Dr. Subhas Khajanchi

Professor
Department of Mathematics,
Presidency University,
86/1 College Street,
Kolkata - 700073, West Bengal, India
Mobile: +91 8240051355
Email: subhaskhajanchi@gmail.com/ subhas.maths@presiuniv.ac.in
Webpage: https://scholar.google.com/citations?user=kphdpA0AAAAJhl=en
https://www.presiuniv.ac.in/web/staff.php?staffid=388

Personal Information



Father's Name: Rabindra Nath Khajanchi
Mother's Name: Subhadra Khajanchi
Marital Status: Married
Nationality: Indian
Sex: Male

Research Interests

Dynamical Systems, Mathematical Modeling, Mathematical Biology

- Tumor - immune competitive system
- Game theory & Adaptive dynamics
- Infectious diseases (COVID 19, TB transmission, HTLV-I viral dynamics, SEIR models etc.)
- Ecological modeling

Education

- Indian Institute of Technology (IIT) Roorkee, Uttarakhand, India.
  - PhD in Mathematics (July 25, 2011 - March 04, 2016).
  - Dissertation Title: Mathematical Modeling of Malignant Brain Tumor with T11 Target Structure.
  - Thesis Advisor: Dr. Sandip Banerjee, Professor, Department of Mathematics, IIT Roorkee
  - Date of Completion/Defense: February 29, 2016.
- Jadavpur University, Kolkata, West Bengal, India.
  - Master of Science in Applied Mathematics (2010) with First class.
- Jadavpur University, Kolkata, West Bengal, India.
  - Bachelor of Science; Mathematics (major), Physics, Chemistry & Computer Programming (2008), First class with distinction.
- Nimpith Ramkrishna Vidyabhavan (WBCHSE), Nimpith, South 24 Parganas, West Bengal, India.
  - Higher Secondary (HS); Bengali, English, Physics, Chemistry, Mathematics, Biology (2005) with First class.

- Moukhali Chandiban Fanindra Vidyamandir (WBBSE), Moukhali, South 24 Parganas, West Bengal, India.
  - Madhyamik; Bengali, English, Physical & Life Science, History, Geography, Mathematics, Additional Mathematics (2003) with First class.

Teaching Experience

- Professor, Department of Mathematics, Presidency University Kolkata, October 14, 2026 - Ongoing.
- Associate Professor, Department of Mathematics, Visva-Bharati (A Central University), December 30, 2025 - October 13, 2026.
- Assistant Professor, Department of Mathematics, Presidency University Kolkata, August 09, 2018 - December 29, 2025.
- Assistant Professor, Department of Mathematics, Bankura University, September 15, 2015 - August 08, 2018.
- Assistant Professor, Department of Mathematics, Dinabandhu Andrews College (Calcutta University), March 09, 2015 - September 14, 2015.

PhD Guidance

- Dhiraj Kumar Das, Mathematical Modelling of some aspects of tuberculosis transmission and its control strategies. Awarded PhD Degree (with Prof. T. K. Kar, IIEST Shibpur) (Date of Award: 20.02.2021).
- Kankan Sarkar, Dynamical system modeling of nonlinear complex ecological systems. Awarded PhD Degree (with Prof. Prakash C. Mali, Jadavpur University) (Date of Award: 10.05.2023).
- Sovan Bera, Mathematical modeling of HTLV-I infection with CTL immune response. Awarded PhD Degree (with Prof. T. K. Kar, IIEST Shibpur) (Date of Award: 21.09.2023).
- Mrinmoy Sardar, Mathematical modeling, analysis of tumor-immune competitive systems and its control strategies. Awarded PhD Degree (with Dr. Santosh Biswas, Jadavpur University) (Date of Award: 18.03.2024).
- Suparna Dash, Mathematical modeling of ecological system with application to evolutionary game theory (Date of joining 01-11-2021). Thesis Submitted.
- Mitali Maji, Exploring the Complex Dynamics of Alzheimer's Disease: A Mathematical Approach (Date of joining 30-06-2022). Ongoing.
- Santana Mondal, Game-theoretic approach to biological systems: insights from mathematical models (Date of joining 31-08-2022). Ongoing.
- Priya Rana, Modeling the complex dynamics of Alzheimer's disease with healthcare interventions (Date of joining 10-12-2025). Ongoing.

