462

2. G. Nath, **Sumeeta Singh** and Pankaj Srivastava, An exact solution for magnetogasdynamic cylindrical shock wave in self-gravitating rotating perfect gas with radiation heat flux and variable density, Journal of Engineering Physics and Thermophysics, Volume 91, (2018):1372–1382, Springer US, SCImago.
   DOI: 10.1007/s10891-018-1862-4. ISSN 1573-871X

3. G. Nath and **Sumeeta Singh**, Cylindrical ionizing shock waves in a self-gravitating gas with magnetic field: Power series method, Journal of Astrophysics and Astronomy,

Volume 40(6), (2019):47, SCI, Impact Factor:1.270. DOI: 10.1007/s12036-019-9615-0. ISSN 0973-7758

4. G. Nath and **Sumeeta Singh**, Approximate analytical solution for shock wave in rotational axisymmetric perfect gas with azimuthal magnetic field: Isothermal flow, Journal of Astrophysics and Astronomy, Volume 40(6), (2019):50, SCI, Impact Factor:1.270. DOI: 10.1007/s12036-019-9616-z

5. G. Nath and **Sumeeta Singh**, Approximate analytical solution for ionizing cylindrical shock wave in rotational axisymmetric non-ideal gas: Isothermal flow, Canadian Journal of Physics, Volume 98(11), (2020): 1077-1089, SCI, Impact Factor: 1.240. DOI: 10.1139/cjp-2019-0426. ISSN 1208-6045

6. G. Nath and **Sumeeta Singh**, Similarity solutions using Lie group theoretic method for cylindrical shock wave in self-gravitating perfect gas with axial magnetic field: Isothermal flow, The European Physical Journal Plus, Volume 135(3), (2020):1-15, SCI, Impact Factor: 3.911. DOI: 10.1140/epjp/s13360-020-00292-0. ISSN 2190-5444

7. G. Nath and **Sumeeta Singh**, Similarity solutions for magnetogasdynamic cylindrical shock wave in rotating ideal gas using Lie group theoretic method: Isothermal flow, International Journal of Geometric Methods in Modern Physics, Volume 17(8), (2020):2050123-57, SCIE, Impact Factor: 1.874. DOI: 10.1142/S0219887820501236. ISSN 1793-6977

8. Nath and **Sumeeta Singh**, An exact solution for magnetogasdynamic shock wave generated by a moving piston under the influence of gravitational field with radiation flux: Roche model, Advances in Structural Vibration, (2021):529-541, Springer, Singapore. DOI: 10.1007/978-981-15-5862-7_43

9. G. Nath and **Sumeeta Singh**, Similarity solutions for magnetogasdynamic shock waves in a rotating ideal gas using the Lie group-theoretic method, Journal of Engineering Mathematics, Volume 126(1), (2021): 1-22, SCI, Impact Factor: 1.509. DOI:10.1007/s10665-020-10073-4 ISSN 1573-2703

10. G. Nath and **Sumeeta Singh**, Similarity solutions for cylindrical shock wave in rotating ideal gas with or without magnetic field using Lie group theoretic method, The European Physical Journal Plus, Volume 135(11), 2020: 1-18, SCI, Impact Factor: 3.911. DOI: 10.1140/epjp/s13360-020-00946-z. ISSN 2190-5444

11. G. Nath and **Sumeeta Singh**, Approximate Analytical Solution for Ionizing Cylindrical Magnetogasdynamic Shock Wave in Rotational Axisymmetric Self-Gravitating Perfect Gas: Isothermal Flow, Differential Equations and Dynamical Systems, 2021: 1-27, SCImago. DOI: 10.1007/s12591-021-00566-8. ISSN 0974-6870

12. **Sumeeta Singh**, Similarity solutions for magnetogasdynamic cylindrical shock wave in rotating non-ideal gas using Lie group theoretic method, Journal of Engineering Mathematics, Volume 131(1), 2021: 1-16, SCI, Impact Factor: 1.509. DOI: 10.1007/s10665-021-10169-5. ISSN 1573-2703

13. **Sumeeta Singh**, Similarity solutions for cylindrical shock wave in rotating non-ideal gas using Lie group theoretic method, International Journal of Geometric Methods in Modern Physics, 18 (2021):2150219, SCIE, Impact Factor: 1.874. DOI: 10.1142/S0219887821502194

14. **Sumeeta Singh,** Similarity solutions for strong magnetogasdynamic cylindrical shock wave in rotating axisymmetric ideal gas with radiation heat flux using Lie group theoretic method, Accepted in Ricerche di Mathematica.

Research Papers Presented in the Conference:

1. G. Nath and Sumeeta Singh, Flow behind magnetogasdynamic exponential shock wave in self-gravitating gas, presented in the National Conference on Recent trends in Mathematical Sciences (NCRTMS-16) in MMMTU, Gorakhpur, India during April 12-13, 2016.

2. G. Nath, Sumeeta Singh and Pankaj Srivastava, An exact solution for magnetogasdynamic cylindrical shock wave in a self-gravitating rotational axisymmetric perfect gas with radiation heat flux and variable density, presented in the

2017 Asia-Pacific Regional IAU Meeting (APRIM-17), held in Taipei, Taiwan during 3-7 July 2017.

3. G. Nath and Sumeeta Singh, An exact solution for shock wave propagation with radiation flux and magnetic field under the influence of gravitational field: Roche model, presented in the 13th International Conference on Vibration Problems (ICOVP-17), in IIT Guwahati, India during 29th November to 2nd December, 2017.

4. G. Nath and Sumeeta Singh, Similarity solutions using Lie group theoretic method for cylindrical shock wave in self- gravitating perfect gas with axial magnetic field: Isothermal flow, presented in International Conference on Mathematical Analysis and its Applications (ICMAA-2019) held at South Asian University, New Delhi, India during December 14-16, 2019.

Workshop/STC/Internship Attended:

1. Attended Workshop on Singularly Perturbed Partial Differential Equations (SPPDEs): Theory, Computation and Application (AWSPPDES 2016) under National Program on Differential Equations: Theory, Computation & Applications (NPDE-TCA) during March 24 - 26, 2016 at IIT, Kanpur.

2. Two weeks course on Green Information Systems And Sustainability under GIAN scheme, scheduled during July 18 to 29, 2016 in the School of Management Studies at MNNIT Allahabad.

3. One week Short Term Course on Role Of Mathematical Sciences In Engineering And Technology (RMSET-16) organised by the Department of Mathematics, MNNIT Allahabad held during 19-23 October 2016.

4. Two weeks course on Computational Solution of Hyperbolic PDEs for Scientists, Engineers and Mathematicians under GIAN scheme, scheduled during Dec 05 to 15, 2017 at IIT, Delhi.

Teaching Experience:

I have taken tutorial classes of Engineering Mathematics- I, II and III of B.Tech. students during research period.

Technical Skills:

I work on software: LaTex, Mathematica and MS Office. Also I have knowledge of programming language C.

Date: 24 April 2022

Place: Kanpur   (SUMEETA SINGH)