Curriculum Vitae

BRIJ MOHAN

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Raj Nagar Extension, Ghaziabad,
Uttar Pradesh-201017, INDIA

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Key Skills and Technologies

C/C++, Mathematica, Maple, Matlab, R, Python, Maxima, NTL, Linux, HTML, LaTeX

Research Profiles

Scopus:	h-index: 14	Citations: 754	Profile Link: BM-Scopus
Google Scholar:	i10-index: 15	Citations: 854	Profile Link: BM-Google

ORCID id: 0000-0002-0400-4186 **Web of Science**: GYJ-1237-2022 **ResearchGate**: Link **LinkedIn**: Link

Qualifications

2022-2025:	**Ph.D.** in Mathematics from University of Delhi (UoD), Delhi, India
2020-2021:	**Certificate Course** in CS50: Introduction to Computer Science, Harvard University (HU), USA
2007-2009:	**M.Tech.** in Computer Applications from IIT Delhi, India
2004-2006:	**M.Sc.** in Mathematics from Dept. of Mathematics, CCS University, Uttar Pradesh, India
2001-2004:	**B.Sc.** in Mathematics from N.A.S. College, CCS University, Uttar Pradesh, India

Employment History

July 2013 – Present:	Assistant Professor, Dept. of Mathematics, **Hansraj College**, University of Delhi, Malka Ganj, New Delhi - 110007.
July 2011 – June 2013:	Assistant Professor, Dept. of Mathematics, **Keshav Mahavidyalaya**, University of Delhi, Pitampura, New Delhi - 110034.
July 2009 – June 2011:	Assistant Professor, Dept. of Mathematics, **Kalindi College**, University of Delhi, East Patel Nagar, New Delhi - 110008.

Achievements

1. Qualified **GATE** in CS (Computer Science & Information Technology) in 2018
2. Qualified **NET**-**CSIR** with **JRF (Junior Research Fellowship)** in Mathematics in June 2007
3. Qualified **GATE** in Mathematics in 2007
4. Qualified **SET (DRDO)** for Scientist-B in 2006

Research Projects

Innovation Project: HR-304 - "**Study and Security Analysis of Smart Cards**" sponsored by the University of Delhi during 2015-2016 (Major: Rs. 500000).

Research Publications (SCIE: 14, Scopus: 1, Peer-Reviewed: 2)

1. **Brij Mohan**, Sachin Kumar, Raj Kumar, (2025) *On investigation of kink-solitons and rogue waves to a new integrable (3+1)-dimensional KdV-type generalized equation in nonlinear sciences,* Nonlinear Dynamics, (SCIE/IF: 5.6) **(Q1)** https://doi.org/10.1007/s11071-024-10792-8

2. **Brij Mohan**, Sachin Kumar, (2025) *Painlevé analysis, restricted bright-dark N-solitons, and N-rogue waves of a (4+1)-dimensional variable-coefficient generalized KP equation in nonlinear sciences,* Nonlinear Dynamics,

112:11373-11382, (SCIE/IF: 4.6) **(Q1)** https://doi.org/10.1007/s11071-024-10645-4

3. **Brij Mohan**, Sachin Kumar, (2024) *Generalization and analytic exploration of soliton solutions for nonlinear evolution equations via a novel symbolic approach in fluids and nonlinear sciences*, Chinese Journal of Physics, 92:10-21, (SCIE/IF: 4.6) **(Q2)** https://doi.org/10.1016/j.cjph.2024.09.004

4. **Brij Mohan**, Sachin Kumar, (2024) *Rogue-wave structures for a generalized (3+1)-dimensional nonlinear wave equation in liquid with gas bubbles,* Physica Scripta, 99:105291, (SCIE/IF: 4.6) **(Q2),** https://doi.org/10.1088/1402-4896/ad7cd9

5. Sachin Kumar, **Brij Mohan**, (2024) *Bilinearization and new center-controlled N-rogue solutions to a (3+1)-dimensional generalized KdV-type equation in plasmas via direct symbolic approach,* Nonlinear Dynamics, Nonlinear Dynamics, 112:11373-11382, (SCIE/IF: 5.6) **(Q1)** https://doi.org/10.1007/s11071-024-09626-4