List of Publications

- Maji M, Subhas Khajanchi, Identifying key parameters in an Alzheimer's model through comprehensive sensitivity analysis, Communications in Nonlinear Science and Numerical Simulation, 159 (2026): 109854. (IF: 3.8, Q1).

- Maji M, Kumar M, Subhas Khajanchi, Ghosh D, Persistence and extinction in an Elk-Wolf prey-predator system with refuge and inter-regional movement, Applied Mathematics and Computation, 514 (2026): 129834. (IF: 3.4, Q1).
- Maji M, Pujo-Menjouet L, Subhas Khajanchi, Quantifying Uncertainty and Sensitivity in an Alzheimer's Disease Model: A Mathematical Approach, Acta Biotheoretica, 74(1) (2026): 5. (IF: 1.5, Q1).
- Biswas S, Ranjit B, Mollah S, Chattopadhyay J, Subhas Khajanchi, Ahmad B, Effect of Delay on Coral Reef Ecosystem with Disease Presence in Coral Species, Boletim da Sociedade Paranaense de Matematica, 44 (2026): 1–28. (IF: 0, Q3).
- Dash S, Subhas Khajanchi, Dynamics of an intraguild predation system with optimal foraging and harvesting, Theoretical Population Biology, 170 (2026): 45-61. (IF: 1.4, Q2).
- Borah L, Dehingia K, Subhas Khajanchi, Sarmah HK, Dynamical analysis and control of a financial system incorporating technological advancement factor, International Journal of Modern Physics C, 37(10) (2026): 2650006. (IF: 1.6, Q3)
- Mondal S, Berec L, Subhas Khajanchi, Evolution of hunting efficiency of predator and hiding efficiency of prey in a stage-structured prey-predator model, Journal of Theoretical Biology, 617 (2025): 112302. (IF: 2.0, Q2)
- Sarkar K, Nieto JJ, Subhas Khajanchi, Mali PC, Modeling the influence of global warming on carbon, phytoplankton, and zooplankton dynamics, Nature Scientific Reports, 15 (2025): 1–21. (IF: 3.8, Q1)
- Mondal S, Subhas Khajanchi, Can adaptive prey refuge facilitate species coexistence in Bazykin's prey–predator model?, Mathematics and Computers in Simulation, 229 (2025): 539–552. (IF: 4.4, Q1)
- Mondal S, Subhas Khajanchi, Evolutionary stable strategies of a single species model with carry-over effects due to fear, Nonlinear Dynamics, 113(4) (2025): 3919–3941. (IF: 5.2, Q1)
- Sardar M, Subhas Khajanchi, Biswas S, Stochastic dynamics of a nonlinear tumor-immune competitive system, Nonlinear Dynamics, 113(5) (2025): 4395–4423. (IF: 5.2, Q1)
- Mondal S, Subhas Khajanchi, Adaptive evolution of aposematism of a prey species subject to Shepherd's recruitment function, Chaos, Solitons & Fractals, 194 (2025): 116159. (IF: 5.3, Q1)
- Roy S, Subhas Khajanchi, Tiwari PK, Fear and its carry-over effects in a generalist predator–prey system featuring cooperative hunting, Journal of Applied Mathematics and Computing, 00 (2025): –. (IF: 2.4, Q2).
- Ghosh S, Mondal J, Subhas Khajanchi, Effect of media awareness in the spread of infectious diseases, Journal of Applied Mathematics and Computing, 00 (2025): –. (IF: 2.4, Q2).
- Maji M, Subhas Khajanchi, Mathematical models on Alzheimer's Disease and its treatment: A review, Physics of Life Reviews, 52 (2025): 207–244. (IF: 13.7, Q1).
- Bera S, Subhas Khajanchi, Kar TK, Stochastic Persistence, Extinction and Stationary Distribution in HTLV-I Infection Model with CTL Immune Response, Qualitative Theory of Dynamical Systems, 23(265) (2024). (IF: 1.9, Q2).
- Subhas Khajanchi, Bera S, Kar TK, An optimal control problem for HTLV-I infection model, Optimal Control Applications and Methods, 46 (2024): 798–810. https://doi.org/10.1002/oca.3232 (IF: 2.0, Q2).
- Dash S, Sarkar K, Subhas Khajanchi, Spatiotemporal Dynamics of an Intraguild Predation Model with Intraspecies Competition, International Journal of Bifurcation and Chaos, 34(14) (2024): 2430030. (IF: 2.836, Q1)
- Sardar M, Subhas Khajanchi, Biswas S, Stochastic dynamics of a nonlinear tumor-immune competitive system, Nonlinear Dynamics, 113 (2024): 4395–4423 https://doi.org/10.1007/s11071-024-09768-5. (IF: 5.2, Q1).
- Mondal S, Subhas Khajanchi, A fractional order Bazykin's predator-prey system and its solution, Iranian Journal of Science and Technology, Transactions A: Science, 48 (2024): 931–-938. (IF: 1.7, Q2).

