Curriculum Vitae

Dr. AMAR NATH CHATTERJEE
Assistant Professor and H.O.D,
Department of Mathematics
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Bihar, India
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ACADEMIC QUALIFICATION (HIGHER DEGREE)

Examination	Board/University	Institute
B.Sc (Math Hons.)	Jadavpur University	Jadavpur University
M.Sc (Applied Math)	Jadavpur University	Jadavpur University
B.Ed	St.Xavier's(Auto)	Calcutta University
PhD	Jadavpur University	Jadavpur University

RESEARCH EXPERIENCE:

Name of the Institute/University	Jadavpur University
Title of the Thesis	***Mathematical Modeling on the Dynamics of HIV/ AIDS incorporating Control Theoretic Concepts and Studies on Relevant Aspects of the Model Dynamics***
Name of the Supervisor	**Prof (Dr.) Priti Kumar Roy,** Department of Mathematics, Jadavpur University, Kolkata-700032.
Area	Mathematical Biology

PAPER PUBLISHED/ACCEPTED:

1. Mondal, J., Samui, P. & **Chatterjee, A.N.** Modelling of contact tracing in determining critical community size for infectious diseases. *Chaos, Solitons & Fractals* (Accepted).

2. Roy A. K., Basir F. A., Roy P. K. and **Chatterjee A. N.** (2022) ''A model analysis to measure the adherence of Etanercept and Fezakinumab therapy for the treatment of psoriasis'', *Nonlinear Analysis: Modelling and Control*, 27, pp. 1-21.

3. Wanga, B., Mondal, J., Samui, P., **Chatterjee, A.N.** and Yusuf, A., 2022. Effect of an antiviral drug control and its variable order fractional network in host COVID-19 kinetics. *The European Physical Journal Special Topics*, pp.1-15.

4. Mondal, J., Samui, P. & **Chatterjee, A.N.** Dynamical demeanour of SARS-CoV-2 virus undergoing immuneresponse mechanism in COVID-19 pandemic. *Eur. Phys. J. Spec. Top.* (2022). https://doi.org/10.1140/epjs/s11734-022-00437-5

5. Mondal, Jayanta, Piu Samui, and **Amar Nath Chatter**jee. 2021. "Effect of SOF/VEL Antiviral Therapy for HCV Treatment". *Letters in Biomathematics* 8 (1), 191–213.

6. E. Khailov & E. Grigorieva S. Ghosh, **A. N. Chatterjee**, P. K. Roy, N. Grigorenko, "Mathematical Modelling and Control of the Cell Dynamics in Leprosy ", Computational Mathematics and Modeling, 2021.

7. Amar Nath Chatterjee, F. Al Basir, MA. Almuqrin, J. Mondal J, Khan I. SARS-CoV-2 infection with lytic and non-lytic immune responses: A fractional order optimal control theoretical study. Results in physics. 2021 Jul 1;26:104260.

8. **Amar Nath Chatterjee,** and Bashir Ahmad. "A fractional-order differential equation model of COVID-19 infection of epithelial cells." *Chaos, Solitons & Fractals* 147 (2021): 110952.

9. Ghosh, S., **Amar Nath Chatterjee**, P. K. Roy, N. Grigorenko, E. Khailov, and E. Grigorieva. "Mathematical Modeling and Control of the Cell Dynamics in Leprosy." *Computational Mathematics and Modeling* (2021): 1-23.

10. Mondal, Jayanta, Piu Samui, and **Amar Nath Chatterjee**. 2021. "Effect of SOF/VEL Antiviral Therapy for HCV Treatment". *Letters in Biomathematics* 8 (1), 191–213.

11. **Amar Nath Chatterjee**, Fahad Al Basir and Takeuchi, Y., 2021. Effect of DAA therapy in hepatitis C treatment—an impulsive control approach [J]. *Mathematical BiosciencesandEngineering*, 18(2),pp.1450-1464. https://doi.org/10.3934/mbe.2021075

12. Mondal, Jayanta, Piu Samui, and **Amar Nath Chatterjee.** "Optimal control strategies of non-pharmaceutical and pharmaceutical interventions for COVID-19 control." *Journal of Interdisciplinary Mathematics* (2020): 1-29. https://doi.org/10.1080/09720502.2020.1833459

13. **Amar Nath Chatterjee**, Fahad Al Basir, F., 2020. A model for sars-cov-2 infection with treatment. *Computational and Mathematical Methods in Medicine, 2020.* https://doi.org/10.1155/2020/1352982

14. **Amar Nath Chatterjee**, Roy Priti Kumar: SMOKING HABIT: A BIO MATHEMATICAL STUDY, Vol. (2020), Commun. Math. Biol. Neurosci, https://doi.org/10.28919/cmbn/4319.

