

Name : Dr. Jayanta Borah
Designation : Associate Professor
Specialization: Fractional Differential Equations
Date of Joining TU: 11th December, 2019.



Curriculum Vitae

Dr. Jayanta Borah
Associate Professor
Department of Mathematical Sciences
Tezpur University, Napam
Assam 784028, India

Email: jba@tezu.ernet.in,
Contact No: 9436676144

Research Interest: Abstract Differential Equations.

Academic Qualifications:

1. M.Sc from Gauhati University, Guwahati, Assam in 2003.
2. Ph.D in Fractional Differential Equations from IIT Guwahati, Assam in 2019.

Details of Employment:

Assistant Professor:

Institute: Tezpur University, Assam
Joining: 11th December 2019.

Assistant Professor (Stage III)

Institute: NERIST, Nirjuli, Arunahal Pradesh
Tenure: 07th July 2017—10th December 2019.

Assistant Professor (Stage II)

Institute: NERIST, Nirjuli, Arunahal Pradesh
Tenure: 07th July 2012—06th July 2017.

Lecturer

Institute: NERIST, Nirjuli, Arunahal Pradesh
Tenure: 07th July 2006—06th July 2012.

Publications:

1. Borah, J. and Bora, S. N. Existence of mild solution for mixed Volterra-Fredholm integro fractional differential equation with non-instantaneous impulses, *Differential Equations and Dynamical Systems*, 30, 185-196, 2022.
2. Borah, J. and Bora, S. N. Existence of mild solution of a class of nonlocal fractional order differential equation with not instantaneous impulses, *Fractional Calculus and Applied Analysis*, 22(2), 495-508, 2019.
3. Borah, J. and Bora, S. N. Sufficient conditions for existence of integral solution for non-instantaneous impulsive fractional evolution equation, *Indian Journal of Pure and applied Mathematics*, 51, 1065–1082, 2020.
4. Borah, J. and Bora, S. N. Non-instantaneous impulsive Fractional Semi linear Evolution Equations with Finite Delay, *Journal of Fractional Calculus and Applications*, 12(1), 120-132, 2021.
5. Borah, J. and Bora, S. N. Existence results for non-instantaneous impulsive fractional functional differential equation with finite delay, *Fractional Differential Calculus*, 11(1), 35-53, 2021.

6. Barman, T., Borah, J., Chutia, D and Haloi, R. Weighted norm inequalities for one sided vector valued Hardy-Littlewood maximal function on one sided Morrey like spaces, *The Journal of Analysis*, 32 , 1991-2003, 2023.
7. Devi, D. and Borah , J. Existence of Solutions for a Nonlinear Nonlocal Hybrid Functional Fractional Differential Equations, *Rocky Mountain Journal of Mathematics*, 53(5), 1459-1467, 2023.
8. Borah, J, Devi. D, Haloi, R. Strong solutions to quasi-linear differential equations with deviating arguments, *The Journal of Analysis*, 31, 2703–2716, 2023.
9. Hazarika, D., Borah, J. , Singh, B.K. Existence and controllability of non-local fractional dynamical systems with almost sectorial operators. *Journal of Mathematical Analysis and Applications*, 532(2), # 127984, 2024.
10. Hazarika, D., Borah, J. , Singh, B.K. Null controllability of fractional dynamical system with nonlocal initial condition. *Journal of Fractional Calculus and Applications*, 15(2), 1-11, 2024.
11. Kachari, P., Borah, J. & Hazarika, B. Existence of solution for impulsive fractional qr-difference equation of implicit form with nonlocal boundary condition, *TWMS Journal of Applied and Engineering Mathematics*, 15(6), 1460-1472, 2025.
12. Devi, D. and Borah , J. On the solution of nonlinear nonlocal Volterra–Fredholm type hybrid fractional differential equation, *Indian Journal of Pure and Applied Mathematics*, 56, 67–78, 2025.
13. Devi, D. and Borah , J. Results on Existence, Uniqueness, and Stability of an Impulsive Caputo–Katugampola Hybrid FDE With p -Laplacian Operator, *Mathematical Methods in Applied Sciences*, 48(6), 6561-6572, 2025.
14. Devi, D. Borah, J. Existence , uniqueness, and Hyers-Ulam Stability for an implicit hybrid fractional differential equations with p -Laplacian operator, *Int. J. of Dynamical Systems and Differential Equations* (accepted, June 2025).
15. Devi, D. Borah, J. Existence and exact controllability for a PERTURB Evolution Inclusions governed by Hilfer Fractional Derivatives, *Journal of Mathematical Sciences*, July (accepted, July 2025)

Conference Presentations:

1. Mild solution of a class of nonlocal fractional differential equation, *National Conference on Advances in Mathematical Sciences*, Gauhati University, Guwahati, December 22-23, 2016.
2. Existence results of fractional functional evolution equation with non-instantaneous impulses, *International Conference on Applied and Computational Mathematics*, IIT Kharagpur, November 23-25, 2018.
3. Existence results of mild solution of fractional differential inclusion with non-instantaneous impulses, *National Conference on Mathematical Sciences and Applications in Science, Engineering and Technology*, Rajiv Gandhi University, Arunachal Pradesh, March 25-26, 2019.
4. On Non-Instantaneous Impulsive Fractional Evolution Equation with Almost Sectorial Operator, *International Conference on the Numerical and Analytical Techniques in Differential Equations (ICNATDE-2021)*, Department of Mathematics, Pondicherry University during November 16 – 18, 2021.
5. An existence result on hybrid fractional differential equation, *National Conference on “Mathematics and Computing”*, Department of Mathematics, NIT Agartala on 22nd December, 2022.