- Maji M, Subhas Khajanchi, Roles of astrocytes and prions in Alzheimer's disease: insights from mathematical modeling, Journal of Biological Physics, 50(2) (2024): 149–179. (IF: 1.8, Q2).
- Maji M, Subhas Khajanchi, A fractional-order yeast prion mathematical model and its solution, Journal of Applied Mathematics and Computing, (2024):2767–2784. https://doi.org/10.1007/s12190-024-02063-x. (IF: 2.4, Q2).
- Sardar M, Biswas S, Subhas Khajanchi, Modeling the dynamics of mixed immunotherapy and chemotherapy for the treatment of immunogenic tumor, The European Physical Journal Plus, 139(3) (2024): 228. (IF: 2.8, Q2).
- Sardar M, Subhas Khajanchi, Biswas S, Ghosh S, A mathematical model for tumor-immune competitive system with multiple time delays, Chaos, Solitons & Fractals, 179 (2024): 114397. (IF: 5.3, Q1).
- Dash S, Subhas Khajanchi, Dynamics of intraguild predation with intraspecies competition, Journal of Applied Mathematics and Computing, 69 (2023): 4877–4906. (IF: 2.4, Q2).
- Jabbari A, Lotfi M, Kheiri H, Subhas Khajanchi, Mathematical analysis of the dynamics of a fractional-order tuberculosis epidemic in a patchy environment under the influence of re-infection, Mathematical Methods in the Applied Sciences, 46(17) (2023): 17798-17817. (IF: 3.007, Q1).
- Sardar M, Subhas Khajanchi, Ahmad B, A tumor–immune interaction model with the effect of impulse therapy, Communications in Nonlinear Science and Numerical Simulation, 126 (2023): 107430. (IF: 3.4, Q1)
- Silver SD, van den Driessche P, Subhas Khajanchi, A dynamic multistate and control model of the COVID-19 pandemic, Journal of Public Health, (2023): https://doi.org/10.1007/s10389-023-02014-z. (IF: 1.80, Q1)
- Subhas Khajanchi, Sardar M, Nieto JJ, Application of non-singular kernel in a tumor model with strong Allee effect, Differential Equations and Dynamical Systems, 31 (2023): 687–692. (IF: 0.8, Q2)
- Mondal J, Subhas Khajanchi Akhtar N, A Mathematical Model for COVID-19 Pandemic with the Impact of Economic Development. Book Title.: Fractal Signatures in the Dynamics of an Epidemiology, (2023): 118-134. (Book Chapter)
- Sarkar K, Subhas Khajanchi, Spatiotemporal dynamics of a predator-prey system with fear effect, Journal of the Franklin Institute, 360 (2023): 7380–7414. (IF: 4.246, Q1)
- Subhas Khajanchi, Mondal J, Tiwari PK, Optimal treatment strategies using dendritic cell vaccination for a tumor model with parameter identifiability, Journal of Biological Systems, 13(2) (2023): 487–516. (IF: 1.30, Q2)
- Rai RK, Tiwari PK, Subhas Khajanchi, Modeling the influence of vaccination coverage on the dynamics of COVID-19 pandemic with the effect of environmental contamination, Mathematical Methods in the Applied Sciences, (2023): https://doi.org/10.1002/mma.8749 (IF: 3.007, Q1).
- Biswas S, Ahmad B, Subhas Khajanchi, Exploring dynamical complexity of a cannibalistic eco-epidemiological model with multiple time delay, Mathematical Methods in the Applied Sciences, 46(4) (2022): 4184–4211. (IF: 3.007, Q1)
- Mondal J, Subhas Khajanchi, Samui P, Impact of media awareness in mitigating the spread of an infectious disease with application to optimal control, The European Physical Journal Plus, 137 (2022): 938. (IF: 2.8, Q2)
- Sarkar K, Mondal J, Subhas Khajanchi, How do the contaminated environment influence the transmission dynamics of COVID-19 pandemic?, The European Physical Journal Special Topics, 231 (2022): 3697–3716. (IF: 2.6, Q1)
- Bera S, Subhas Khajanchi, Roy TK, Dynamics of an HTLV-I infection model with delayed CTLs immune response, Applied Mathematics and Computation, 430 (2022): 127206. (IF: 3.5, Q1)
- Sarkar K, Subhas Khajanchi, An eco-epidemiological model with the impact of fear, Chaos, 32(8) (2022): 083126. (IF: 3.267, Q1)

