DR. VINEESH KUMAR

Sincere and Perspective with Academic Record in Mathematics



	Personal
Email:	vineeshkumar1990@gmail.com
University Email:	kumar_vineesh@lkouniv.ac.in
Designation:	Assistant Professor, University of Lucknow, Lucknow, Uttar Pradesh- 266007 (A State University of U. P. Government)
Department:	Mathematics & Astronomy
Office Address:	Department of Mathematics & Astronomy, University of Lucknow
Duration:	January 18, 2025- Till date
Contact No:	+91-9560154971, +91-7982425010
Area of Specialization	: Nonlinear Partial Differential Equations, Solitons, Analytical methods
Nature of the Post:	Parmanent

Academic Experience

- University of Lucknow (18 January, 2025 to Till date)
- Siddharth University, Kapilvastu (20 December, 2024 to 17 January, 2025)
- Banda University of Agriculture and Technology (06 November, 2024 to 19 December, 2024)
- Siddharth University, Kapilvastu (24 December, 2021 to 05 November, 2024)

	Education
2017 - 2021	Ph.D. (Mathematics), Department of Mathematics, University of Delhi, Delhi.
	Title of Thesis: Soliton solutions and modulation instability analysis of certain nonlinear evolution equations
2014 - 2017	M.Phil. (Mathematics), Department of Mathematics, University of Delhi, Delhi
	Title of Dissertation: A study of nonlinear evolution equations under dispersion and dissipative effect by variational iteration method.

2012 - 2014	M.Sc. Mathematics, Department of Mathematics, Indian Institute of Technology Delhi (IITD), Delhi.
	Title of Project: Algebraic invariant of topological spaces
2009 - 2012	B.Sc. (Hons.) Mathematics , Department of Mathematics, Banaras Hindu University (BHU), Varanasi, Uttar Pradesh.
	Title of Project: Special theory of relativity and its geometrical representation
2006 - 2007	12th, B.N.V. Inter College Rath (Hamirpur), Uttar Pradesh Board.
2004 - 2005	10th, B.N.V. Inter College Rath (Hamirpur), Uttar Pradesh Board
1	Major/Minor Research Project
1.	
Title of the Project:	Analysis of dynamical behaviour and modulation instability of the certain class of nonautonomous nonlinear evolution equations.
Sponsored research	Project: Department of Science & Technology, Government of India
Funding Agency /O	rganization: SERB under the scheme Empowerment and Equity Opportunities for Excellence in Science
From Date-To Date	: 13-03-2023 to 12-03-2026 (3 Years)
Amount of Grant (1	Rs.): 2081332/-
Project Status:	Ongoing (Siddharth University Kapilvastu, Siddharthnagar)
2.	
Title of the Project:	Examining the dynamics of solitons of nonlinear partial differential equations
Sponsored research	Project: Siddharth University, Kapilvastu
Funding Agency /O	rganization: Seed Money (Protsahan 2023-24) Siddharth University, Kapilvastu
From Date-To Date	27-05-2024 to 26-05-2026 (3 Years)
Amount of Grant (I	Rs.): 200000/-
Project Status:	Ongoing (Siddharth University Kapilvastu, Siddharthnagar)
	National Fellowships
2016	Qualified CSIR-JRF, December 2016 with AIR-194.

2016 **Rajiv Gandhi National Fellowship** awarded by the University Grant Commission (**UGC**), Government of India.