Invited Talks:

1. Act as a resource persons on “ Seven days Excursion on Mathematics” organized by Assam Academy of Mathematics during 11-17 July, 2022.

2. Delivered a talk “Play with Sequences” at Lokanayak Omeo Kumar Das College, Dhekiajuli, Assam on 12th November, 2016.
3. Delivered a talk “Fractional Differential Equations-An Introduction” in the Enrichment Lecture series organized by Department of Mathematics, USTM on 15th November, 2021.
4. Act as a Tutor on Instructional Schools for Teachers on Partial Differential Equations organised by the department of Applied sciences, Tezpur university during November 21-December 03, 2022.
5. Act as a resource persons to the Science Teachers Training Program organized for Secondary level science teachers of Government and Government provincialized schools of Assam organized by Tezpur University and Samagra Shiksha Assam during 25-30 June 2024.
6. Act as a micro teaching expert of the Refresher Course in Mathematical Sciences during 11-24 December 2024 organized by Malaviya Mission Teacher Training Centre (MMTTC), Tezpur University.
7. Invited speaker and session chair at International Conference on Mathematical Sciences and Computing Innovations & Applications ICMSC 2025 organized by NERIST during 26-28 June 2025. Title of the talk: Qualitative Study of Hybrid Fractional Differential Equations.

Teaching:

1. Mathematical Methods
2. Numerical Methods and Boolean Algebra
3. Introductory Ordinary Differential Equations
4. Theory of Ordinary Differential Equations
5. Numerical solutions to Ordinary Differential equations
6. Mathematics-I
7. Calculus -I
8. Measure Theory and Integration
9. Fractional Calculus

PhD Students:

1. Dibya Joyti Hazarika (registered at NERIST) (defended thesis on 17th August , 2024)
Thesis Title: A STUDY ON EXISTENCE AND CONTROLLABILITY OF A CLASS OF FRACTIONAL DYNAMICAL SYSTEMS.
2. Darshana Devi (registered at Tezpur University) (Defended thesis on 20th June, 2025.)
Thesis Title: A QUALITATIVE STUDY ON DIFFERENT CLASSES OF FRACTIONAL ORDER HYBRID DIFFERENTIAL EQUATIONS.
3. Tanmoy Barman (registered at Tezpur University) (ongoing)
4. Pankita Kachari (registered at Tezpur University) (ongoing)
5. Rohan Das (registered at Tezpur University) (ongoing)
6. Kwi Langstang (registered at Tezpur University) (ongoing)

Training Conducted:

1. Act as a coordinator to “Two days workshop on Teaching Methodology on Mathematics” at NERIST during November 21-22, 2015.
2. Act as a coordinator to “Two days Training programme on National Mathematics Olympiad ” at NERIST during February 27-28, 2016.

Memberships:

1. Life Member, Assam Academy of Mathematics (AAM).

2. Life Member, Indian Mathematical Society (IMS).

Workshop/ Short term Course Attended:

1. Application of Mathematical Methods in Physical Problem, SMIT, Sikkim, December 18-23, 2009.

2. Instructional School of Lecturers in Differential Equations and Computations, Jaypee University of Information Technology, Himachal Pradesh, June 04-16, 2012.

3. ATMW Partial Differential Equations of Fractional order, TIFR- Centre for Applicable Mathematics, Bangalore, July 06-18, 2015.

4. TEW on Real Analysis, Linear Algebra and Differential Equations, IIT Guwahati, December 14-19, 2015.

5. Mathematical Analysis and its Applications to Engineering, IIT Guwahati, January 02-04, 2016.

6. NE- Summer Workshop in Analysis and Probability-2016, Rajiv Gandhi University, May 31-June 04, 2016.

7. Pedagogical Training for Mathematics Teachers, Tezpur University, Tezpur, December 25-30, 2019.

8. International Webinar Series on "Advances in Mathematics" organized by Tata Institute of Social Sciences, Tuljapur from 22-27 July 2020.

9. Online Interdisciplinary Refresher Course on Changing Perspectives in Pedagogy organized by Tezpur University during 8-22 October, 2020.

10. Short Term Course on NEP Orientation & Sensitization under Malaviya Mission Teacher Training Programme (MM-TTP) of the University Grants Commission (UGC) organized by MMTTC, Tezpur University during 01-10 November, 2023.