- Dwivedi A, Keval R, Subhas Khajanchi, Modeling optimal vaccination strategy for dengue epidemic model: a case study of India, Physica Scripta, 97(8) (2022): 085214. (IF: 3.081, Q1)
- Sarkar K, Subhas Khajanchi, Mali PC, A delayed eco-epidemiological model with weak Allee effect and disease in prey, International Journal of Bifurcation and Chaos, 32(8) (2022): 2250122. (IF: 2.836, Q1)
- Mollah S, Biswas S, Subhas Khajanchi, Impact of awareness program on diabetes mellitus described by fractional-order model solving by homotopy analysis method, Ricerche di Matematica, (2024): 2359–2384 https://doi.org/10.1007/s11587-022-00707-3. (IF: 1.1, Q2)
- Bera S, Subhas Khajanchi, Roy TK, Stability analysis of fuzzy HTLV-I infection model: a dynamic approach, Journal of Applied Mathematics and Computing, 69 (2023): 171–199. (IF: 2.4, Q2)
- Mondal, J, Subhas Khajanchi, Mathematical modeling and optimal intervention strategies of the COVID-19 outbreak, Nonlinear Dynamics, 109 (2022): 177–202. (IF: 5.2, Q1)
- Rai RK, Subhas Khajanchi, Tiwari PK, Venturino E, Misra AK, Impact of social media advertisements on the transmission dynamics of COVID-19 pandemic in India, Journal of Applied Mathematics and Computing, 68 (2022): 19–44. (IF: 2.4, Q2)
- Subhas Khajanchi, Sarkar K, Banerjee S, Modeling the dynamics of COVID-19 pandemic with implementation of intervention strategies, The European Physical Journal Plus, 137 (2022): 129. (IF: 2.8, Q2)
- Sardar M, Subhas Khajanchi, Is the Allee effect relevant to stochastic cancer model ?, Journal of Applied Mathematics and Computing, 68 (2022): 2293–2315. (IF: 2.4, Q2)
- Subhas Khajanchi, Nieto JJ, Spatiotemporal dynamics of a glioma immune interaction model, Scientific Reports, 11 (2021): 22385. (IF: 3.8, Q1).
- Subhas Khajanchi, The impact of immunotherapy on a glioma immune interaction model, Chaos, Solitons & Fractals, 152 (2021): 111346. (IF: 5.3, Q1).
- Tiwari PK, Rai RK, Subhas Khajanchi, Gupta RK, Misra AK, Dynamics of coronavirus pandemic: effects of community awareness and global information campaigns, The European Physical Journal Plus, 136(10) (2021): 994. (IF: 2.8, Q2)
- Sardar M, Biswas S, Subhas Khajanchi, The impact of distributed time delay in a tumor-immune interaction system, Chaos, Solitons & Fractals, 142 (2021): 110483. (IF: 5.3, Q1)
- Subhas Khajanchi, Bera S, Roy TK, Mathematical analysis of the global dynamics of a HTLV-I infection model, considering the role of cytotoxic T-lymphocytes, Mathematics and Computers in Simulation, 180 (2021): 354–378. (IF: 4.4, Q1)
- Subhas Khajanchi, Sarkar K, Mondal J, Nisar KS, Abdelwahab SF, Mathematical modeling of the COVID-19 pandemic with intervention strategies, Results in Physics, 25 (2021): 104285. (IF: 4.4, Q2)
- Sardar M, Subhas Khajanchi, Biswas S, Abdelwahab SF, Nisar KS, Exploring the dynamics of a tumor-immune interplay with time delay, Alexandria Engineering Journal, 60(5) (2021): 4875–4888. (IF: 6.2, Q1)
- Rai RK, Subhas Khajanchi, Tiwari PK, Venturino E, Misra AK, Impact of social media advertisements on the transmission dynamics of COVID-19 pandemic in India, Journal of Applied Mathematics and Computing, 66 (2021): 1–26. (IF: 2.4, Q2)
- Tiwari PK, Singh RK, Subhas Khajanchi, Kang Y, & Misra AK, A mathematical model to restore water quality in urban lakes using Phoslock, Discrete and Continuous Dynamical Systems Series B, 26(6) (2021): 3143–3175. (IF: 1.3, Q1)
- Sarkar K, Subhas Khajanchi, Mali PC, & Nieto JJ, Rich dynamics of a predator-prey system with different kinds of functional responses, Complexity, 2020 (2020). (IF: 1.7, Q1)
- Samui P, Mondal J, & Subhas Khajanchi, A mathematical model for COVID-19 transmission dynamics with a case study of India, Chaos, Solitons & Fractals, 140 (2020): 110173. (IF: 5.3, Q1)