15. **Amar Nath Chatterjee**, Bikash Kumar, Cytotoxic T-lymphocyte Vaccination for Hepatitis C: A Mathematical Approach, Studies in Indian Place Names (UGC Care Journal),Vol-40(56),pp.769-779. https://archives.tpnsindia.org/index.php/sipn/article/download/4123/3993.

16. **Amar Nath Chatterjee**, Manaranjan Kumar Singh, Bikash Kumar, "The Effect of Immune Responses in HCV Disease Progression'', Eng. Math. Lett. , Vol 2019(2019). https://doi.org/10.28919/eml/3992 .

17. **Amar Nath Chatterjee**, ''The Effect of Pulse Vaccination on the Transmission Dynamics of Rotavirus Diarrhea. *Journal of Chemical, Environmental and Biological Engineering*.Vol.2,No.1,2018,pp.26-31." https://doi.org/10.11648/j.jcebe.20180201.15

18. Priti Kumar Roy, **Amar Nath Chatterjee,** Xue-Zhi Li, "The effect of vaccination to dendritic cell and immune cell interaction in HIV disease progression", International Journal of Biomathematics Vol.9,No.1(2016). https://doi.org/10.1142/S1793524516500054

19. **Amar Nath Chatterjee**, Shubhankar Saha, Priti Kumar Roy, "Human immunodeficiency virus/acquired immune deficiency syndrome: Using drug from mathematical perceptive", *World J Virol,* 2015; 4(4): 356-364. http://doi.org/10.5501/wjv.v4.i4.356