6. Sachin Kumar, **Brij Mohan**, (2023) *A novel analysis of Cole–Hopf transformations in different dimensions, solitons, and rogue waves for a (2 + 1)-dimensional shallow water wave equation of ion-acoustic waves in plasmas*, Physics of Fluids, 35:127128, (SCI/IF: 4.6), **(Q1)** https://doi.org/10.1063/5.0185772

7. **Brij Mohan**, Sachin Kumar, Raj Kumar, (2023) *Higher-order rogue waves and dispersive solitons of a novel P-type (3+1)-D evolution equation in soliton theory and nonlinear waves*, Nonlinear Dynamics, 111:20275–20288 , (SCI/IF: 5.6) **(Q1)** https://doi.org/10.1007/s11071-023-08938-1

8. Sachin Kumar, **Brij Mohan**, (2023) *Newly formed center-controlled rogue wave and lump solutions of a generalized (3+1)-dimensional KdV-BBM equation via symbolic computation approach*, Physica Scripta, 98(8):085237, (SCI/IF: 3.081), **(Q2)** https://doi.org/10.1088/1402-4896/ace862

9. Sachin Kumar, **Brij Mohan**, (2023) *A direct symbolic computation of center-controlled rogue waves to a new Painlevé-integrable (3+1)-D generalized nonlinear evolution equation in plasmas*, Nonlinear Dynamics, 111:16395–16405, (SCI/IF: 5.741), **(Q1)** https://doi.org/10.1007/s11071-023-08683-5

10. Sachin Kumar, Amit Kumar, **Brij Mohan** (2023) *Evolutionary dynamics of solitary wave profiles and abundant analytical solutions to a (3+1)-dimensional burgers system in ocean physics and hydrodynamics*, Journal of Ocean Engineering and Science, 8(1):1-14, (SCI/IF:7.1), **(Q1)** https://doi.org/10.1016/j.joes.2021.11.002

11. Sachin Kumar, **Brij Mohan** (2022) *A generalized nonlinear fifth-order KdV-type equation with multiple soliton solutions: Painlevé analysis and Hirota Bilinear technique*, Physica Scripta, 97(12):125214, (SCI/IF: 3.081), **(Q2)** https://doi.org/10.1088/1402-4896/aca2fa

12. **Brij Mohan**, Dasharath Meena (2022) *Application of Hirota's Direct Method to Nonlinear Partial Differential Equations: Bilinear Form and Soliton Solutions*, Hans Shodh Sudha, 3(2):31-38, https://www.hansshodhsudha.com/volume3-issue2/manuscript%203.pdf

13. Sachin Kumar, **Brij Mohan**, Raj Kumar (2022) *Lump, soliton, and interaction solutions to a generalized two-mode higher-order nonlinear evolution equation in plasma physics*, Nonlinear Dynamics, 110:693-704, (SCI/IF: 5.741), **(Q1)** https://doi.org/10.1007/s11071-022-07647-5

14. Sachin Kumar, **Brij Mohan**, Amit Kumar (2022) *Generalized fifth-order nonlinear evolution equation for the Sawada-Kotera, Lax, and Caudrey-Dodd-Gibbon equations in plasma physics: Painlevé analysis and multi-soliton solutions*, Physica Scripta, 97(3):035201, (SCI/IF:3.081), **(Q2)** https://doi.org/10.1088/1402-4896/ac4f9d

15. Sachin Kumar, **Brij Mohan** (2022) *A novel and efficient method for obtaining Hirota's bilinear form for the nonlinear evolution equation in (n+1) dimensions*, Partial Differential Equations in Applied Mathematics, 5:100274, Scopus https://doi.org/10.1016/j.padiff.2022.100274