Research Papers: Published

March 31, 2025,	V. Kumar, A. Patel, M. Kumar, Dynamics of solitons and modulation instability in (2+1)-dimensional coupled nonlinear Schrödinger equation, Mathematics and Computers in Simulation 235 (2025) 95-113. (Elsevier) SCI, IF: 4.4 <u>https://doi.org/10.1016/j.matcom.2025.03.022</u>
January 22, 2025,	V. Kumar, Nonlinear waves and modulation instability in the generalized Burger-BBM equation, Nonlinear Science 2 (2025) 100013. (Elsevier) <u>https://doi.org/10.1016/j.nls.2025.100013</u>
September 25, 2023,	V. Kumar and A. Patel, Dynamical behaviour of solitons and modulation instability analysis of a nonautonomous (1+1)-dimensional nonlinear Schrödinger equation, Optik: International Journal for Light and Electron Optics 293 (2023) 171412. (Elsevier) SCI, IF: 3.1 https://doi.org/10.1016/j.ijleo.2023.171412_
May 26, 2021,	A. Patel and V. Kumar, Modulation instability analysis of a nonautonomous (3+1)-dimensional coupled nonlinear Schrödinger equation, Nonlinear Dynamics 104 (2021) 4355-4365. (Springer) SCI, IF: 5.6 <u>https://doi.org/10.1007/s11071-021-06558-1</u>
April 6, 2021,	V. Kumar and A. Patel, Dispersion and phase managed optical soliton solutions of a nonautonomous (3+1)-dimensional coupled nonlinear Schrödinger equation, Optik: International Journal for Light and Electron Optics 242 (2021) 166648. (Elsevier) SCI, IF: 3.1 <u>https://doi.org/10.1016/j.ijleo.2021.166648</u>
August 8, 2020,	V. Kumar and A. Patel, Construction of the soliton solutions and modulation instability analysis for the Melnikov system, Chaos, Solitons & Fractals 140, (2020) 110159. (Elsevier) SCI, IF: 7.8 https://doi.org/10.1016/j.chaos.2020.110159
April 24, 2019,	V. Kumar and A. Patel, Soliton solutions and modulation instability analysis of the coupled Zakharov-Kuznetsov equation, The European Physical Journal Plus 134, (2019) 170. (Springer) SCI, IF: 3.4 https://doi.org/10.1140/epjp/i2019-12521-6
Mar 21, 2018,	A. Patel and V. Kumar , Dark and kink soliton solutions of the generalized ZK-BBM equation by iterative scheme, Chinese Journal of Physics 56, (2018) 819-829. (Elsevier) SCI , IF: 5 <u>https://doi.org/10.1016/j.cjph.2018.03.012</u>

Faculty Induction/Orientation/ Refersher Programmes

• Attended Interdisciplinary Refresher Course on "Research, Writing and Analysis" from **11 November–22 November 2024** and obtained Grade **A**, organized by MMTTC, **Indian Institute of Technology (IIT) Dhanbad**.

• Attended 4-week Faculty Induction/Orientation Programme for "Faculty in Universities/Colleges/Institutes of Higher Education" from 22 July–20 August 2023 and obtained Grade A+, Teaching Learning Centre Ramanujan College, University of Delhi.

Teaching Experience:

1. University of Lucknow

M. Sc. Mathematics

• Advanced Partial Differential Equation (IV-Semester) 2024-25

B.Sc. Mathematics

- Geometry (II-Semester) 2024-25
- Applicable Mathematics (IV-Semester) 2024-25
- Linear & Abstract Algebra (IV-Semester) 2024-25

2. Siddharth University, Kapilvastu

Pre-Ph.D. course work

• **Research Methodology,** Department of Mathematics, Siddharth University Kapilvastu, 2022-23.

M. Sc. Mathematics

- Lebsegue Measure Theory and Programming in Python-II (VI-Semester); Fields and Modules (II-Semester) Even Semester **2023-24**, Department of Mathematics, Siddharth University Kapilvastu.
- Group and Canonical Forms, Odd Semester **2023-24**, I-Semester, Department of Mathematics, Siddharth University Kapilvastu.
- Advanced Complex Analysis and Programming in Python-I, Odd Semester **2022-23**, III-Semester, Department of Mathematics, Siddharth University Kapilvastu.
- Fields and Modules, Numerical methods with programming in C-Language, Even Semester 2021-22, II-Semester, Department of Mathematics, Siddharth University Kapilvastu.
- Groups and Canonical Forms, Programming in C, Odd Semester 2021-22, I-Semester, Department of Mathematics, Siddharth University Kapilvastu.

B. Sc. Mathematics

• Integral Calculus (I-Semester) Odd Semester **2024-25**, Department of Mathematics, Siddharth University Kapilvastu.

3. Banda University of Agriculture and Technology

M. Sc. (Ag) Agriculture Statistics (2023-24)

• Mathematics for Applied Mathematics

B. Sc. (Hons) Agriculture

• Introductory Mathematics

Project Students

- Monu Kumar (DST-SERB Project, GATE, CSIR-JRF) Ongoing (29/12/2023- Till date)
- Arjun (M. Sc. Mathematics) PG Dissertation
- Ruchi Yadav (M.Sc. Mathematics) PG Dissertation