20. Nikhilesh Sil, Priti Kumar Roy, Sumit Nandi, **Amar Nath Chatterjee**, S. Mukhopadhyay, S. Bhattacharya, IL Hyo Jung, "Optimal Control Therapeutic Approach to Recovery of Infected Cells in HIV Model with Expected Time to Extinction of the Disease", BER, 2014, V3(2), pp. 47-63.
    a. http://www.academicpub.org/ber/paperInfo.aspx?PaperID=15185,
21. D. Biswas, D. Kesh, A. Datta, **Amar Nath Chatterjee**, Priti Kumar Roy, "A Mathematical Approach to Control Cutaneous Leishmaniasis Through Insecticide Spraying", SOP Transactions on Applied Mathematics, 2014, V1 (2), pp. 44-54.
    a. http://doi.org/10.1.1.949.6743
22. **Amar Nath Chatterjee**, Priti Kumar Roy (2013), "NEGATIVE FEEDBACK EFFECT IN HIV PROGRESSION: AN OPTIMAL CONTROL THEORETIC APPROACH", Journal of Algorithms and Optimization, V1 (1)(2013), pp. 1-12.
23. **Amar Nath Chatterjee**, Priti Kumar Roy, Sutapa Biswas Majee (2013), "Immune cell response to negative feedback effect in HIV**",** BER, V 2(1), March 2013, pp 37-47.
24. Priti Kumar Roy, Sonia Chowdhury, **Amar Nath Chatterjee**, Joydev Chattopadhyay, Rachel Norman (2013), "A Mathematical Model on CTL Mediated Control of HIV Infection in a Long Term Drug Therapy", Journal of Biological System, Vol. 21, No. 3 (2013) 1350019 (25 pages) https://www.worldscientific.com/doi/abs/10.1142/S0218339013500198
25. Priti Kumar Roy, **Amar Nath Chatterjee**, Devid Greenhalgh, Qamar J.A. Khan (2013), "Long Term Dynamics in a Mathematical Model of HIV-1 infection with delay in Different Variants of the basic drug the basic drug therapy", *Nonlinear* Analysis: RealWorldApplications14(2013),pp.1621–1633.http://doi.org/10.1016/j.nonrwa.2012.10.021
26. **Amar Nath Chatterjee**, Roy Priti Kumar, Mandal Jayanta (2013): "Mathematical Model for Suppression of Sand Flies through IRS with DDT in Visceral Leishmaniasis", *American Journal of Mathematics and Sciences*, Accepted, V2(1), Jan **2013** , pp. 105-112.
27. Roy Priti Kumar, Bhattacharya R, **Amar Nath Chatterjee**, Ghosh M K, Nandi S (2013): "Optimisation of enzymatic product by mathematical control approach", *American Journal of Mathematics and Sciences*, V 2(1), Jan **2013**, pp. 141-149.
28. Roy Priti Kumar, **Chatterjee Amar Nath**(2012) "Recovery of infected Jatropha Curcas plant cells: A control based theoretical approach", International Journal on Mathematical Sciences and Applications, Volume 2, No. 1, pp. 145- 153.
29. Roy Priti Kumar, **Amar Nath Chatterjee,** Biswas Majee S (2012): "Effect of Chemokine Analog through Perfect Adherence in HIV Treatment: A Model Based Study", International Journal of Applied Mathematics and Applications, 4(2), December 2012, pp. 121-145.
30. Priti Kumar Roy, Sonia Chowdhury, **Amar Nath Chatterjee**, Sutapa Biswas Majee (2012): "Mathematical Modelling of IL-2 based Immune Therapy of T cell Homiostasis in HIV", Book Chapter in Insight In Control of Infectious Disease in Global Scenario, Chapter 5, pp 79-96.
31. **Amar Nath Chatterjee**, Priti Kumar Roy,(2012) :"Anti-viral drug treatment along with immune activator IL-2: A control based mathematical approach for HIV infection.", *InternationalJournal of Control* , V85(2), pp.220-237. http://dx.doi.org/10.1080/00207179.2011.643414
32. Priti Kumar Roy, Abhirup Datta, **Amar Nath Chatterjee** (2011), "Saturation Effects on Immunopathogenic Mechanism of Psoriasis: A Theoretical Approach", *ACTA ANALYSIS FUNCTIONALIS APPLICATA*, Vol.13, No.3, pp. 310- 318.
33. Sumit Nandi, Subhas Khajanchi, **Amar Nath Chatterjee**, Priti Kumar Roy (2011), "Insight of Viral Infection of Jatropha Curcas Plant (Future fuel)-A Control based Mathematical Study", *ACTA ANALYSIS FUNCTIONALIS APPLICATA,* V13, No. 4, pp. 366- 374.
34. Priti Kumar Roy, **Amar Nath Chatterjee (**2011), "REDUCTION OF HIV INFECTION THAT INCLUDES A DELAY WITH CURE RATEDURING LONG TERM TREATMENT: A MATHEMATICAL STUDY", *Book Chapter in "Electrical Engineering and Applied Computing", Springer*, 2011, V 90., pp. 699-673.
35. Priti Kumar Roy, **Amar Nath Chatterjee (**2011), "Effect of HAART on CTL Mediated Immune Cells: An Optimal Control Theoretic Approach", *Book Chapter in "Electrical Engineering and Applied Computing", Springer*, V 90, pp. 595-607.

36. Priti Kumar Roy, **Amar Nath Chatterjee** (2010): Delay effect in a Mathematical model of HIV infected T-cell against killing by CTL. *"BULLETIN of the CALCUTTA MATHEMATICAL SOCIETY"*, V 102(6), pp. 513-524.
37. Priti Kumar Roy, **Amar Nath Chatterjee**, Biplob Chattopadhyay (2010): HIV infection in T-lymphocytes and Drug Induced CTL Response of a Time Delayed Model. . *Lecture Notes in Engneering and Computer Science*. WCE, London, UK. 1, 533-538.
38. Priti Kumar Roy, **Amar Nath Chatterjee** (2010): T-cell proliferation in a Mathematical Model of CTL Activity Through HIV-1 Infection. *Lecture Notes in Engneering and Computer Science*. WCE, London, UK. 1, 615-620.