16. Sachin Kumar, **Brij Mohan** (2021) *A study of multi-soliton solutions, breather, lumps, and their interactions for Kadomtsev-Petviashvili equation with variable time coefficient using Hirota method*, Physica Scripta, 96(12):125255, (SCI/IF: 3.081), **(Q2)** https://doi.org/10.1088/1402-4896/ac3879

17. Donghoon Chang, Pranav Jain, **Brij Mohan** (2019) *Revenue Generation Strategy through Selfish Mining focusing Multiple Pools of Honest Miners: Revisiting Eyal and Sirer (2014) Selfish Mining Strategy*. https://doi.org/10.13140/RG.2.2.31415.85928

Papers/Posters Presented

1. *"Deep learning analysis of solitary waves for a nonlinear evolution model via neural network approach"* in **VIASM's Summer School on Bayesian Modeling, Computation, and Applications**, UEH University, Ho Chi Minh City, **Vietnam,** July 23 - Aug 01, 2025

2.

3. *"Investigating Kink Solitons and Rogue Waves to a New Generalized (3+1)- dimensional KdV-type Equation in Nonlinear Sciences"* **International Conference on Recent Trends in Mathematics (ICRTM 2025)**, Delhi, **India**, February 07-08, 2025

4. *"Generalized N-soliton solutions to nonlinear evolution equations using a novel symbolic bilinear technique"* **International Conference on Nonlinear Analysis and Applications (ICNAA 2024),** Rishikesh, **India**, May 10-12, 2024

5. *"N-soliton bright-dark solutions of a (4+1)-dimensional variable coefficient generalized KP equation in fluid mechanics: Painlevé test and Hirota bilinear method"*, **International Conference on Advances in Pure and Applied Mathematics (ICAPAM-24),** Delhi, **India**, February 08-10, 2024

6. *"Center-controlled N-rogue waves to a new generalized nonlinear P-type (3+1)-D evolution equation by a generalized solution of Hirota's N-soliton technique"*, **6th International Conference on Frontiers in Industrials and Applied Mathematics (FIAM-2023),** DUBAI, **UAE**, December 21-22, 2023**.**

7. *"The Future of Higher Education in India and its Challenges"*, **National Education Conclave: India's Future and Higher Education**, Vigyan Bhawan, New Delhi, **India**, March 23-24, 2023.

Reviewer Assignments

Reviewed more than 200 research articles from several highly reputed SCIE journals such as *Nonlinear Dynamics, Physics of Fluids, Chaos Soliton & Fractals, Scientific Reports, Modern Physics Letters B, Physica Scripta, Open Physics, Partial Differential Equations in Applied Mathematics, Nonautonomous Dynamical Systems, Mathematics, Plos One* and others published by distinct publishers including **Springer, Elsevier, IOP Science, De-Gruyter, Nature, World Scientific** and others.

Research/Internship Guidance

1. As **Principal Investigator** in the Research Project: "A study of analytical solutions and dynamical behavior for nonlinear evolution equations using efficient methods.", 2024(Ongoing), RDC, Hansraj College, DU, Delhi.
2. As **Summer Internship Supervisor** of Arju Agarwal (Amity University, Kolkata): "Working with Computer Algebra System through Mathematica", w.e.f May 27- July 20, 2019.
3. As **Internship Supervisor** of Pranav Jain (IIIT Okhla, Delhi): "Revenue Generation Strategy through Selfish Mining focusing Multiple Pools of Honest Miners: Revisiting Eyal and Sirer (2014) Selfish Mining Strategy", 2019.
4. As **Principal Investigator** in the Innovation Project: "Study and Security Analysis of Smart Cards", 2015-2016, University of Delhi, Delhi.