- Subhas Khajanchi, & Sarkar K, Forecasting the daily and cumulative number of cases for the COVID-19 pandemic in India, Chaos, 30 (2020): 071101. (IF: 3.267, Q1)
- Sarkar K, Subhas Khajanchi, & Nieto JJ, Modeling and forecasting the COVID-19 pandemic in India, Chaos, Solitons & Fractals, 139 (2020): 110049. (IF: 5.3, Q1)
- Subhas Khajanchi, Sarkar K, Mondal J, Dynamics of the COVID-19 pandemic in India, arXiv preprint arXiv:2005.06286, (2020).
- Sarkar K, & Subhas Khajanchi, Impact of fear effect on the growth of prey in a predator-prey interaction model, Ecological Complexity, 42 (2020): 100826. (IF: 3.1, Q2)
- Misra AK, Singh RK, Tiwari PK, Subhas Khajanchi, & Kang Y, Dynamics of algae blooming: effects of budget allocation and time delay, Nonlinear Dynamics, 100 (2020): 1779–1807. (IF: 5.2, Q1)
- Das DK, Subhas Khajanchi, & Kar TK, Transmission dynamics of tuberculosis with multiple re-infections, Chaos, Solitons & Fractals, 130 (2020): 109450. (IF: 5.3, Q1)
- Das DK, Subhas Khajanchi, & Kar TK, The impact of media awareness and optimal strategy on the prevalence of tuberculosis, Applied Mathematics and Computation, 366 (2020): 124732. (IF: 3.5, Q1)
- Subhas Khajanchi, Chaotic dynamics of a delayed tumor-immune interaction model, International Journal of Biomathematics, 13(2) (2020): 2050009. (IF: 2.4, Q3)
- Subhas Khajanchi, Stability analysis of a mathematical model for glioma-immune interaction under optimal therapy. International Journal of Nonlinear Sciences and Numerical Simulation, 20(3-4) (2019): 269–285. (IF: 2.007, Q1)
- Das DK, Subhas Khajanchi, & Kar TK, Influence of multiple re-infections in tuberculosis transmission dynamics: A mathematical approach, IEEE Xplore, (2019): 1–5. (2019 8th International Conference on Modeling Simulation and Applied Optimization (ICMSAO)). (Conference Paper)
- Subhas Khajanchi, & Banerjee S, A strategy of optimal efficacy of T11 target structure in the treatment of brain tumor. Journal of Biological System, 27(2) (2019): 225–255. (IF: 1.3, Q2)
- Subhas Khajanchi, & Nieto Juan J, Mathematical modeling of tumor-immune competitive system, considering the role of time delay. Applied Mathematics and Computation, 340 (2019): 180–205. (IF: 3.5, Q1)
- Subhas Khajanchi, Perc M, & Ghosh D, The influence of time delay in a chaotic cancer model. Chaos, 28 (2018): 103101.doi:10.1063/1.5052496. (IF: 3.267, Q1)
- Subhas Khajanchi, Modeling the dynamics of glioma-immune surveillance. Chaos, Solitons & Fractals, 114 (2018): 108–118. (IF: 5.3, Q1)
- Subhas Khajanchi, & Banerjee S, Influence of multiple delays in brain tumor and immune system interaction with T11 target structure as a potent stimulator. Mathematical Biosciences, 302 (2018): 116–130. (IF: 1.9, Q1)
- Subhas Khajanchi, Das DK, & Kar TK, Dynamics of tuberculosis transmission with exogenous reinfections and endogenous reactivations. Physica A, 497 (2018): 52–71. (IF: 2.8, Q2)
- Das DK, Subhas Khajanchi, & Kar TK, Dynamical behaviour of tuberculosis transmission, Biomath Communications Supplement, (2018): 5(1). (International Conference). (Conference Paper)
- Subhas Khajanchi & Banerjee S, Quantifying the role of immunotherapeutic drug T11 target structure in progression of malignant gliomas: mathematical modeling and dynamical perspective. Mathematical Biosciences, 289 (2017): 69–77.(IF: 1.9, Q1)
- Subhas Khajanchi, Uniform persistence and global stability for a brain tumor and immune system interaction. Biophysical Reviews and Letters, 12(4) (2017): 187–208. (Q4)
- Ghosh D, Subhas Khajanchi, Mangiarotti S, Denis F, Dana SK, & Letellier C, How tumor growth can be influenced by delayed interactions between cancer cells and the microenvironment?. BioSystems, 158 (2017): 17–30. (IF: 2.0, Q2)

