Faculty Profile

PERSONEL INFORMATION:

Dr. Prashant Pandey
Assistant Professor, Mathematics
KS Saket PG College, Ayodhya, UP, India
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Date of Birth: 13 October 1992
Email: ppunique1133@gmail.com , prashantpandey.rs.mat17@itbhu.ac.in
Google Scholar: https://scholar.google.com/citations?user=WJUmktQAAAAJ&hl=en
Research Gate: https://www.researchgate.net/profile/Prashant-Pandey-10
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RESEARCH INTERESTS:

1. Transport of Fluids in Porous Media.
2. Fractional Calculus.
3. Mathematical Modelling.
4. Bio-Mathematics.
5. Machine Learning.
6. Neural Network.

EDUCATIONAL QUALIFICATIONS:

1. Ph.D. from the Dept. of Mathematical Sciences, **Indian Institute of Technology** (BHU), Varanasi on **"Dynamics of Fluid in Porous Media"** in 2021.
2. Master of Science (M.Sc.), Mathematics, 87%, DDU Gorakhpur University, Gorakhpur, UP, 2015.
3. Bachelor of Science (B.Sc.), 74 %, DDU Gorakhpur University, Gorakhpur, UP, 2013.

AWARDS and HONOURS:

1. CSIR's prestigious fellowship **"Shyama Prasad Mukherjee Fellowship (SPMF)-2017"**, Govt. of India and former **SPM fellow** at Dept. of Mathematical Sciences, Indian Institute of Technology (BHU), Varanasi.
2. Graduate Aptitude Test in Engineering **(GATE)** in Mathematics, All India Rank **(AIR)-14**, 2017.
3. Junior Research Fellowship **(JRF)** in Mathematical Sciences, All India Rank **(AIR)-06**, June-2016, All India Rank **(AIR)-24, &** All India Rank **(AIR)-48** under CSIR, Govt. of India.
4. Recipient of **NCC 'A'** certificate and participated in a NCC camp from MIC Sahjanwa, Gorakhpur, UP, India, 2007.

TECHNICAL KNOWLEDGE:

1. Matlab
2. Mathematica
3. Python
4. C++
5. Latex, MS Word, MS Excel

TEACHING EXPERIENCE:

1. Graduate Course, Dept. of Mathematics, KS Saket PG College, Ayodhya, India, since 2022-23
   Courses: Algebra and Trigonometry, Abstract Algebra, Linear Algebra, Real Analysis, Calculus
2. Post-Graduate Course, Dept. of Mathematics, KS Saket PG College, Ayodhya, India, since 2022-23
   Courses: Advanced Real Analysis, Measure Theory, Python Programming, Machine Learning
3. Graduate Course, Dept. of Mathematics, Govt. MGM PG College, Itarsi, India, 2019-22

Courses: Algebra and Trigonometry, Abstract Algebra, Real and Complex Analysis, Calculus

4. Post-Graduate Course, Dept. of Mathematics, Govt. MGM PG College, Itarsi, India, 2019-22
   Courses: Advanced Abstract Algebra, Advanced Real Analysis, Integral Equation, Operations Research, Topology, Functional Analysis
5. Graduate Tutor, Dept. of Mathematical Sciences, IIT (BHU), India, 2019-20
   Courses: CSM-311 and MA-202 "Mathematics"
6. Graduate Tutor, Dept. of Mathematical Sciences, IIT (BHU), India, 2018-19
   Courses: MA-203 and MA-102 "Mathematics"
7. Graduate Teaching Assistant, Dept. of Mathematical Sciences, IIT (BHU), India, 2017-18
   Courses: MA-101 and MA-102 "Mathematics"

ADMINISTRATIVE EXPERIENCE:

1. Former Coordinator, Project, Internship & Apprentice Courses, Govt. MGM PG College, Itarsi, MP
2. Former Convener, College website & IT cell, Govt. MGM PG College, Itarsi, MP
3. Former Co-convener, National Education Policy, Govt. MGM PG College, Itarsi, MP
4. Former Coordinator, Skill Development Cell, Govt. MGM PG College, Itarsi, MP
5. Former Member, Research Committee, Govt. MGM PG College, Itarsi, MP
6. Former Member, IQAC, Govt. MGM PG College, Itarsi, MP
7. Former Head & Assistant Professor, Department of Mathematics, Govt. MGM PG College, Itarsi, MP

LECTURE DELIVERED/ INVITED TALK:

