

Faculty Name: **Dr. Hemam Dinesh Singh**



Designation: Associate Professor

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Biosketch: Dr. Hemam D. Singh obtained MSc Physics from CCS University, Meerut and Ph.D. in Computational Space Plasma from IIT-Delhi. He joined NSUT as Associate Professor in August, 2025. Before this he was serving as Assistant Professor for 15 years in Sikkim University, Gangtok. He was a rank holder (10th position) in Higher Secondary Exam. – 1994 under COHSE, Manipur. He qualified CSIR-UGC JRF (2002) and GATE examination (2003) with AIR-42. He has guided one PhD candidate, many M.Phil. and P.G. dissertations. He is a visiting Associate to IUCAA, Pune, Executive Member, Physics Academy of North East (PANE), Guwahati. He is also a lifetime member of PSSI (Plasma Science Society India). His main research areas are Planetary and Astrophysical plasmas.

Research areas/ Highlights: Nonlinear physical processes in the heliosphere, solar wind turbulence and coronal heating, magnetic reconnection, particle acceleration, Sun-Earth Connection etc. These studies are carried out with the help of theoretical modeling, numerical simulations and spacecraft observations.

Researcher Ids:

Scopus ID	Orcid ID	Google Scholar Link	Vidwan-ID	Any Other
		https://scholar.google.com/citations?hl=en&user=9FS4qaMAAAJ		

Selected Publications:

Sr. No.	Academic Year	Authors Name	Paper Title	Journal Publication Details	DOI
1	2007	H. D. Singh and R. P. Sharma:	<i>Generation of coherent wave packets of kinetic Alfvén waves in solar plasma</i>	Physics of Plasmas, 14 , 102304	https://doi.org/10.1063/1.2786066
2	2019	H D Singh and B. S. Jatav	<i>Anisotropic turbulence of kinetic Alfvén waves and heating in solar corona</i>	Research in Astronomy and Astrophysics 19 (12) 185	https://doi.org/10.1088/1674-4527/19/12/185
3	2024	Mani K Chettri Hemam D. Singh et al	<i>Nonlinear Coupling of Kinetic Alfvén Waves and Ion Acoustic Waves in the Inner Heliosphere</i>	Research in Astronomy and Astrophysics, 24:105009 (18pp)	https://doi.org/10.1088/1674-4527/ad76ee

List of All Publications:

<https://scholar.google.com/citations?hl=en&user=9FS4qaMAAAAJ>

Books/Book Chapter/Conference Proceedings Published:

1. **H. D. Singh, R.P. Sharma** and M. Malik, *Nonlinear evolution of Alfvén waves and particle acceleration in space*, Proceedings of the ILWS Workshop, Goa, India, February 19-20, 2006, Editors: N. Gopalswamy and A. Bhattacharyya, page 297-301.
2. **H.D. Singh** and A.K. Gurung, *Numerical simulation of nonlinear pulse propagation through an optical fibre*, Proc. MathSeminar 2011, Siliguri College, 2, page 19-23.
3. **H.D. Singh** and R. P. Sharma, *Generation of Coherent structures of Dispersive Alfvén waves in Space Plasma and Particle Acceleration*, Proc. MathSeminar 2011, Siliguri College, 2, page 87-100.

Invited Talks:

Sr. No.	Academic Year	Name of STC/Conference	Place and Date
1	2010-11	National Seminar under UGC : <i>Numerical Simulation of nonlinear pulse propagation through an optical fibre</i>	Silliguri College, Silliguri, West Bengal on December 2010.
2	2010-11	National Seminar under UGC : <i>Generation of Coherent structures of Dispersive Alfven waves in Space Plasma and Particle Acceleration</i>	Silliguri College, Silliguri, West Bengal on December 2010.

Projects Completed and Ongoing:

S. No.	Title of the Project	PI and Co-PI Name	Sponsored by the Organization	Grant Received Rs (Budget of project)	Duration of the project and start date	Year	Current status of the project
1							

Ph.D. Guided:

S. No.	Name and Roll number of Research Scholar	Supervisor/ Co-supervisor Name	Title of Research Work	Date of Ph.D. Admission	Current Status (Degree awarded/ ongoing)	Ph.D. Award Date
1	Mr. Bheem Singh Jatav 13PDPY05	Supervisor	Numerical Simulation to Study Solar Wind turbulence and Coronal Heating	03.11.2014	Awarded	Ph.D

PG/UG Dissertation Guided:

