

Saroj Kumar Sahani

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Education

India Institute of Technology <i>Doctor of Philosophy</i> Thesis Title: Some Ecological Models: Effects of Toxicant and Delay Supervisor: Prof. Sunita Gakkhar	Roorkee, Uttranchal <i>June 2008</i>
Guru Nanak Dev University <i>Master of Science</i> 62.75%	Amritsar, Punjab <i>April 2002</i>
Guru Nanak Dev University <i>Bachelor of Science</i> 64.67%	Amritsar, Punjab <i>April 2000</i>
Kendriya Vidyalaya <i>Senior School Certificate Examination</i> 64.20%	Barrackpore, WB <i>May 1997</i>
Kendriya Vidyalaya <i>Secondary School Examination</i> 60.60%	Shahjahanpur, UP <i>June 1995</i>

Research Interests

- Mathematical Biology
- Dynamical Systems
- Computational Biology

Experience

South Asian University <i>Associate Professor</i>	New Delhi, India <i>June 2021 - Present</i>
South Asian University <i>Assistant Professor</i>	New Delhi, India <i>Aug 2012 - June 2021</i>

Publications

- Ronobir Chandra Sarker **Saroj Kumar Sahani**: Turing Pattern Dynamics in an SI Epidemic Model with Superdiffusion; *International Journal of Bifurcation and Chaos*, 2022, 11, 2230025
- Ronobir Chandra Sarker **Saroj Kumar Sahani**: Pattern Formation in Epidemic Model with Media Coverage; *Differential Equations and Dynamical Systems*, 2022, <https://doi.org/10.1007/s12591-022-00595-x>
- Binayak Nath, Prodip Roy, **Saroj Kumar Sahani**, S. Maiti & Krishna Pada Das: Plankton Dynamics in Nutrient-Phytoplankton-Zooplankton Model with Viral Infection In Phytoplankton; *Nonlinear Studies*, 2020, 27, 1-24
- **Saroj Kumar Sahani** & Sunita Gakkhar: A Mathematical Model for Phage Therapy with Impulsive Phage Dose; *Differential Equation and Dynamical Systems*, 2020, 28, 75-86.
- **Saroj Kumar Sahani** & Yashi: A Delayed HIV Infection Model with Apoptosis and Viral Loss; *Journal of Biological Dynamics*, 2018, 12, 1012-1034.
- **Saroj Kumar Sahani** & Yashi: Delayed Model for HIV Infection with Drug Effects; *Differential Equation and Dynamical Systems*, 2018, 26, 57-80.
- **Saroj Kumar Sahani** & Yashi: Effects of Eclipse Phase and Delay on The Dynamics of HIV Infection; *Journal of Biological Systems*, 2018, 26, 421-454.
- **Saroj Kumar Sahani** & Yashi: Effects of Delay in Immunological Response of HIV Infection; *International Journal of Biomathematics*, 2018, 11(6), 1850076.
- **Saroj Kumar Sahani**: A Delayed Model for HIV Infection Incorporating Intracellular Delay; *International Journal of Applied and Computational Mathematics*, 2017, 3(3), 2303-2322.
- **Saroj Kumar Sahani**: Effects of Intracellular Delay and Immune Response Delay in HIV Model; *Neural, Parallel and Scientific Computations*, 2015, 23, 357-366.
- Balram Dubey, Atasi Patra & **Saroj Kumar Sahani**: Modelling the Dynamics of a Renewable Resource under Harvesting with Taxation as a Control Variable; *Applications & Applied Mathematics*, 2014, 9(2), 592-621.
- Sunita Gakkhar, **Saroj Kumar Sahani** & Kuldeep Negi: Effects of Seasonal Growth on Delayed Prey-Predator Model; *Chaos, Solitons & Fractals*, 2009, 39(1), 230-239.