1. Delivered a lecture on **"Numerical Method for the Solution of Fractional Order PDEs with Non-Singular Kernel"** in an International Workshop on Numerical Analysis of Ordinary & Fractional PDEs, organized by Dept. of mathematics, Govt. Tilak PG College, Katni, MP, India, Dec 2022.
2. Delivered a lecture on **"Mathematical Aptitude for Competitive Exams"** in a Career Counselling Training Program organized by Swami Vivekanand Career Guidance Cell, Govt. MGM PG College, Itarsi, MP, India, 2021.
3. Delivered a lecture on **"How to Prepare for Competitive Exams"** in a webinar organized by Swami Vivekanand Career Guidance Cell, Govt. Tilak PG College, Katni, MP, India, 2021.
4. Delivered a lecture on **"Benefits of IT Infrastructure in Institute"** in a Student Induction Program organized by Internal Quality Assurance Cell (IQAC), Govt. MGM PG College, Itarsi, MP, India, 2020.
5. Delivered a lecture on **"Qualitative & Quantitative Approach of Research Methodology"** in a workshop organized by Internal Quality Assurance Cell (IQAC), Govt. S.N. PG College, Khandwa, MP, India, 2020.
6. Delivered a lecture on **"Advances of Topology and Real Analysis"** in a workshop on Application of Topology and Analysis organized by Department of Mathematics, DDU Gorakhpur University, Gorakhpur, UP, India, 2017.

ORGANIZED WORKSHOP/CONFERENCE/INTERNSHIP:

1. Organized an **"Awareness program and quiz competition on contributions of Indian mathematicians"** on National Mathematics Day 2022, as Convener, in KS Saket PG College, Ayodhya, Dec 2022.
2. Organized a "**National Seminar on National Education Policy 2020: Expectations & Challenges**" as co-convener, by NEP Cell & IQAC, Govt. MGM PG College, Itarsi, India, in May 2022.
3. Organized an "**International Workshop on Recent Trends in Applied Mathematics and Research Methodology"** as Convener, in Department of Mathematics, Govt. MGM PG College, Itarsi, India, in March 2021.
4. Organized an "**International Workshop on Fractional Calculus and Computational Intelligence"** as Convener, in Department of Mathematics, Govt. MGM PG College, Itarsi, India, in January 2022.

PRESENTED/ATTENDED CONFERENCE

1. "**International webinar on recent trends of teaching in mathematics in present situations**" at Department of Mathematics**,** Govt. PG College, Pipariya, MP-India.

2. **"International Conference on Singular Problems, Blow-up and Regimes with Peaking in Nonlinear PDEs"** at Department of Mathematics, RUDN University-Moscow, Russia**,** during Nov 10-14, 2019.
3. **"International Conference on Differential Equation and Control Problems"** at Department of Mathematics, IIT Mandi-India**,** during June 17-19, 2019.
4. **"2nd International Conference on Computational Methods, Simulation and Optimization"** at Asian Institute of Technology, Bangkok-Thailand, during January 11-13, 2019.
5. **"International Conference on Applied and Computational Mathematics"** at Department of Mathematical Sciences, IIT Kharagpur-India, during November 23-25, 2018.
6. **"International Conference on Engineering, Computers and Natural Sciences"** at Goa-India, during October 19-21, 2018.
7. "**4th International Conference on Mathematics and Computing"** at Department of Mathematical Sciences, IIT (BHU), Varanasi-India**,** during January 09-11, 2018.
8. Conference on "**Analysis and its Application**" at Department of Mathematics, Delhi University-India, during December 09-11, 2017.

ATTENDED WORKSHOP/FACULTY DEVELOPMENT PROGRAM/ INDUCTION PROGRAM

1. Workshop on "**Recent Advances in Differential Equations**" organized by Division of Mathematics, School of Advanced Sciences, VIT, Chennai, April 08-09, 2023.
2. Participated in **"7th Faculty Induction Program"** organized by UGC-HRDC, Dr. Harisingh Gour Vishwavidyalaya, Sagar, MP, 01 Dec 2021 – 05 January 2022.
3. Faculty Development Program on **"3D Printing Design and Technology"** organized by National Institute of Technology, Silchar, India, during July 19-23, 2021.
4. Faculty Development Program on **"Best Practices in Development of E-Content"** organized by Higher Education Department, Govt. of Madhya Pradesh, India, during July 05-10, 2021.
5. Short term course on **"Computational Methods for Integral and Differential Equations"** at Department of Mathematical Sciences, IIT (BHU), Varanasi-India**,** during December 10-16, 2018.
6. Workshop on "**LaTex for Beginners**" & "**LaTex for Thesis writing**" at Department of Electrical Engineering, IIT (BHU), Varanasi-India**,** during October 06 and 30, 2018.
7. Workshop on "**Hands on Training Program on C & MATLAB**" at DST-CIMS, BHU, Varanasi, during February 10-17, 2018.
8. GIAN's workshop on **"Fractional Derivatives and Its Applications"** at Department of Mathematical Sciences, IIT (BHU), Varanasi-India**,** during 30 January 2018 to 03 February 2018.
9. Workshop on "**Tools for Scientific Documentation: Latex, JabRef, DocEar and other open-source software**" at DST-CIMS, BHU, Varanasi, during January 02-12, 2018.
10. GIAN's workshop on **"Wavelets and Their Application in Signal and Image Processing"** at Department of Mathematical Sciences, IIT (BHU), Varanasi-India**,** during December 21-25, 2017.
11. GIAN's workshop on **"Isogeometric Methods Using B-Splines and Nurbs"** at Department of Mathematical Sciences, IIT (BHU), Varanasi-India**,** during December 16-20, 2017.