Talks/Lectures Delivered

1. On "**Role of Computer Algebra System (Mathematica) with Computational Intelligence in Research and Innovation,**" in International Workshop on Cutting-Edge Innovations in Soft Computing, Communication and Artificial Intelligence, at CCS University, Meerut, Uttar Pradesh, September 10-14, 2024.
2. On "**Numerical Optimization: techniques and applications**" in National Workshop on Numerical Optimization and its Future Perspectives at DDU College, University of Delhi, on March 12 – 16, 2024.
3. On "**Prompting AI tools and Writing,**" in a One-week workshop: ICT tools and Artificial Intelligence, organized by Malviya Mission Center, UGC, Ministry of Education, Govt. of India, January 8-12, 2024.
4. On "**Using Mathematica as a Scientific tool in Teaching and Research**" for FDP: Interdisciplinary Learning in Department of Applied Sciences, Maharaja Agrasen Institute of Technology, Rohini, Delhi on August 9, 2023.
5. On "**Latex**" in a two-day workshop organized by Operation Research Society of India (ORSI): Meerut chapter & Vardhman College, Bijnor, UP on February 25-26, 2023.

6. On "**Coding in Mathematics**" in a 3-day workshop organized by DIET, Keshavpuram, Delhi on 3-6 October 2022.

7. On "**Mathematica - A System for Modern Technical Computing**" for FDP organized by MHFDC, Hansraj College, DU on August 21-26, 2020.

8. On "**Managing Online Classes: Teaching Learning Tools and e-Content Generation**" for FDP organized by Bharti College, DU, on August 17-22, 2020.

9. On "**Microsoft Teams**" for the faculty members of Hansraj College, organized by MHFDC, Hansraj College, DU on August 9, 2020.

10. On "**Applications of Computer Algebra System - Mathematica**" in a One-day Workshop organized by MMH College, Ghaziabad, UP, on September 29, 2018.

11. On "**Mathematica: A Tool for Computational Analysis**" in the Faculty Development Programme, organized by the Department of Mathematics, Hansraj College, University of Delhi on March 10-11, 2018.

12. On "**Digital Literacy: An Introduction to ICT Skills**" in the Faculty Development Programme, organized by the Department of Physics & Electronics, Hansraj College, University of Delhi, September 15-17, 2017.

13. On "**Understanding Interrelations between the Topics of Mathematics**" & "Importance of Prime Numbers & their Utilization in the Modern Era" in TGT Teachers Training, Bal Bharti Public School, Pitumpura, on 23rd May and 26th May, 2017.

14. On "**LaTeX & Website Designing**" in National Workshop, organized by the Department of Mathematics, Shaheed Bhagat Singh College, University of Delhi on August 11-12, 2016.

15. On "**Illustration through Intuitive Examples**" in Workshop on Foundation Course, at Cluster Innovation Centre, University of Delhi on July 15, 2013.

16. As Guest faculty in **Bhaskaracharya College of Applied Sciences**, University of Delhi, 2012-2013.

17. As Guest faculty in **Dayal Singh College**, University of Delhi, 2011-2012.

18. As Guest faculty in **PGDAV (eve.) College**, University of Delhi, 2011-2012.

Administrative Assignments

1. **Research Coordinator**, RDC, Hansraj College, 2023-2024

2. **Member**, Collaboration & Community, Committee of RDC, Hansraj College, 2022-2023.

3. **Member**, ICT Committee, Hansraj College, 2021-2022.

4. **Member**, Portal Committee, Hansraj College, 2015-2016.

5. **Convenor**, Vision Society (Hans Vision, Hansraj College), 2014-2015.

6. **Convenor**, Pixels Society, Hansraj College, 2014-2015.

7. **Stall Guide**, Antardhvani-Hansraj College, 2015.

Workshops, Conferences, FDPs Talks Organized

1. (**Coordinator**) 2nd International Conference on Recent Trends in Mathematics (**ICRTM-2025**) sponsored by DRDO and DST-India at Hansraj College, University of Delhi, February 07-08, 2025.

2. (**Coordinator**) Webinar on "**Feminism and Human Rights**" at the Department of Philosophy, Hansraj College, September 28, 2021.

3. (**Co-convenor**) Seminar on "**Annual Academic Meet: Shri Shanti Narayan Mathematics Conclave-2021**" of the Department of Mathematics, Hansraj College, March 7-8, 2021.

4. (**Member**) Workshop on "**How to plan projects: Investigatory approach to learning and hands-on experience with 3M's-Maple, Mathematica and Matlab**" in Department of Mathematics, Hansraj College, University of Delhi on February 9, 2021.