Membership of the Siddharth University Kapilvastu

- Member of the Research admission examination committee (PhD) 2023-24 (07/10/2023)
- Member of the Department Research Committee (DRC) (30/12/2023-Till)
- Member of the Board of Studies of the Department of Mathematics (01/07/2023-Till)
- Member of the CCTV monitoring Committee (2022-23, 2023-24)
- Member of the Sports Committee (2023-24)
- Member of the Admission Committee (2023-24)
- Member of the NACC

Administrative Responsibility

- Assistant Coordinator of Evaluation, Faculty of Science (17/01/2024)
- Assistant Coordinator of Evaluation, Faculty of Science (03/05/2023)
- Assistant Coordinator of Evaluation, Siddharth University Kapilvastu (06/02/2023)
- Assistant Superintendent, Siddharth University Kapilvastu Annual and Semester Examination (2022-23)

Papers Presentations

February 08-10, 2024	Participated and presented a paper in International Conference on
	Advances in Pure and Applied Mathematics held in India at the
	Department of Mathematics, Shyam Lal College, University of Delhi.

December 02-03, 2023 Participated and presented a paper in the 70th Annual Conference of Bharata Ganita Parisad: Recent Advances in Mathematics & Applications-An International Meet held in India at the Department of Mathematics & Astronomy, University of Lucknow, Lucknow.

- 2021-2023 Delivered a lecture on "Soliton solutions of nonlinear evolution equation" on May 20, 2023, under Special Lecture Series at Siddharth University Kapilvastu, University Level.
- October 04-06, 2022: **Presented** a research paper at the International Conference on Recent Advances in Fluid Mechanics ICRAFM-2022 at **Manipal Institute of Technology,** MAHE, Manipal.

December 07-10, 2020 **Presented** a **Contributed Talk** at the **4th BRICS Mathematics Conference** in **India** at **IISER Thiruvananthapuram.**

June 01-03, 2018 **Participated and presented** a paper at the 33rd Annual Conference of The **Ramanujan Mathematical Society** held at the Department of Mathematics, **University of Delhi**, Delhi, India.

Mar 09-11, 2018 Participated and presented a paper at the 2nd International Conference of Vijnana Parishad of India on Recent Trends of Computing in Mathematics, Statistics & Information Technologies held at the Department of Mathematical Sciences & Computer Applications, Bundelkhand University, Jhansi, India.

Conference/Seminars/Workshops

- May 13, 2022,Participated in the one-day International Webinar on "Mathematical
Modelling of Biology and Medicine" held at the Department of
Mathematics, Vidyasagar Metropolitan College, Kolkata.
- February 21-22, 2020 **Participated** in the two-day International Workshop on "*Numerical Methods in Scientific Computing*" held at **the** Department of Mathematics, **South Asian University**, New Delhi.
- July 17-31, 2018 **Participated** in an Indo-French Center for Applied Mathematics (IFCAM) summer school on "*Mathematical and Computational Biology*" held at the Department of Mathematics, **Indian Institute of Science** (IISc) **Bangalore**, Bangalore.
- Dec 01-05, 2017 **Participated** in the International Conference on "Current Trends in Theoretical and Computational Differential Equations with Applications" held at the Department of Mathematics, **South Asian University**, New Delhi.
- July 10-14, 2017 **Participated** in organizing the *Workshop on Numerical Techniques for Partial Differential Equations*, Organized in the Department of Mathematics, **Visvesvaraya National Institute of Technology** (VNIT), Nagpur.
- May 01-2, 2017 **Participated** in the *Research Scholar Seminar & Annual Conference of the Society of Mathematical Sciences* (Delhi) Department of Mathematics, **University of Delhi**, Delhi.
- Dec 05-09, 2016 **Participated** in the International Conference on "*Recent Advances in Theoretical & Computational Partial Differential Equation with Applications*" held at the University Institute of Engineering and Technology, **Panjab University**, Chandigarh.
- Feb 23-24, 2015Participated in the Research Scholar Seminar, Department of
Mathematics, University of Delhi (North Campus) Delhi.
- Feb 26, 2015,Participated in the Workshop on Research Metrics organized by the
Research Council & University of Delhi, Delhi.
- Dec 04, 2014, **Participated** in Workshop *on Information Literacy & Competency* Organized by Delhi University Library System, **University of Delhi**, Delhi.

Extra-Curricular Activities

Jan 25-31, 2012 Participated in National Service Scheme (NSS), Banaras Hindu University, Varanasi.

2011-2012 One-year (part-time) certificate course in **Polish language** examination, Banaras Hindu University, Varanasi.

Computer Skills LaTeX Mathematica MATLAB Python