

Curriculum Vitae

Name – Dr. Sachin Kumar

Date of Birth- 21/06/1995

Designation - Assistant Professor

Department of Mathematics

Government Degree College, Budaun, Uttar Pradesh , India

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EDUCATIONAL QUALIFICATIONS:

S. No.	Academic Degree	Board/University	Subjects	Year	Percentage/Rank
1.	High School	U.P Board Allahabad	Hindi, English, Science, Sc. Science, Mathematics, Art.	2009	73.8
2.	Intermediate	U.P Board Allahabad	Hindi, English, Physics, Chemistry, Mathematics	2011	79.8
3.	B.Sc.	C.C.S University Meerut	Physics, Chemistry, Mathematics	2014	80.2
4.	M.Sc.	C.C.S University Meerut Campus	Mathematics	2016	84.4
5.	Ph.D.	I.I.T (BHU), Varanasi	Mathematics	2021	NA

AWARDS and HONOURS:

- Graduate Aptitude Test in Engineering (GATE) in Mathematics, 2017.
- Junior Research Fellowship (JRF) in Mathematical Sciences, All India Rank **(AIR)-45**, March-2017 under CSIR, Govt. of India.
- Sessions best paper presentation award in “**2nd International Conference on Computational Methods, Simulation and Optimization**” at Asian Institute of Technology, Bangkok-Thailand, during January 11-13, 2019.

RESEARCH INTERESTS:

- Diffusion Equation.
- Fractional Differential Equation
- Bio-Mathematics.
- Mathematical Modeling

PUBLICATIONS

1. **S. Kumar**, Fractional fuzzy model of advection-reaction-diffusion equation with application in porous media, **Journal of Porous Media**, 2021, 19340508, 1.752,
2. **S. Kumar**, Numerical solution of fuzzy fractional diffusion equation by Chebyshev spectral method, **Numerical Methods for Partial Differential Equations**, 2021, 1098-2426, 3.009
3. **S. Kumar, J. J. Nieto, B. Ahmad**, Chebyshev spectral method for solving fuzzy fractional fredholm–volterra integro-differential equation, **Mathematics and Computers in Simulation**, 192 (2022) 501–513, 3784754
4. **S. Kumar, D. Zeidan**, Numerical study of zika model as a mosquito borne virus with non-singular fractional derivative, **International Journal of Biomathematics**, (2021) 2250018, 2.053
5. **S. Kumar, D. Zeidan**, An efficient mittag-leffler kernel approach for timefractional advection-reaction-diffusion equation, **Applied Numerical Mathematics**, 170 (2021) 190–207, 0168-9274,
6. **S. Kumar, S. Das, S. Ong**, Analysis of tumor cells in the absence and presence of chemotherapeutic treatment: The case of caputo-fabrizio time fractional derivative, **Mathematics and Computers in Simulation**, 190 (2021) 1–14.
7. **S. Kumar, P. Pandey, J. G´omez-Aguilar, D. Baleanu**, Double-quasi-wavelet numerical method for the variable-order time fractional and riesz space fractional reaction–diffusion equation involving derivatives in Caputo–Fabrizio sense, **Fractals**, 28 (08) (2020) 2040047, 3.6665
8. **S. Kumar, B. Ahmad**, A new numerical study of space–time fractional advection–reaction–diffusion equation with rabotnov fractional-exponential kernel, **Numerical Methods for Partial Differential Equations**.
9. **S. Kumar, A. Atangana**, Numerical solution of abc space–time fractional distributed order reaction–diffusion equation, **Numerical Methods for Partial Differential Equations**.
10. **S. Kumar, J. F. G´omez-Aguilar**, Numerical solution of caputo-fabrizio time fractional distributed order reaction-diffusion equation via quasi wavelet based numerical method, **Journal of Applied and Computational Mechanics** 6 (4) (2020) 848–861.
11. **S. Kumar, D. Baleanu**, Numerical solution of two-dimensional time fractional cable equation with mittag-leffler kernel, **Mathematical Methods in the Applied Sciences** 43 (15) (2020) 8348–8362, 1099-1476

