Title	Ms.	First Name	Monika	Last Name		Photograph
Designation		Assistant Professor				
Department		Mathematics				
Address (Campus)		Shyama Prasad Mukherji College for Women, West Punjabi Bagh, Punjabi Bagh, Delhi, 110026				
Phone Number(Campus)		9650288180				
Fax						
Email		monikaniwas@spm.du.ac.in				
Education		B.Sc (H) Mathematics, M.Sc, M.Phil, Ph.D (Pursuing)				

Subject	Institution	Details
B.Sc (H)	JDMC, DU	2011-2014
M.Sc	Ramjas College, DU	2014-2016
M.Phil.	Department of Mathematics, DU	2019
Ph.D	Department of Mathematics, DU	(Pursuing)

Research Interests/ Specialization

My research specialization revolves around the analytical investigation of nonlinear partial differential equations (PDEs), particularly focusing on the Schrödinger equation and related mathematical models. By employing various analytical approaches, I strive to unravel the intricate behaviors and dynamics inherent in these nonlinear systems. Through a combination of mathematical techniques and computational tools, my work aims to contribute to a deeper understanding of the fundamental principles governing quantum mechanics and wave propagation phenomena. This research has the potential to unveil novel insights into the complex interplay between nonlinearity, dispersion, and other key factors, fostering advancements in fields ranging from quantum physics to nonlinear optics and beyond.

Teaching Experience

I taught at Miranda House for two semesters and have been a part of SPMC since March 2020, continuing to contribute to the institution's educational mission to this day.

Publications: 15 SCI Research Publication

Chapters in Edited Books: -

Research Papers in Journals:

1. Lie symmetry analysis, exact analytical solutions and dynamics of solitons for (2+1)-dimensional NNV equations, Physica Scripta, (ISSN: 1402-4896) Vol 95, Pg. 25, 2020.
2. Lie symmetry analysis for obtaining exact soliton solutions of generalized Camassa–Holm–Kadomtsev–Petviashvili equation, International Journal of Modern Physics B, (ISSN: 0217-9792) Pg. 24, 2020.
3. Exact closed-form solutions and dynamics of solitons for a (2+1)-dimensional universal hierarchy equation via Lie approach, Pramana Journal of Physics, (ISSN: 0304-4289) Vol. 95, Pg. 1-12, 2021.
4. Some exact invariant solutions and dynamical structures of multiple solitons for the (2+1)-dimensional Bogoyavlensky-Konopelchenko equation with variable coefficients using Lie symmetry analysis, Chinese Journal of Physics, (ISSN: 0577-9073) Vol. 71, Pg. 518-538, 2021.
5. Abundant different types of exact-soliton solutions to the (4+1)-dimensional Fokas and (2+1)-dimensional Breaking soliton equations, Communications in Theoretical Physics, (ISSN 0253-6102) Vol. 73(10), 105007, 2021.
6. Symmetry analysis, closed-form invariant solutions and dynamical wave structures of the generalized (3+1)-dimensional breaking soliton equation using optimal system of Lie subalgebra, Journal of Ocean Engineering and Science, (ISSN 0029-8018), Vol 7, Pg. 188-201, 2021.
7. Abundant analytical soliton solutions and different wave profiles to the Kudryashov-Sinelshchikov equation in mathematical physics, Journal of Ocean Engineering and Science, (ISSN: 0029-8018) Vol. 30, Pg. 13, 2021.
8. Abundant analytical closed-form solutions and various solitonic wave forms to the ZK-BBM and GZK-BBM equations in fluids and plasma physics, Partial Differential Equations in Applied Mathematics, (ISSN: 2666-8181), Vol 4, 100200, 2021.
9. Lie symmetry reductions, abound exact solutions and localized wave structures of solitons for a (2 + 1)-dimensional Bogoyavlenskii equation, Modern Physics Letters B, (ISSN: 1793-6640), Vol 35(15), 2150252 (30 pages), 2021.
10. New optical soliton solutions of Biswas-Arshed equation using the generalized exponential rational function approach and Kudryashov's simplest equation approach, Pramana Journal of Physics} (ISSN: 0304-4289), Manuscript No.: PRAM-D-22-00183R1, 2022.
11. Abundant soliton solutions and different dynamical behaviors of various waveforms to a new (3+1)-dimensional Schrodinger equation in optical fibers, Optical and Quantum Electronics, (2023).
12. New optical soliton solutions and a variety of dynamical wave profiles to the perturbed Chen-Lee-Liu equation in optical fibers, Optical and Quantum Electronics, (2023).
13. New plenteous soliton solutions and other form solutions for a generalized dispersive long-wave system employing two methodological approaches, Optical and Quantum Electronics, DOI:10.1007/s11082-023-04847-0.
14. New optical soliton solutions of Biswas–Arshed equation using the generalised exponential rational function approach and Kudryashov's simplest equation approach, Pramana Journal of Physics, DOI:10.1007/s12043-022-02450-8.
15. Analyzing Multi-Peak and Lump Solutions of the Variable-Coefficient Boiti–Leon–Manna–Pempinelli Equation: A Comparative Study of the Lie Classical Method and Unified Method with Applications, Nonlinear Dynamics, (2023).

Participation in International Conferences/Workshops:

1. Recently, I participated in 2nd International Conference on Recent Advances in Mathematical Sciences and Interdisciplinary Areas (RAMSIA-2023) from 22nd to 24th June, 2023.
2. Research Scholar Seminar and Annual Conference of the Society of Mathematical Sciences (Delhi) Organized by Department of Mathematics, University of Delhi, Delhi, from Mar. 01-02, 2017.
3. Faculty Development Programme on Mathematica: A Tool for Computational Analysis, Organized by Department of Mathematics, Hansraj College, University of Delhi, Delhi, from Mar. 10-11, 2018.
4. Participated and volunteered in "The 33rd Annual Conference of The Ramanujan Mathematical Society" Organized by Department of Mathematics, University of Delhi, Delhi, from June 1-3, 2018.
5. Participated in a webinar "A Step Towards Self Reliance: MOOCS, organized by Shyama Prasad Mukherji College for women, University of Delhi, Delhi, May 22, 2020.
6. Resource person in a workshop "MAGIC OF MATHEMATICS WITH MATHEMATICA" organized by Shyama Prasad Mukherji College for women, University of Delhi, Delhi, Sep 4, 2021.

Innovative Projects : -

Awards:- Research Publication Award by the institution of Eminence, University of Delhi**.**

Other Responsibilities:

- Participated as a resource person in the workshop titled “Magic of Mathematics with Mathematica” held on 4th September 2022, at SPMC, DU.
- I have actively participated in a range of departmental activities at SPMC, DU. My involvement includes serving as a nominee for admission duties, contributing to the Project Committee, engaging with the Quiz Competition Committee, and contributing insights to the Career Counseling Committee, among other roles.