- Subhas Khajanchi & Banerjee S, Role of constant prey refuge on stage structure predator -prey model with ratio dependent functional response. Applied Mathematics and Computation, 314 (2017): 193–198. (IF: 3.5, Q1)
- Subhas Khajanchi, Modeling the dynamics of stage-structure predator-prey system with Monod-Haldane type response function. Applied Mathematics and Computation, 302 (2017): 122–143. (IF: 3.5, Q1)
- Subhas Khajanchi, Bifurcations and oscillatory dynamics in a tumor immune interaction model. BIOMAT 2015: International Symposium on Mathematical and Computational Biology, (2016): 241–259. (Book Chapter)
- Banerjee S, Subhas Khajanchi, & Chaudhuri S, A mathematical model to elucidate brain tumor abrogation by immunotherapy with T11 target structure. PLOS ONE, 10(5) (2015): e0123611. doi:10.1371/journal.pone.0123611. (IF: 2.9, Q1)
- Subhas Khajanchi & Ghosh D, The combined effects of optimal control in cancer remission. Applied Mathematics and Computation, 271 (2015): 375–388. (IF: 3.5, Q1)
- Subhas Khajanchi, Bifurcation analysis of a delayed mathematical model for tumor growth. Chaos, Solitons & Fractals, 77 (2015): 264–276. (IF: 5.3, Q1)
- Subhas Khajanchi & Banerjee S, Stability and bifurcation analysis of delay induced tumor immune interaction model. Applied Mathematics and Computation, 248 (2014): 652–671. (IF: 3.5, Q1)
- Subhas Khajanchi, Dynamic behavior of a Beddington-DeAngelis type stage structured predator-prey model. Applied Mathematics and Computation, 244 (2014): 344–360. (IF: 3.5, Q1)
- Subhas Khajanchi & Banerjee S, Global stability of a tumor immune interaction model. Mathematical Sciences International Research Journal, 2(2) (2013): ISSN 2278–8697. (Conference Paper)
- Nandi S, Subhas Khajanchi, Chatterjee AN, & Roy PK, Insight of viral infection of Jatropha Curcas plant (Future Fuel): A control based mathematical study. Acta Analysis Functionalis Applicata, 13(4) (2011): 366–374. (Conference Paper)

Editorial Activities

- Editorial Board Member of the Journal of Scientific Reports; Nature Portfolio (SCI-indexed) (IF: 3.8; Q1) from October 10, 2024 - Ongoing.
- Associate Editor at the Journal of Applied Mathematics and Computing (Springer) (SCIE-indexed) (IF: 2.4) from August 26, 2022 - Ongoing.
- Associate Editor at the Journal of Frontiers in Applied Mathematics and Statistics (Section: Dynamical Systems (Scopus, ESCI-indexed) (IF: 1.3) from August 10, 2020 - August 31, 2024.
- Editorial board member at the Journal of Applied Mathematics (Springer) from February 15, 2022 - Ongoing.

Teaching (UG & PG)

- Techniques of Applied Mathematics,
- Ordinary and Partial Differential Equations,

- Numerical Methods,
- Calculus - I & II,
- Linear Algebra,
- PhD Course Work.