12. **S. Kumar, J. G´omez-Aguilar, J. Lav´ın-Delgado, D. Baleanu**, Derivation of operational matrix of rabotnov fractional-exponential kernel and its application to fractional lienard equation, **Alexandria Engineering Journal** 59 (5) (2020) 2991–2997, 1110-0168
13. **S. Kumar, J. F. G´omez Aguilar, P. Pandey**, Numerical solutions for the reaction–diffusion, diffusion-wave, and Cattaneo equations using a new operational matrix for the Caputo–Fabrizio derivative, **Mathematical Methods in the Applied Sciences** 43 (15) (2020) 8595–8607.
14. **S. Kumar, J. Cao, M. Abdel-Aty**, A novel mathematical approach of covid19 with non-singular fractional derivative, **Chaos, Solitons & Fractals** 139 (2020) 110048,
15. **S. Kumar, J. Cao, X. Li**, A numerical method for time-fractional reaction-diffusion and integro reaction-diffusion equation based on quasi-wavelet, **Complexity** 2020.
16. **S. Kumar, D. Baleanu**, A new numerical method for time fractional non-linear Sharma-Tasso-Oliver equation and Klein-Gordon equation with exponential kernel law, **Frontiers in Physics** 8 (2020) 136.
17. **S. Kumar, A. Atangana**, A numerical study of the nonlinear fractional mathematical model of tumor cells in presence of chemotherapeutic treatment, **International Journal of Biomathematics** 13 (03) (2020) 2050021.
18. **S. Kumar, P. Pandey, S. Das**, Operational matrix method for solving nonlinear space-time fractional order reaction-diffusion equation based on Genocchi polynomial, **Special Topics & Reviews in Porous Media: An International Journal** 11 (1).
19. **S. Kumar, P. Pandey**, Quasi wavelet numerical approach of non-linear reaction diffusion and integro reaction-diffusion equation with Atangana– Baleanu time fractional derivative, **Chaos, Solitons & Fractals** 130 (2020) 109456.
20. **S. Kumar, P. Pandey**, A Legendre spectral finite difference method for the solution of non-linear space-time fractional burgers–huxley and reaction-diffusion equation with Atangana– Baleanu derivative, **Chaos, Solitons & Fractals** 130 (2020) 109402.
21. **S. Kumar, P. Pandey, S. Das**, Gegenbauer wavelet operational matrix method for solving variable-order non-linear reaction–diffusion and galilei invariant advection–diffusion equations, **Computational and Applied Mathematics** 38 (4) (2019) 1–22.
22. **S. Kumar, P. Pandey, S. Das, E. Craciun**, Numerical solution of two dimensional reaction–diffusion equation using operational matrix method based on Genocchi polynomial Genocchi polynomial and operational matrix, **Proc. Rom. Acad., Ser. A: Math. Phys. Tech. Sci. Inf. Sci.** 20 (4) (2019) 393–399.

23. **P. Pandey, S. Kumar, J. G´omez-Aguilar, D. Baleanu**, An efficient technique for solving the space-time fractional reaction-diffusion equation in porous media, **Chinese Journal of Physics**, 68 (2020) 483–492.
24. **P. Pandey, S. Kumar, J. G´omez-Aguilar**, Numerical solution of the time fractional reaction-advection-diffusion equation in porous media, **Journal of Applied and Computational Mechanics**.
25. **P. Pandey, S. Kumar, S. Das**, Approximate analytical solution of coupled fractional order reaction-advection-diffusion equations, **The European Physical Journal Plus** 134 (7) (2019) 364.
26. **P. Pandey, S. Kumar, H. Jafari, S. Das**, An operational matrix for solving time-fractional order Cahn-Hilliard equation, **Thermal Science**.
27. **P. Pandey, S. Kumar, F. G´omez**, Approximate analytical solution of two-dimensional space-time fractional diffusion equation, **Mathematical Methods in the Applied Sciences** 43 (12) (2020) 7194–7207.

BOOK CHAPTER

1. Applications of Fractional Calculus to Modeling in Dynamics and Chaos, Taylor and Francis Group, 2022

TEACHING EXPERIENCE:

- Assistant Professor at Department of Mathematics, Government Degree College, Budaun, Uttar Pradesh, India from 28 June 2021 to till now.
- Assistant Professor at Department of Mathematics, Govt. MGM PG College, Itarsi, Madhya Pradesh, India from 17 December 2019 to 28 June 2021.

PRESENTED INTERNATIONAL CONFERENCE AND WORKSHOP

1. “**2nd International Conference on Computational Methods, Simulation and Optimization**” at Asian Institute of Technology, *Bangkok-Thailand*, during January 11-13, 2019.
2. “**Singular Problems, Blow-up and Regimes with Peaking PDEs**” at RUDN University, *Moscow-Russia*, during November 10-14, 2019.