S. No.	Name and Roll number of student	Supervisor/ Co-supervisor Name	Title of Research Work	Level (UG/PG)	Current Status (Completed/ ongoing)	Award Date
1	Anil Kumar Gurung 9UMPY004	Supervisor	Numerical Study of Nonlinear Pulse	PG	Completed	2011
2	Bishal Bhattarai 10UMPY03	Supervisor	Numerical Study of the Propagation of Laser Beam in Nonlinear Media	PG	Completed	2012
3	Prakash Pandey 11UMPY05	Supervisor	Numerical Study of one dimensional Zakharov equation and applications	PG	Completed	2013
4	Satabdi Mukherjee 11PDPY04	Supervisor	Numerical Study of Nematicons: Spatial Optical Solitons in Nematic Liquid Crystals	PG (M.Phil)	Completed	2013
5	Nishal Rai 12UMPY10	Supervisor	Applications of Linear and Nonlinear Systems	PG	Completed	2014
6	Abhisek Sanzel 16UMPY01	Supervisor	Numerical Simulations of Korteweg-de-Vries equation: Solitons	PG	Completed	2018
7	Rahul Thapa 16UMPY12	Supervisor	Nonlinear Pulse Propagation Through an Optical fiber	PG	Completed	2018
8	Chewang Chopel Bhutia 17UMPY04	Supervisor	Computational Simulation of Nonlinear Systems and Oscillations	PG	Completed	2019
9	Hemanta Chhetri 17UMPY05	Supervisor	Computational Methods of Solving Schrodinger Equation	PG	Completed	2019
10	Abisheak Gurung 18UMPY02	Supervisor	Computation of Electric Potentials and Fields for Some Simple Problems	PG	Completed	2020
11	Umesh Subba 18UMPY20	Supervisor	Computational Study of Kepler's Law and the Precession of the Perihelion of Mercury	PG	Completed	2020
12	Adarsh Thapa 19UMPY01	Supervisor	A Review on Whistler Waves in Earth's Magnetosphere	PG	Completed	2021

13	Diwas Subba 19UMPY09	Supervisor	A Review on The Heating of Solar Corona by Magnetosonic Waves	PG	Completed	2021
14	Nikumoni Roy 19UMPY14	Supervisor	Ion Acoustic Waves in Inhomogeneous Space Plasma	PG	Completed	2021
15	Anish Raj Pradhan 20UMPY04	Supervisor	Numerical Studies on Linear and Nonlinear Schrödinger Equations	PG	Completed	2022
16	Narendra Chhetri 20UMPY10	Supervisor	Numerical Solution of One Dimensional Schrödinger Equation Using Split Step Fourier Method	PG	Completed	2022
17	Abishak Rai 21UMPY03	Supervisor	Study of Coherent Magnetic Structures in Astrophysical Phenomena	PG	Completed	2023
18	Mohan Chandra Sharma 21UMPY10	Supervisor	Magnetic Reconnection in Heliosphere	PG	Completed	2023
19	Rithika Chettri 21UMPY16	Supervisor	Simulation of Pulse Propagation for Fiber Optics in MATLAB Using Split-Step Fourier Method	PG	Completed	2023
20	Divyanand Rai 22UMPY09	Supervisor	Study of Lorenz Systems	PG	Completed	2024
21	Nunglen Lepcha 22UMPY13	Supervisor	Predator-Prey System	PG	Completed	2024
22	Reshma Begum 23UMPY14	Supervisor	Chaos Arising from Nonlinear Coupling in Zakharov Systems	PG	Completed	2025
23	Dupchen Sherpa 23UMPY09	Supervisor	Nonlinear Wave Dynamics in Plasma: Analysing Damped and Undamped Zakharov Systems under Adiabatic Conditions	PG	Completed	2025
24	Kulan Nirola 23UMPY12	Supervisor	Effects on Charged Particle Dynamics Due to a Thin Ring Current Element of the Magnetospheric Ring Current System	PG	Completed	2025
25	Sudhansu Mani Pradhan 23UMPY17	Supervisor	Simulation of Trapped Proton Trajectories in Earth's Magnetosphere	PG	Completed	2025

Positions of responsibility held:

1. Committee for Establishment of Career Counselling Cell-2012 (Member)
2. Committee for Coaching Schemes for SC/ST/OBC/Minorities for UGC Merged Schemes 2012-2017(Convener)
3. Foreign Policy Lecture and Winter Sojourn Program Presentation -2012 (Member)
4. School Board of Sciences and Policy Planning & Studies -2013 (Member)
5. Board of Studies, Physical Sciences-2013, 2016 (Member)
6. Board of Studies, Department of Mathematics-2013 (Member)
7. Coordinator, Department of Mathematics -2012
8. Inspection of Government College, Rhenock-2012 (Member)
9. College Management and Affairs Committee-2012 (Member)
10. Governing Body of Himalayan Pharmacy Institute-2012 (University Nominee)
11. Teaching Staff Grievance Redressal Committee-2012 (Member)
12. School Board for School of Physical Sciences-2014 (Member)
13. Placement –cum-Coaching Cell-2014 (Member)
14. External Examiner for Practical Examination –Sikkim Government College-2014
15. Observer for End Semester Examination- 2011, 2014
16. Examiner, End Semester examination-2016
17. Scrutinizer, End Semester Examination-2016, 2017
18. Syllabus Review Committee for Physics, UG,PG, M.Phil./Ph.D. 2017 (Member)
19. Adjunct Faculty, Department of Mathematics-2013
20. Adjunct Faculty, Department of Geology-2013
21. Adjunct Faculty, Department of Music-2017

Workshop/ Conference Organized:

1. Science Academies Refresher Course of two weeks duration on **Basic Physics and Topology** as organising member organised by Department of Physics, Sikkim University, Gangtok in January-February 2018.
2. IUCAA workshop on **Astronomy and Astrophysics** as organising member organised by Department of Physics, Sikkim University, Gangtok in 29-31, March 2019.

Important Professional Affiliations:

1. Executive Member, Physics Academy of North East (PANE), Guwahati
2. Visiting Associate to IUCAA, Pune
3. Lifetime Member to PSSI (Plasma Science Society India)