Research Projects

Title of the Project: Mathematical Modeling of hematopoiesis process in application to chronic and acute myelogenous leukemia
Funding Agency/Institute: INDO-FRENCH Centre for Applied Mathematics (IFCAM)
Period: 3 years (2018 – 2021)
Completed/Ongoing: Completed

Title of the Project: Mathematical Modeling of Tumor Immune Competitive Systems: Model Analysis and Validation
Funding Agency/Institute: Science and Engineering Research Board (SERB)
Period: 3 years (2018 – 2021)
Completed/Ongoing: Completed
Amount: 22,59,060/-

Title of the Project: Evolutionary dynamics of a predator-prey model with behavioral refuges
Funding Agency/Institute: Science and Engineering Research Board (SERB) International Research Experience (SIRE) at the University of South Bohemia, Department of Mathematics, Ceske Budejovice, Czech Republic.
Period: 2 Months (Oct. 16, 2022 – Dec. 15, 2022)
Completed/Ongoing: Completed
Amount: 7,06,213/-

Awards & Fellowships

- National Board of Higher Mathematics (NBHM) Travel Grant to attend 9th International Congress on Industrial and Applied Mathematics (ICIAM - 2019), Universitat de Valencia, Valencia (Spain), July 15-19, 2019.
- INSA Visiting Scientists for two months in the year 2017-2018.
- Department of Science and Technology (DST) Travel grants to attend the “Summer School on Mathematics of Infectious Diseases” at York University, Toronto, Canada.
- Research Scholar fellowship from ‘IIT Roorkee’, from 2013 to 2015 (March 08, 2015).
- Junior Research Scholar fellowship from ‘IIT Roorkee’, from 2011 to 2013.
- Received National Merit-Cum-Scholarship in Master of Science (M. Sc.), from 2008 to 2010.
- Qualified Graduate Aptitude Test in Engineering (GATE) in the year 2011.
- Qualified National Eligibility Test (NET) for Lectureship (December 2010).

Conference, Workshop, Schools and Talks

Invited Talks/Resource Person: 2025

– "Title of the Talk.: Modeling the dynamics of brain tumor-immune interaction and its validation with experimental data" as an "Invited Speaker" at department of Mathematics, Mahadevananda Mahavidyalaya, North 24 Pargan at a "an international conference on mathematical methods and numerical computation for nonlinear dynamics in biological and physical sciences " during May 5-7, 2025.

– "Title of the Talk.: Plagiarism and academic integrity in Research" as an "Invited Speaker" at Netaji Satabarshiki Mahavidyalaya, Ashoknagar at a "one day international seminar on intellectual property right" on 26th April, 2025.

– Attended "five-days workshop on Mathematics Practical Laboratory Manual as per the ITEP Syllabus" as a "Resource Person". In this connection, a workshop for development of the manuals is schedule from 27 to 31 January, 2025 at NCERT of Regional Institute of Education (RIE), Bhopal.

Invited Talks: 2024

– "Title of the Talk.: Modeling the dynamics of glioma-immune interplays with Immunotherapeutic drug" as an "Invited Speaker" at the Mathematics Department (MIT-World Peace University, Pune, India) at the "90th Annual Conference of the Indian Mathematical Society (IMS) - an International Meet" during December 23-26, 2024.

– "Title of the Talk.: Data-Driven Study for malignant gliomas: Insights from mathematical models" as an "Invited Speaker" at the Mathematics Department (Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)) at the "International Seminar on Application of Mathematics in Science and Technology - 2024" during December 19-20, 2024.

– "Title of the Talk.: Mathematical models in biological system" as a "Hon'ble guest speaker(Online mode) on occasion to celebrate the Pi-day at the Mathematics Department (Adamas University, Kolkata) on 14.03.2024".

Invited Talks

– "Mathematical modeling of glioma-immune interaction with immunotherapeutic drug", Jahangirnanagar University, Savar, Dhaka, Bangladesh, at "International Workshop on Recent Trends in Mathematical Biology – RTMB 2020", January 14 - 15, 2020.
– "Mathematical Modeling of Brain Tumor - Immune surveillance with immunotherapeutic drug T11 Target Structure", University of Dhaka, Bangladesh, at 20th International Mathematics Conference, December 8 - 10, 2017.
– "Dynamics of Brain Tumor and Immune System Competition with T11 Target Structure: Model Analysis and Validation", Department of Mathematics, Bankura University, West Bengal, India, Indo-German Conference on Modeling, Simulation and Optimization in Applications, February 22 - 24, 2017.
– "A Mathematical Model to Elucidate Brain Tumor Abrogation by Immunotherapy with T11 Target Structure", H. Lee Moffitt Cancer Center, Tampa, Florida, USA, July 18 - 22, 2016.

