DEPARTMENT OF Physics
DYAL SINGH COLLEGE, UNIVERSITY OF DELHI
FACULTY DETAIL

Title	Dr.	First Name	Vaibhav	Last Name	Varshney	Photograph
Designation		Assistant Professor				
Address		C – 296, Street No. - 14, Bhajanpura, Delhi – 110053, In front of jain telecom centre				
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Residence						
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Web-Page						

Educational Qualifications

Degree	Institution	Year
Bsc (Hons) Physics	Hansraj College, University of Delhi	2011
Msc (Physics)	Hansraj College, University of Dehi	2013
Ph.D	Department of Physics and Astrophysics, University of Dehi	2020

Career Profile

6th Jul 2023 - Till date Assistant Professor, Dyal Singh College, University of Delhi (DU).

21st Aug 2020 – 12th May 2023 : Associate Professor, University of Engineering and Management, Jaipur

Administrative Assignments (From 1st July 2018 onwards)

Member of Admission Committee (2024)

Member of Library Committee (2024)

Convener of Physics Society, COSMOS (2024)

Member of Alumni Committee (2024)

Member of Purchasing Committee (2024)

Member of Adventure club Committee (2024)

Organizing Committee Member of Science fair, Dyal Singh College, University of Delhi (Feb 28-29, 2024)

Areas of Interest / Specialization

Nonlinear Dynamics,
Computational Physics,
Machine Learning,
Data Science,
Data analysis

Subjects Taught

Quantum Mechanics,
Simple Harmonic Motion,
Statistical Mechanics,

Advanced Mathematical Physics – 1,
Computational Physics (Programming with Python, Quantum Mechanics Lab, DPSS)
Electromagnetic Theory

Research Guidance

Guided more than 5 Bachelor and masters students for internship. Many of them have published and paper in SCI journals.

Publications Profile

Publications in international peer-review journals:

1. **Vaibhav Varshney**, G. Saxena, B. Biswal, and A. Prasad, "Oscillation Death and Revival by Coupling with Damped Harmonic Oscillator", Chaos 27, 093104(2017). (IF = 3.643)
2. **Vaibhav Varshney**, S. Kumarasamy, B. Biswal, and A. Prasad, "Bifurcation Delay, Travelling Waves and Chimera-like States in a Network of Coupled Oscillators", Eur. Phys. J. Special Topics 229, 2307 (2020). (IF=1.660)
3. **Vaibhav Varshney**, S. Kumarasamy, A. Mishra, B. Biswal, and A. Prasad, "Traveling of Extreme Events in Network of Nonlinear Oscillators", Chaos 31, 093136(2021). (IF = 3.643)
4. **Vaibhav Varshney**, S. Sabarathinam, A. Prasad, and K. Thamilmaran, "Infinite Number of Hidden Attractors in Memristor-Based Autonomous Duffing Oscillator", Int. J. Bif. and Chaos 28, 1850013 (2018). (IF = 2.145)
5. N. K. Kamal, **Vaibhav. Varshney**, M. D. Shrimali, A. Prasad, N. V. Kuznetsov, and G. A. Leonov, "Shadowing in hidden attractors", Nonlinear Dynamics 91, 2429 (2018). (IF =4.604)
6. N. Punetha, **Vaibhav Varshney**, S. Sahoo, G. Saxena, A. Prasad, and R. Ramaswamy, "Dynamical effects of breaking rotational symmetry in counter-rotating Stuart-Landau oscillators", Physical Review E 98, 022212(2018). (IF =2.353)
7. S. Sahoo, **Vaibhav Varshney**, A. Prasad, and R. Ramaswamy, "Ageing in mixed populations of Stuart-Landau oscillators: The role of diversity", J. P. A: Mathematical and Theoretical 52, 464001 (2019). (IF =2.110)
8. **Vaibhav Varshney**, P. R. Sharma, M. D. Shrimali, B. Biswal, and A. Prasad, "Targeting Periodic Solutions of Chaotic Systems", Int. J. Nonlinear Science 26, 13 (2018).
9. Suresh Kumarasamy, Malay Banerjee, **Vaibhav Varshney**, Manish Dev Shrimali, Nikolay V. Kuznetsov, Awadhesh Prasad, "Saddle-Node Bifurcation of Periodic Orbit Route to Hidden Attractors", PHYSICAL REVIEW E (Letters) 107, L052201 (2023).
10. Smayan Gupta, Ajay Mishra, **Vaibhav Varshney**, "Solutions to the 1-D Coupled Chemotaxis equation using Generalized Rational Exponential Function Method", Pramana – J. Phys. (2023) 97:78
11. Shivam Chauhan, Ajay Singh Jethoo, and **Vaibhav Varshney** " Leveraging Aqua and Terra satellite data for improved diurnal land surface temperature prediction: a comparative LSTM-based approach " REMOTE SENSING LETTERS 14 (7), 733–742
12. S Chauhan, AS Jethoo, A Mishra, **Vaibhav Varshney** "Duo satellite-based remotely sensed land surface temperature prediction by various methods of machine learning" International Journal of Data Science and Analytics, 1-19
13. A Singh, UK Verma, A Mishra, K Yadav, A Sharma, **Vaibhav Varshney** "Higher-order-interaction in multiplex neuronal network with electric and synaptic coupling" Chaos, Solitons & Fractals 182, 114864
14. M Bhindwar, **Vaibhav Varshney**, S Kumarasamy, MD Shrimali, A Prasad "Role of UPOs in Characterizing the Hidden Attractors: A Comparison with Self-Excited Attractors" International Journal of Bifurcation and Chaos, 2430016

