




## Faculty Details Proforma For College Web-site



Title	Dr.	First Name	Astha	Last Name	Chauhan	Photograph
<b>Designation</b>	Assistant Professor					
<b>Address</b>	Department of Mathematics, Daulat Ram College, University of Delhi, Delhi, India					
<b>Phone No. Office</b>						
<b>Residence</b>	Confidential					
<b>Mobile No.</b>						
<b>Email - ID</b>	asthachauhan@dr.du.ac.in					
<b>Web Page</b>	<b>Research Gate:</b> <a href="https://www.researchgate.net/profile/Astha-Chauhan-2">https://www.researchgate.net/profile/Astha-Chauhan-2</a> <b>Google Scholar:</b> <a href="https://scholar.google.co.in/citations?user=QVn5VLIAAAAJ&amp;hl=en">https://scholar.google.co.in/citations?user=QVn5VLIAAAAJ&amp;hl=en</a>					
<b>Educational Qualifications</b>						
<b>Degree</b>	<b>Institution</b>				<b>Year</b>	
B.Sc.	CCS University Meerut				2012	
M.Sc.	CCS University Meerut				2014	
M.Phil.	CCS University Meerut				2015	
PhD	IIT Roorkee				2021	
<b>Career Profile</b>						
<ul style="list-style-type: none"><li>Assistant Professor (Permanent), Daulat Ram College, University of Delhi since Oct 14, 2022.</li></ul>						
<b>Administrative Assignments</b>						
<ol style="list-style-type: none"><li>1. Worked as AEC Cluster Co-ordinator of DRC during session 2022-23.</li><li>2. Member Cluster Core Committee (2022-23, 2023-24).</li><li>2. Member Placement Cell (2022-23).</li><li>3. Member Library Committee (2023-24).</li><li>4. Member Hostel Committee (2023-24).</li><li>5. Co-Convenor: Mathematics Association (2023-24).</li></ol>						
<b>Areas of Interest / Specialization</b>						
Differential Equation, Linear Algebra, PDEs, Complex Analysis, Number Theory, Probability and Statistics						

<b>Subjects Taught</b>
Probability Theory and Statistics, SEC-Latex and HTML Theory, Element of Analysis, Ordinary Differential Equations, SEC-Computer Algebra Systems and Related Software (Practical), Probability and Statistics (Practical)
<b>Research Guidance</b>
NA
<b>Publications Profile</b>
<ul style="list-style-type: none"> <li>• S. Kumar, S.K. Dhiman and <b>Astha Chauhan</b>, “Analysis of Lie Invariance, Analytical Solutions. Conservation Laws, and a Variety of Wave Profiles for the (2+1)-Dimensional Riemann Wave Model Arising from Ocean Tsunamis and Seismic Sea Waves”, (Accepted in <b>The European Physical Journal Plus</b>), 2023. (I.F: 3.758)</li> <li>• S. Kumar, W. X. Ma, S.K. Dhiman and <b>Astha Chauhan</b>, “Lie Group Analysis with the Optimal System, Generalized Invariant Solutions, and an Enormous Variety of Different Wave Profiles for the Higher-Dimensional Modified Dispersive Water Wave System of Equations, <b>The European Physical Journal Plus</b>, 138(5), 4342023, 2023, ISSN:2190-5444. (I.F: 3.758)</li> <li>• <b>Astha Chauhan</b> and Rajan Arora, “Application of Homotopy Analysis Method (HAM) to the Non-Linear KdV equations”, <b>Communication in Mathematics</b>, 1-12, 31, 2022, ISSN: 1804-1388.</li> <li>• <b>Astha Chauhan</b>, “Shock waves propagation in a non-ideal rotating medium with azimuthal magnetic field effect using Lie group technique”, <b>Physics of Fluids</b>, 34, 017101, 2022, ISSN: 10706631. (I.F.: 4.98)</li> <li>• <b>Astha Chauhan</b>, Ashish Tiwari, Kajal Sharma and Rajan Arora, Steepening of Waves in a Non-Ideal Radiative Magnetogasdynamics with Dust Particles, <b>Pramana-A Journal of Physics</b>, 96, 139, 2022, ISSN: 0304-4289. (I.F.: 1.688)</li> <li>• <b>Astha Chauhan</b> and Rajan Arora, “Invariance analysis and some new exact analytic solutions of the time-fractional coupled Drinfeld-Sokolov-Wilson equations”, <b>Communication in Mathematics</b>, 30(1), 63–80, 2022, ISSN: 1804-1388.</li> <li>• Sachin Kumar, Shubham Kumar Dhiman and <b>Astha Chauhan</b>, “Symmetry reductions, generalized solutions and dynamics of wave profiles for the (2+1)-dimensional system of Broer-Kaup-Kupershmidt (BKK) equations”, <b>Mathematics and Computers in Simulation</b>, 196, 319-335, 2022, ISSN: 0378-4754. (I.F.: 3.601)</li> <li>• <b>Astha Chauhan</b> and Kajal Sharma, “One-Dimensional Spherical Shock Waves in an Interstellar Dusty Gas Clouds”, <b>Zeitschrift fur Naturforschung A (ZNA)</b>, DOI:10.1515/zna2020-0210, 2021, ISSN: 1865-7109. (I.F.: 1.8)</li> <li>• <b>Astha Chauhan</b> and Rajan Arora, “Solution of the Riemann Problem for an Ideal Polytropic Dusty Gas in Magnetogasdynamics”, <b>Zeitschrift fur Naturforschung A (ZNA)</b>, Volume 75(6), 511-522, 2020, ISSN: 1865-7109. (I.F.: 1.8)</li> <li>• <b>Astha Chauhan</b>, Kajal Sharma, Rajan Arora and Deepika Singh, “Similarity Solutions for the Strong Shock Waves in Magnetogasdynamics with the Effect of Monochromatic Radiation”, <b>The European Physical Journal Plus</b>, (Springer), 135(9), 1-17, 2020, ISSN: 2190-5444. (I.F: 3.758)</li> <li>• <b>Astha Chauhan</b>, Kajal Sharma and Rajan Arora, “Lie Symmetry Analysis, Optimal System and</li> </ul>