- Sunita Gakkhar, Kuldeep Negi & **Saroj Kumar Sahani**: Effects of seasonal growth on ratio dependent delayed prey predator system; *Communications in Nonlinear Science and Numerical Simulation*, 2009, 14, 850-862.
- Sunita Gakkhar & **Saroj Kumar Sahani**: A Model for Delayed Effect of Toxicant on the Resource-Biomass System; *Chaos, Solitons & Fractals*, 2009, 40(2), 912-922.
- Sunita Gakkhar & **Saroj Kumar Sahani**: A Time Delay Model for Bacteria-Bacteriophage Interaction; *Journal of Biological Systems*, 2008, 16(3), 445-461.
- Sunita Gakkhar & **Saroj Kumar Sahani**: A Delay Model for the Effects of Environmental Toxicant on Biological Species; *Journal of Biological Systems*, 2007, 15(4), 525 - 537.

Participation in Seminars/Conferences/Workshops

- **Invited Lecture**: Combination Drug Therapy Model of HIV Infection; *26th International Conference of IAPS (online) on Advances in Differential Equations & Mathematical Modelling (IC-ADE-MM-2020)*, School of Computational and Integrative Sciences, JNU, New Delhi, December 18-20, 2020.
- **Invited Lecture**: MATLAB for epidemiology and ecology; *Workshop on Biomathematics*, Department of Mathematics, IIT Patna, December 8-11, 2020.
- **Invited Lecture**: Some Mathematical Models of Epidemics and their Control; *National level webinar on Mathematical modeling on recent epidemiological issues: COVID-19 disease and its control strategies*, Department of Mathematics and IQAC Mahadevananda Mahavidyalaya, Barrackpore, Kolkata, July 10, 2020.
- **Invited Lecture**: Mathematical Models of Epidemiology: What we can learn from the past for Current COVID-19 Pandemic; *Live webinar on Mathematical modeling in COVID-19 Pandemic*, PG Department of Mathematics, DAV College, Amritsar, July 9, 2020.
- **Invited Lecture**: Effects of Environmental Fluctuations on the Survival of Species; *Second International Conference on Applications of Mathematics to Non-linear Sciences (AMNS-2019)*, Nepal Mathematical Society (NMS), Tribhuvan University (TU), and Kathmandu University (KU), Pokhara, Nepal, June 27-30, 2019.
- **Invited Lecture**: Delayed Mathematical Models of HIV; *International Conference on Differential Equations and Control Problems- Modeling, Analysis and Computations (ICDECP-19)*, Department of Mathematics, IIT Mandi, Mandi, India, June 17-19, 2019.
- **Resource Person**: Ordinary Differential Equation with MATLAB; *A National Workshop on Scientific computations using MATLAB*, Center of Excellence in Science and Mathematics Education Banasthali Vidyapith, Banasthali – 304 022 Rajasthan, India, January 19-21, 2019.

- **Resource Person:** Computational Biology; *5th Refresher Course in Contemporary Studies (Interdisciplinary)*, Academic Staff College, UGC-HRDC, JNU, New Delhi, India, January 8, 2019.
- **Invited Lecture:** Delayed Model for HIV Infection; *2nd International Conference on Advances in Computational Mathematics (ICACM-2018)*, Central Department of Mathematics, Tribhuvan University (TU), Nepal, December 23-24, 2018.
- **Paper Presentation:** A Model for the Effects of Pollutants on Survival of Species; *The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, National Center for Theoretical Sciences, Taipei, Taiwan, July 5-9, 2018.
- **Resource Person:** Problem Solving Using Mathematica; *International Workshop on Mathematical Soft Skills*, Department of Mathematics, Khalsa College, Amritsar, India, April 20-21, 2018.
- **Paper Presentation:** How Delay Can Affect the Survival of Species in Polluted Environment; *7th International Conference on Soft Computing for Problem Solving 2017*, Department of Mathematics, IIT Bhubaneswar, India, December 23-24, 2017.
- **Invited Lecture:** Effects of Delay on Tumour-Immune Interactions; *International Conference on Advances in Computational Mathematics (ICACM 2017)*, Department of Mathematics, University of Dhaka, Dhaka, Bangladesh, May 27-28, 2017.
- **Paper Presentation:** A Delayed Chemostat Model of Bacteria-Bacteriophage Interaction; *International Conference on Computational Modeling & Simulation (ICCMS-2017)*, Faculty of Science, University of Colombo, Sri Lanka, May 17-19, 2017.
- **Resource Person:** Mathematical Modelling and its computational aspects with Mathematica; *National Workshop on Mathematical Modelling and Computational Techniques Using Mathematica*, Department of Mathematics, Zakir Husain Delhi College, University of Delhi, March 30-31, 2017.
- **Paper Presentation:** Effects of Delay and Drug on HIV Infection; *6th International Conference on Soft Computing for Problem Solving 2016*, School of Mathematics, Thapar University, Patiala, December 23-24, 2016.
- **Paper Presentation:** Analysis of a Delayed HIV Infection Model; *International Workshop on Computational Intelligence*, Department of Computer Science and Engineering, Jahangirnagar University, Savar, Dhaka, December 12-13, 2016.
- **Paper Presentation:** Dynamics of a delayed model of HIV-1 infection with drug therapy; *Wayamba International Conference (Winc-2016)*, Wayamba University of Sri Lanka, Kuliyaipitiya, Sri Lanka, August 19-20, 2016.