Contributed Talks

– Optimal treatment strategies using dendritic cell vaccination for a tumor model with parameter identifiability, 9th International Congress on Industrial and Applied Mathematics (ICIAM - 2019), Universitat de Valencia, Valencia (Spain), July 15-19, 2019.
– Bifurcations and Oscillatory Dynamics in a Tumor Immune Interaction Model, Indian Institute of Technology Roorkee, Uttarakhand, India, at BIOMAT 2015, 15th International Symposium on Mathematical and Computational Biology, November 02 - 06, 2015.
– Influence of time delay in a chaotic Tumor - immune interaction model, Indian Statistical Institute (ISI) Kolkata, India, Physics and Applied Mathematics Unit (PAMU), Physics and Applied Mathematics Researchers' Meet - 2015, March 18 - 20, 2015.

School(s)

– Summer School on Mathematics of Infectious Diseases, York University & Field Institute, Toronto, Canada, Department of Mathematics and Statistics, May 19 - 27, 2013.

Conference and Symposiums

– Mathematical Modeling of Malignant Brain Tumor with T11 Target Structure as a Potent Immune Stimulator, Calcutta University, West Bengal, India, National Seminar on "Recent Advances in Computational Mathematics", December 27 - 29, 2016.
– Bifurcation analysis of a delayed mathematical model for tumor growth, Department of Mathematics, Indian Institute of Technology Madras (IITM), India, "International Conference on Mathematical Modeling and Computer Simulation (ICMMCS)", December 8 - 10, 2014.
– The combined effects of optimal control in cancer remission, Jointly Organized by Agricultural and Ecological Research Unit & Physics and Applied Mathematics Unit, "3rd International Symposium on Complex Dynamical Systems and Applications (CDSA - 2014)", March 10 - 12, 2014.
– "National Conference on Mathematics and its Application (NCMA)", Department of Mathematics, Jadavpur University, January 13 -14 2010.

Workshops

– "Indo - Canadian Workshop on Mathematics of Infectious Diseases", Department of Mathematics, Indian Institute of Technology (IIT) Roorkee, January 20 - 22, 2014.
– "Workshop on Nonlinear Differential Equations: Dynamics of Complex Systems (NDEDCS-2013)", under the auspices of National Program on Differential Equations: Theory, Computation and applications (NPDE-TCA), Department of Applied Mathematics, University of Calcutta, September 23 - 28 2013.
– "Workshop on Nonlinear Dynamics in Biology", Department of Mathematics, Indian Institute of Science (IISc), Bangalore, July 8 - 13 2013.
– "Advance Level Workshop on Differential Equations in Ecology and Epidemiology" under the auspices of National Program on Differential Equations: Theory, Computation and applications(NPDE-TCA), Department of Mathematics, Indian Institute of Technology (IIT) Roorkee, October 10 - 14 2012.
– "Workshop on Adaptive Finite Element Method (AFEM)", Department of Mathematics, Indian Institute of Space Science and Technology (IIST), Trivundrum, India, March 16 - 25, 2011.

Computer Proficiency

- Programming language: MATLAB, Mathematica, FOTRAN.
- Typesetting: Latex, Word.

Professional References

- Prof. Sandip Banerjee
  Department of Mathematics,
  Indian Institute of Technology (IIT) Roorkee,
  Uttarakhand - 247667, India.
  E-mail: sandipbanerjea@gmail.com/ sandip.banerjee@ma.iitr.ac.in
  Tel: +91 9410511782.
- Prof. Mostafa Adimy
  INRIA Senior Researcher (Directeur de Recherche),
  Head of the "DRACULA" project-team,
  INRIA Antenne Lyon la Doua,
  Bâtiment CEI-2,
  56, Boulevard Niels Bohr,

69603 Villeurbanne, France,
Tel : 04 72 43 74 88
E-mail: mostafa.adimy@inria.fr

- Prof. Hien Tran
  Department of Mathematics,
  North Carolina State University, USA.
  E-mail: tran@ncsu.edu
  Tel: 919-515-8782.

- Dr. Dibakar Ghosh
  Physics and Applied Mathematics Unit (PAMU),
  Indian Statistical Institute, Kolkata,
  203, B. T. Road, Kolkata – 700108,
  E-mail: dibakar@isical.ac.in/ diba.ghosh@gmail.com
  Tel: +91 9830334136.

- Dr. Bunimovich Svetlana
  Department of Mathematics,
  Ariel University, Israel
  E-mail: svetlanabu@ariel.ac.il
  Tel: (+972) 39066111.