Generalized Group Invariant Solutions of the (2+1)-Dimensional Date-Jimbo-Kashiwara Miwa Equations”, **Mathematical Methods in the Applied Sciences** (John Wiley and Sons), Volume 43, 8823-8840, 2020, ISSN: 0999-1476. (I.F.: 3.007)

- **Astha Chauhan** and Rajan Arora, “Self-similar Solutions of Cylindrical Shock Wave in a Dusty Gas”, **Indian Journal of Physics** (Springer), Volume 93, Pages 665–673, 2020, ISSN: 0973-1458. (I.F.: 2.0)
- Kajal Sharma, Rajan Arora and **Astha Chauhan**, “Invariance Analysis, Exact Solutions and Conservation Laws of (2+1)-Dimensional Dispersive Long Wave Equations”, **Physica Scripta** (IOP Science), Volume 3, 055207, 2020, ISSN: 0031-8949. (I.F.:2.9)
- Kajal Sharma, Rajan Arora, **Astha Chauhan** and Ashish Tiwari, “Propagation of Waves in a Non-Ideal Magnetogasdynamics with Dust Particles”, **Zeitschrift fur Naturforschung A (ZNA)**, Volume 75(3), 193-200, 2020, ISSN: 1865-7109. (I.F.: 1.8)
- **Astha Chauhan** and Rajan Arora, “Time Fractional Kupershmidt Equation: Symmetry Analysis and Explicit Series Solution with Convergence Analysis”, **Communication in Mathematics**, Volume 27, Pages 171-185, 2019, ISSN:1804-1388.
- Kajal Sharma, **Astha Chauhan** and Rajan Arora, “Steepening of Waves in Non-Ideal Reacting Gas with Dust Particles”, **Indian Journal of Physics**, (Springer), DOI/10.1007/s12648- 020-01861-w, 2020, ISSN: 0973-1458. (I.F.: 2.0)
- Mayank Singh, **Astha Chauhan**, Kajal Sharma and Rajan Arora, “Kinematics of Spherical Shock Waves in an Interstellar van der Waals Gas Clouds”, **Physics of Fluids**, Volume 32(10), 107109, 2020, ISSN: 10706631. (I.F.: 4.98)
- Shalini Yadav, **Astha Chauhan** and Rajan Arora, “Invariance Analysis, Optimal System and Conservation Laws of the (2+1)-Dimensional Non-Linear Vakhnekhov Equation”, **Pramana-A Journal of Physics**, Volume 98(8), Pages 1-13, 2021, ISSN: 0304-4289. (I.F.: 1.688)
- Kajal Sharma, **Astha Chauhan** and Rajan Arora, “Ionizing Blast Waves in a Non-Ideal Gas under Isothermal Flow Condition: Power Series Method”, **Physica Scripta**, (IOP Science), DOI/10.1088/1402-4896/abca5c, 2020, ISSN: 0031-8949. (I.F.:2.9)
- **Astha Chauhan** and Rajan Arora, “Some Exact Solutions of (1+1)-Dimensional Kaup System and Seventh-Order Kawahara Equation”, **Malaya Journal of Matematik**, Volume 8, No. 1, 151-158, 2020, ISSN: 2319-3786.
- **Astha Chauhan** and Rajan Arora, “Similarity Solutions of Strong Shock Waves for Isothermal Flow in an Ideal Gas”, **International Journal of Mathematical Engineering and Management Sciences**, 2019, Volume 4, Pages 1094–1107. (I.F.: 1.6)
- Rajan Arora and **Astha Chauhan**, “Lie Symmetry Analysis and Some Exact Solutions of (2+1)-dimensional KdV-Burgers Equation”, **International Journal of Applied and Computational Mathematics** (Springer), Volume 5:15, No. 1, 2019, 1-13, ISSN 2199-5796.

#### Conference Organization / Presentation

- Attended “**International Conference Mathematical Analysis and its Applications**” and presented a research paper entitled “**Propagation of Non-linear Waves in an Ideal and Perfectly Conducting gas**” during November 28-December 03, 2018 at Department of Mathematics, South Asian University, Delhi, India.

- Attended “**International Conference on Mathematical Techniques in Engineering Applications (ICMTEA)**” and presented a research paper entitled “**Similarity Solutions of Strong Shock Waves for Isothermal Flow in an Ideal Gas**” during December 6-7, 2018 at Department of Mathematics, Graphic Era University, Dehradun India.
- Presented a research paper in **International Conference on Recent Trends in Applied Physical and Physical Sciences using Machine Learning Technique** during April 13-14, 2023 at The NorthCap University, Gurugram, India.
- Resource Person for the In-House Skill Development program “Enhancing Online Learning through ICT Tools” organized by Mathematics Department, Daulat Ram College, University of Delhi, online via Google-Meet from Nov 26-27, 2022.

#### **Research Projects (Major Grants/Research Collaboration)**

#### **Awards and Distinctions**

Recipient of **Vice-Chancellor Gold medal** in M.Phil.  
 Qualified NET-JRF exam in June 2014, Dec 2014 and Dec 2015.  
 Qualified GATE 2015 exam.

#### **Association with Professional Bodies**

#### **Other Activities**

Evaluator, Vidyarthi Vigyan Manthan and Daulat Ram College (08.01.23).