Publications: 116 (82-SCI +9-ESCI+ 16-SCI Mago + 04- Non-SCI+ 03- Int. Conf.+ 02- Book Chapter) - (Quartile:Q1-38+ Q2-28 + Q3-33+ Q4-8)

A1: Papers in refereed international journals:

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1 Harshita, **G. Nath,** Self-similar solution for shock wave in rotating self-gravitating gas with variable density and magnetic field using Lie group theoretic method, **Engineering Computations (2025), DOI: 10.1108/EC-06-2025-0678, In press** accepted on 23 Nov. 2025, **Impact Factor = 2, SCI** Emerald Publishing Limited **Quartile:Q2**

2. **G. Nath,** A. Maurya, Similarity solution using optimal classification of Lie sub-algebras for shock waves in rotating ideal gas with heat conduction and radiation heat flux under the impact of magnetic field via Lie group analysis, **Mathematical Methods in the Applied Sciences 48 (2025), 15559–15590, https://doi.org/10.1002/mma.70026, Impact Factor =1.8, SCI Quartile:Q1**

3. **G. Nath,** A. Maurya, Shock waves in an ideal gas with variable density, the radiative and conductive heat fluxes in the presence of gravitational force and magnetic field via the Lie group technique, **Physica D: Nonlinear Phenomena**, **Volume 476, June 2025, 134637, https://doi.org/10.1016/j.physd.2025.134637, Impact Factor = 2.9, SCI Elsevier Quartile:Q1**

4. R. K. Singh, **G. Nath**, Lie symmetry method to construct the invariant functions for optimal classification and similarity solutions for shock wave in a perfectly conducting rotating non-ideal dusty gas with magnetic field: Isothermal flow, **Zeitschrift für Naturforschung A**, (2025), (22–pages) https://doi.org/10.1515/zna-2024-0292, **Impact Factor =1.8, SCI,** Published by: Walter De Gruyter GmbH **Quartile:Q3**

5. **G. Nath**, R.K. Singh, Lie symmetry method to discuss the optimal system of Lie subalgebras and similarity solutions for shock propagation in a perfectly conducting dusty gas with magnetic field in rotating medium, **Int. J. Geom. Methods in Modern Phys. Vol. 22, No. 06, 2550008 (11pages) (2025)**; Impact Factor = 2.2, SCI, https://doi.org/10.1142/S0219887825500082, World Scientific **Quartile:Q1**

6. Harshita, **G. Nath,** Optimal classification of Lie sub-algebras and self-similar solution using Lie group invariance method for shock wave in self-gravitating ideal gas with magnetic field

and variable density in rotating medium: isothermal flow, **Inter. J. Theoretical Phys.(2025) accepted on 12 Dec. 2025 In press**, **Impact Factor = 1.7, SCI, Springer, Quartile:Q2**

7. P. Upadhya, **G. Nath,** The Lie symmetry approach for shock propagation in self-gravitating non-ideal gas under the influence of monochromatic radiation and magnetic field in rotating medium, **Indian J. Phys. 99, 1519-1540(2025), Springer, Impact Factor = 2, SCI,** https://doi.org/10.1007/s12648-024-03352-8 **Quartile:Q3**

8. **G. Nath**, V. S. Kadam, Lie group theoretic method for magnetogasdynamic shock wave in a rotational axisymmetric real gas under the influence of monochromatic radiation, **Int. J. Appl. Comput. Math 11:135 (2025) https://doi.org/10.1007/s40819-025-01954-2 SCI Mago, Springer, SJR 2024 0.372 Quartile: Q3**

9. **G. Nath,** A. Maurya, Group invariance method for spherical shock wave in a non-ideal gas under the influence of gravitational and azimuthal magnetic fields, **Proc. Natl Acad. Sci., India Sect. A Phy. Sc. 95, 85-102 (2025),** https://doi.org/10.1007/s40010-025-00908-z **SCI, Impact Factor = 1.2, Quartile:Q3**

10. **G. Nath,** P. Upadhya, Similarity solution via one-dimensional Lie sub-algebras for shock waves in a self-gravitating and rotating gas with magnetic field and radiation heat flux, **International Journal of Fluid Engineering 2, 024303 (2025) https://doi.org/10.1063/5.0232628, American Institute of Physics**

11. A. Ghosh, **G. Nath,** Lie symmetry analysis and self-similar solution for shock wave in a weakly conducting ideal gas subjected to magnetic induction in rotating medium **Russian J. Physics (2025) SCIE IF=0.4 (in press accepted Sept. 2025) Quartile:Q3**

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Quartile: Q2

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33. **G. Nath,** Approximate analytical solution for the propagation of shock wave in a mixture of small solid particles and non-ideal gas: Isothermal flow, **Z. Naturforsch. vol:77 iss:2 (2022), 191-206,** DOI: 10.1515/ZNA-2021-0196, **Impact Factor =1.8, SCI,** Published by: Walter De Gruyter GmbH**, Quartile:Q3**
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