Publications in conference proceedings :

1. Vaibhav Varshney, S. Srinivasan, A. Prasad and S. Kumarasamy, "Suppression of extreme events under environmental coupling", Indian Academy of Sciences Conference Series 2, (2019).
DOI: 10.29195/iascs.02.01.0014
2. Vaibhav Varshney, Arpit Singh, Suresh Kumarasamy, Ajay Mishra and S. Srinivasan
" Effect and importance of artificial extreme event in Indian Covid-19 vaccination data sets''
AIP Conference Proceedings 2768 (1) 2023

Book Chapters :

1. Vaibhav Varshney, S. Sabarathinam, K. Thamilmaran, M. D. Shrimali, and A. Prasad, Contributed a chapter on "Existence and control of Hidden oscillations in a memristive autonomous Duffing oscillator" in Nonlinear Dynamical Systems with Self-Excited and Hidden Attractors. Springer series on Studies in Systems, Decision and Control 2018. ISBN 978-3-319-71243-7.

Conference Organization/ Presentations (From 1st July 2018 onwards)

Oral/paper Presentations at Conferences :

1. Dynamics Day - XI , Cluster Innovation Centre(CIC), University of Delhi, 14th Dec 2016.
2. Dynamics Day - XII, Ashoka University, Sonipat, 25th Nov 2017.
3. Complex Dynamical Systems and Applications, IIT, Guwahati, 4-6 Dec 2017.
4. Dynamics Day - XIII, IIT, Delhi, 16th Nov 2019.
5. Conference on Nonlinear Systems and Dynamics, IIT, Kanpur, 12-15 Dec 2019.
6. Conference on Nonlinear Systems and Dynamics, SASTRA University, 17-21 Dec 2021.
7. Dynamics Day - XVI , Bennett University, 19th Nov 2022.

Poster Presentations at Conferences :

1. Conference on Nonlinear Systems and Dynamics, IISER, Kolkata, 16-18 Dec 2016.

Participation in Conferences and Schools :

1. DST-SERC School on Nonlinear Dynamics, Central University of Rajasthan, 1-20 Dec 2014.
2. Summer Program on Dynamics of Complex Systems, ICTS, Bengaluru, 16-30 June 2018.
3. National Workshop on Emerging Applications of Nonlinear Dynamics and Chaos in Science and Engineering, IIT, Jodhpur, 13-15 Dec 2018.

Paricipation in FDP :

1. Radiation effects on Polymers and Advances in Organic Optoelectronic Devices on 2 nd and 3 rd Feb 2022.
2. Holistic Development and Outcome Based Education in the Light of NEP-2020 from 13 th to 19 th june 2022.
3. Advanced Tools and Techniques for Scientic Research Writnn & Publicatons (ATTSRWP-2022) from 12th to 18th September,2022.
4. Creating an Inclusive Learning Environment from 24th jul to 3rd aug 2023.

Research Projects (Major Grants/Research Collaboration) (From 1st July 2018 onwards)

Co-Principle Investigator of Indo-Russian joined research project on "Multistability and hidden attractors in dynamical systems".
Funding Agency : Department of Science and Techonology (DST)

Amount : 1 crore valid from 2019 – 2022.
Awards and Distinctions (From 1st July 2018 onwards)
Association With Professional Bodies
Reviewer in Communication in Nonlinear Sciences and Numerical Simulation published by Springer . **Reviewer in Chaos: An Interdisciplinary Journal of Nonlinear Science by AIP.** **Reviewer in Nonlinear Dynamics**
Other Activities like MOOCs/ Patents etc. (From 1st July 2018 onwards)

Signature of Faculty Member