ACCEPTED BOOK CHAPTER/ ARTICLE

1. **Amar Nath Chatterjee**, Fahad Al Basir, Role of Immune effector responses during HCV infection, Mathematical Analysis of Infectious Diseases (Edited by Praveen Agarwal, Juan J. Nieto, Delfim F. M. Torres), Elsevier Pub.
2. **Amar Nath Chatterjee**, Fahad Al Basir, Modelling of the effects of media in the course of vaccination of rota virus, "Recent studies in mathematical modeling and control of the dynamics of human viruses", Elsevier Pub.

PARTICIPATION IN SCHOOLS/WORKSHOP/CONFERENCES
1. International Conference on "**Virtual International Conference on PHYSICAL SCIENCE (ICPS-2021)**" held at Sardar Vallabhbhai NIT Surat on 05-06 February, 2021 and presented a talk on " A **fractional order modelling and analysis of COVID-19.**"
2. International Conference on "**Applied Nonlinear Analysis & Soft Computing (ANASC-2021)**" held at Gauhati University, Gauhati on 22-23 December, 2020 and presented a talk on " A **fractional order differential equation model of COVID-19 infection on .**"
3. Tow day National Webinar on "**Mathematics and its Application**" held at Moyna College, Moyna, West Bengal on 30th September, 2020 and 1st October, 2020 and delivered a talk on "**Modern Mathematical Tools**" as a resource Person.
4. International Conference on "**Recent Trends and Innovations in Multidisciplinary Research (ICRTIMR-2020)**" held at IEC University, Baddi, H.P in Association with GMREA on 14th March, 2020and presented a talk on "**Cytotoxic T Lymphocyte Vaccination for Hepatitis C: A Mathematical Approach.**"
5. National Seminar on "**Application of Technical Terms in Research and Teaching in Computer Science and Mathematics**" held at Department of Mathematics, Magadh University, Bodh Gaya Sponsored by CSTT on 18-19Th September, 2018) participated as delegate.
6. National Seminar on "**Contemporary Research in Theoretical and Applicable Mathematics 2018 (CRTAM 2018)**" held at Dept. of Mathematics, The Bhawanipur Educational Society College, Kolkata on 14-15th September, 2018) and presented a talk on "**The Effect of Immune Responses in HCV Disease Progression.**"
7. International Conference on "**Dynamical Systems and Mathematical Biology (ICDSMB 2014)**" held at Jadavpur University on 17-19th Nov, 2014 and presented a talk on "**Anti-viral drug treatment along with immune activator IL-2: A control based mathematical approach for HIV infection**".
8. National Conference on "**Mathematical and Theoretical Biology (NCMTB 2014)**" held at Jadavpur University on 20-21 Feb, 2014 and presented a talk on "**Effect of Pulse CTL Vaccination in HIV Treatment: A Mathematical Study**".
9. **India Biodiversity Meet 2013 (IBM 2013)** held at Indian Statistical Institute, Kolkata on 14th -16th March, 2013 and presented a talk on "**The Impact of pulse vaccination on the transmission dynamics of Rotavirus diarrhea**".
10. 2nd International Conference on "**Mathematical Sciences and Applications**", 15th to 16th December 2012 New Delhi, India, Presented a talk on "**Mathematical Model for Suppression of Sand Flies through IRS with DDT in Visceral Leishmaniasis**".

11. "**International conference on Dynamical System (ICDS 2012)**" held at Jadavpur University, Kolkata on 11th -14th January, 2012 and presented a talk on " **The Effect of Perfect Drug Adherence to Dendritic Cell and Immune Cell Interaction in HIV Disease Progression".**

12. **Seminar on Mathematical Biology**.(Organized by Department of Computing Science and Mathematics, **University of Stirling, Stirling, UK**, September, 2011) Presented a talk on **"Effect of perfect adherence of chemokine analog in HIV infection: A model based study"** .

13. **Seminar on Mathematical Biology** organized by Department of Mathematics & Statistics, **University of Stratclyde, Glasgow, UK** and presented a talk **on " Effect of perfect adherence of chemokine analog in HIV infection: A model based study" on September, 2011.**

14. **National Conference on Mathematical Science and Applications: State of the Art (NCMSA 2011) h**eld at Jadavpur University, Kolkata on 13th -14th January, 2011.