5. (**Coordinator**) Talk on "**Educational and Political Challenges before Young India: Dr. Ambedkar's Insight**" under the aegis of Ambedkar Study Circle in Hansraj College, University of Delhi, on February 18, 2019.

6. (**Member**) FDP on "**Software Packages for Mathematical Sciences**" at the Department of Mathematics, Hansraj College, University of Delhi on November 14-19, 2018.

7. (**Coordinator**) FDP On "**Mathematica: A Tool for Computational Analysis**" at the Department of Mathematics, Hansraj College, University of Delhi on March 10-11, 2018

Workshops, Conferences, FDPs Participated

1. International Workshop on **Cutting-Edge Innovations in Soft Computing, Communication and Artificial Intelligence**, organized by CCS University, Meerut, Uttar Pradesh, September 10-14, 2024.
2. Workshop on **Fundamentals of Differential Equations with Applications to Real World Problems**, organized by Jaypee University of Information Technology, Waknaghat, Solan, Himachal Pradesh, July 08-13, 2024.
3. Online Training Programme on **NEP 2020 Orientation & Sensitization Programme**, organized by University Grant Commission, Delhi, April 20-29, 2024.
4. Workshop on **Mathematical Sciences for Viksit-Bharat@2047**, Faculty of Mathematical Sciences, University of Delhi, Delhi, April 12-13, 2024.
5. International Conference on **Recent Trends in Mathematics** (Online) (**ICRTM-2021**), Organized by Hansraj College, University of Delhi, Delhi, December 22-24, 2021,
6. International Conference on **Recent Developments in Theory, Computation & Application of Differential Equation**, South Asian University, New Delhi, Delhi, January 21-23, 2019.
7. Workshop on **LaTex** organized by Department of Mathematics, Hansraj College, University of Delhi, Delhi, April 9, 2016.
8. National Conference on **Advances in Mathematics**, Hansraj College, University of Delhi, Delhi, 7-8 March 2014.
9. Workshop on **Foundation Course Building Mathematical Ability**, University of Delhi, Delhi, 24-26 June 2013.
10. National workshop on **Optimization Techniques & Their Applications**, MNNIT Allahabad, 5-11 June 2013.

Arts & Culture

1. Achieved the first prize for Mathematical Poetry "**Duvidhaa**" on National Mathematics Day by the Department of Mathematics, University of Delhi, 22 December 2022.
2. Awarded an honor for best realistic story writing "**Zid ki Udaan**" by Hindi Academy, Government of Delhi, published in Indraprastha Bharti, December 2016.
3. Enacted in a play themed "**Surgery**" in "Chekhov ki Duniya" at Hansraj College, March 24, 2017. https://www.youtube.com/watch?v=nD3HO6ubHQM
4. Play musical instruments such as Keyboard, Guitar, Flute, Mouth Organ, and Cajon.
5. Write Hindi/English Articles and stories.

Other Details

Father's Name	:	Mr. Mam Chand
Mother's Name	:	Late Mrs. Jag Roshni
DOB	:	01 January 1984
Marital Status	:	Single
Language Known	:	Hindi, English
Permanent Address	:	106, Achhrounda, Partapur, Meerut, Uttar Pradesh – 250103.
Current Address	:	C-336, Banke Bihari Sharnam, Raj Nagar Extension, Ghaziabad, UP-201017.

Hobbies : Hindi Poetry: www.brijpoems.blogspot.in.

Chess (Captain College Team in Graduation 2002-2004)

Photography: www.brijmohan.in/photography

Short Hindi Stories: **Zid ki Udaan, Dibiya**, and others

Web Development, Digital Contents, Blogs

Social Work:
1.   iPA_inspired Progressive Association | Meerut (Founder)
2.   Ambedkar Mission Siksha Trust, Ghaziabad (Member)

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I sincerely acknowledge that all details furnished in this CV are true to the best of my knowledge.

(**BRIJ MOHAN**)