PUBLICATIONS

1. "A novel numerical manner for non-linear coupled variable order reaction-diffusion equation" published in **"Thermal Science",** 2023. https://doi.org/10.2298/TSCI23S1353K
2. Mathematical modeling of COVID-19 pandemic in India using Caputo-Fabrizio fractional derivative published in **"Computers in Biology and Medicine",** 2022. https://doi.org/10.1016/j.compbiomed.2022.105518
3. An efficient computational approach for nonlinear variable order fuzzy fractional partial differential equations published in **"Computational and Applied Mathematics",** 2022. https://doi.org/10.1007/s40314-021-01710-4
4. A novel fractional mathematical model of COVID-19 epidemic considering quarantine and latent time, published in **"Results in Physics"**, 2021. 10.1016/j.rinp.2021.104286
5. On solution of a class of nonlinear variable order fractional reaction–diffusion equation with Mittag–Leffler kernel, published in "**Numerical Methods for Partial Differential Equations",** 2021. https://doi.org/10.1002/num.22563

6. Two-dimensional nonlinear time fractional reaction–diffusion equation in application to sub-diffusion process of the multicomponent fluid in porous media, published in **"Meccanica",** 2021. https://doi.org/10.1007/s11012-020-01268-1
7. Double-quasi-wavelet numerical method for the variable-order time fractional and Riesz space fractional reaction–diffusion equation involving derivatives in Caputo–Fabrizio sense, published in **"Fractals",** 2020. https://doi.org/10.1142/S0218348X20400472
8. An efficient technique for solving the space-time fractional reaction-diffusion equation in porous media, published in **"Chinese Journal of Physics",** 2020. https://doi.org/10.1016/j.cjph.2020.09.031
9. Numerical solutions for the reaction–diffusion, diffusion-wave, and Cattaneo equations using a new operational matrix for the Caputo–Fabrizio derivative, published in **"Mathematical Methods in the Applied Sciences"**, 2020. https://doi.org/10.1002/mma.6517
10. Approximate analytical solution of two-dimensional space-time fractional diffusion equation, published in **"Mathematical Methods in the Applied Sciences"**, 2020. https://doi.org/10.1002/mma.6456
11. Operational matrix method for solving nonlinear space-time fractional order reaction-diffusion equation based on Genocchi polynomial, published in **"Special Topics & Reviews in Porous Media: An International Journal"**, 2020. 10.1615/SpecialTopicsRevPorousMedia.2020030750
12. Numerical solution of two-dimensional reaction-diffusion equation using operational matrix method based on Genocchi polynomial – part II: Error bound and stability analysis, published in **"Proceedings of the Romanian Academy, Series A",** 2020.
13. Numerical solution of two-dimensional reaction-diffusion equation using operational matrix method based on Genocchi polynomial – part I: Genocchi polynomial and opperatorial matrix, published in **"Proceedings of the Romanian Academy, Series A",** 2020.
14. Approximate analytical solution for coupled system of fractional advection-diffusion equation, published in **"European Physical Journal Plus",** 2019. https://doi.org/10.1140/epjp/i2019-12727-6
15. Quasi wavelet numerical approach of non-linear reaction diffusion and integro reaction-diffusion equation with Atangana–Baleanu time fractional derivative, published in **"Chaos, Solitons & Fractals",** 2019. https://doi.org/10.1016/j.chaos.2019.109456
16. An Operational Matrix for solving time-fractional order Cahn-Hilliard equation, published in "**Thermal Sciences"**, 2019. https://doi.org/10.2298/TSCI190725369P
17. A Legendre spectral finite difference method for the solution of non-linear space-time fractional Burger's–Huxley and reaction-diffusion equation with Atangana–Baleanu derivative, published in **"Chaos, Solitons & Fractals",** 2019. https://doi.org/10.1016/j.chaos.2019.109402
18. Numerical solution of the system of time fractional reaction-advection-diffusion equations in porous media, accepted in **"Journal of Applied and Computational Mathematics",** 2019. 10.22055/JACM.2019.30946.1796
19. Gegenbauer wavelet operational matrix method for solving variable-order non-linear reaction–diffusion and Galilei invariant advection–diffusion equations, published in "**Computers and Mathematics with Applications",** 2019. https://doi.org/10.1007/s40314-019-0952-z

BOOKs/CHAPTERs (Research)

1. "Analysis of a Class of Reaction-Diffusion Equation Using Spectral Scheme" published in **"Special Functions in Fractional Calculus and Engineering", CRC Press, Taylor & Francis,** 2023. https://doi.org/10.1201/9781003368069

BOOKs (UG/PG Courses)

1. "**A Text Book of Algebra**", published in "Vandana Prakashan", **ISBN: 978-93-91245-02-3**, 2023.
2. "**A Text Book of Differential Calculus**", in "Vandana Prakashan", **ISBN: 978-81-951497-2-8**, 2023.

DECLARATION: I hereby certify that all the information provided here is correct to the best of my knowledge.
Place: Ayodhya (India)
Date: 13/08/2023 **Dr. Prashant Pandey**