15. **IMSc. Conference on Modeling Infectious Diseases** held at The IMSc , Chennai on 20th -22th September,2010 and presented a paper entitled **"Delay effect in a mathematical model of HIV infected T- Cells against killing by CTL".**

16. **National conference on mathematical Science and Applications: State of the Art (NCMSA 2010)** held at Jadavpur University, Kolkata on 14th -16th March, 2010 and presented a paper entitled **"Delay effect in a mathematical model of HIV infected T- Cells against killing by CTL".**

17. **One Day Colloquium on Mathematical Biology and Ecology** held at Department of Mathematics, J.U, Kol-32 on 20th February, 2009).

PARTICIPATION IN OP/RC/SCHOOLS/WORKSHOP

1. Govt. of India, MHRD Sponsored Two Weeks Refresher Course/faculty development Programme on "**ADVANCED RESEARCH METHODOLOGY Tools and Techniques**" from 30/01/2021-14/02/ 2021, held at Teaching Learning Centre, Ramanujan College, University of Delhi.

2. Five day Short term Training Programme on "**Modern Mathematical Tools in Calculus and Analysis**" organised by Dept of Science/ Mathematics, KUMARAGURU College of Technology/ Coimbatore, 10 to 14 August, 2020.

3. One week short term training programme on "**Matlab-Statistic And Data Science**" organised by Department of Applied Science on 27th July to 1st August, 2020, Organised by Department of Applied Science, Sagar Institute of Technology, Bhopal.

4. Govt. of India, MHRD Sponsored Two Weeks faculty development Programme on "**ADVANCED CONCEPTS FOR DEVELOPING MOOCS**" from July 02-July 17, 2020, held at Teaching Learning Centre, Ramanujan College, University of Delhi.

5. Govt. of India, MHRD Sponsored Two Weeks faculty development Programme on "**Open Source Tools for Research**" from June 08-June 14, 2020, held at Teaching Learning Centre, Ramanujan College, University of Delhi.

6. Govt. of India, MHRD Sponsored Two Weeks faculty development Programme on "**Managing Online Classes and Cocreating MOOCS:2.0**" from May 18-June 03, 2020, held at Teaching Learning Centre, Ramanujan College, University of Delhi.

7. UGC-Sponsored "**95th Orientation Programme**", held at UGC-HRDC, Ranchi University, Ranchi. from 10.06.2019 to 30.06.2019 and obtained Grade A).

8. Workshop on "**Growth Curve Models in Population Dynamics using R for Biologists**" organised by the Agricultural and Ecological Research Unit, ISI, Kolkata February 12 - 13, 2019**.**

Other Academic Activity:

1. UGC Nodal Officer-K.LS College, Nawada, Bihar.
2. N-List College Administrator, K.L.S. College, Nawada, Bihar.
3. Editorial Board Member: "Mathematical Modelling and Application-Science Publishing Group."
4. Resource Person: "A One Day National Seminar on Interdisciplinary Mathematics : An Evaluation" on 17th April,2019, Organised by Dept. of Mathematics, Achhruram Memorial College, Jhalda.

5. **Visiting Schola**r in the Department of Mathematics & Statistics, **University of Stratclyde, Glasgow, UK** for the period of 16th September 2011-29th September, 2011 to collaborate with **Dr. Devid Greenhalgh** and colleagues.

Professional Memberships

1. Bio mathematical Society of India, 2010-Present.
2. Indian Society of Industrial and Applied Mathematics, 2018-Present.

Reviewer

1. Letters in Biomathematics. (Taylor & Francis)
2. Journal of Biological Dynamics (T&F)
2. SIAM Journal of Control and Optimization (SIAM)
3. Results in Applied Mathematics (Elsevier)
4. International Journal of Applied and Computational Mathematics. (Springer)
5. International Journal of Nonlinear Sciences and Numerical Simulation.(Springer)
6. Journal of Control and Systems Engineering" (JCSE).
7. International Journal of Tropical Disease & Health
8. Journal of Advance Medicine and Medical Research
9. Mathematics (MDPI)
10. Applied mathematics and Modelling (Elsevier)
11. ISA Transactions (Elsevier)
12. Discrete Dynamics in Nature and Society (Hindawi)
13. Computational and Mathematical Methods in Medicine (Hindawi)
14. Complexity (Hindawi)
15. Frontier In Public Health

Editorial Board Member

1. International Journal of Differential Equation (Hindawi)
2. Frontline Research Topic.