- **Session Chair:** Mathematical Modeling; *2nd International Conference on Mathematical Techniques in Engineering Applications (ICMTEA2016)*, Department of Mathematics, Graphic Era University, Dehradun, India, April 29-30, 2016.
- **Resource Person:** Introduction to Dynamical System; *Advanced Workshop on Dynamical Models in Ecological, Epidemiological Sciences and Engineering – Theory, Computations, and Real World Applications*, International Centre for Interdisciplinary Research and Innovation (INCIRI), Stanley college of Engineering and Technology for Women, Hyderabad, India, March 14-19, 2016.
- **Paper Presentation:** Delayed Model for HIV Infection with Drug Effects; *6th International Conference on Optimization and Control with Applications*, Changsha University of Science & Technology, Changsha, China, December 11-14, 2015.
- **Paper Presentation:** Effects of Intracellular delay and Immune Response Delay in HIV Model; *7th International Conference On Dynamic Systems and Applications and 5th International Conference on Neural, Parallel and Scientific Computations*, Department of Mathematics, Morehouse College, Atlanta, USA, May 27-30, 2015.
- **Paper Presentation:** Effects of Lysogenic and Lytic path of Bacteriophage on Coexistence of Bacteria and Bacteriophage; *4th International Conference on Soft Computing for Problem Solving 2014*, Department of Mathematics, NIT Silchar, India, December 27-29, 2014.
- **Paper Presentation:** A delayed model for HIV infection incorporating intracellular delay; *International Conference on Mathematical Modeling and Computer Simulation*, Department of Mathematics, Indian Institute of Technology Madras, Chennai, India, December 8-10, 2014.
- **Invited Lecture:** Introduction to Scientific Computing with Mathematica; *TEQIP-II Sponsored One Week Faculty Development Program*, Department of Electrical Engineering, Govt. Engineering College, Jhalawar, Rajasthan, India, November 10-14, 2014.

Research Students Guidance

- **Yashi:** PhD Awarded
Nationality: Indian
 Thesis Title: Some Drug Therapeutic Models of HIV Infection with Immune Response and Delay
- **Ronobir Sarker:** Thesis Submitted
Nationality: Bangladeshi
 Thesis Title: A Study of Spatial Pattern Formation in Some Biological Models

Book Chapters

- Saroj Kumar Sahani: How Delay Can Affect the Survival of Species in Polluted Environment, *Soft Computing for Problem Solving*, 817, 2017, <https://doi.org/10.1007/978-981-13-1595-4>.
- Saroj Kumar Sahani: Effects of Delay and Drug on HIV Infection, *Soft Computing for Problem Solving*, 817, 2017, <https://doi.org/10.1007/978-981-10-3325-4-38>.
- Saroj Kumar Sahani & Sunita Gakkhar: Effects of Lysogenic and Lytic path of Bacteriophage on Coexistence of Bacteria and Bacteriophage, *Proceedings of Fourth International Conference on Soft Computing for Problem Solving*, 336, 2014, 647-666.