

Dr. AVINITA GAUTAM



Post Doc Fellow, Newton-Bhabha Fellow 2020,
DST-INSPIRE Fellow

PERSONAL INFO

25th July 1992

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Female

Married

Panchwati Apartment, Balaji Colony,
Samne Ghat, Varanasi, Uttar Pradesh-
221005, India

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avinita-gautam-83b427120/](https://www.linkedin.com/in/dr-avinita-gautam-83b427120/)

EDUCATION

May 2017-April 2022

PhD Mathematics
DST- Centre of Interdisciplinary
Mathematical Science, Institute of
Science, Banaras Hindu
University, Varanasi, India

Thesis Title: Impact of Nonlinear Dynamics
and Chaos in Some Computational Models of
Neurological Disorders
Thesis Submission: 19th April 2022
Final Viva: 24th Feb 2023
Degree Awarded: 16th Dec 2023

Supervisor: Dr. Anupam Priyadarshi
Department of Mathematics, BHU,
Varanasi, India

June 2014-June 2016

M.Sc. Mathematics
Central University of South Bihar,
India

Marks: 8.37 CGPA (Out of 10)
Gold Medalist of M.Sc. Mathematics

June 2011-April 2014

B.Sc. Math (Hons.)
Patna Women's College
Patna University, Patna,
Bihar, India

Marks: 88.25 % (Mathematics)
80.67% (Aggregate)
1st Topper of College
2nd Topper of University

April 2009-May 2011

12TH BOARD, CBSE
Kendriya Vidyalaya, Sonpur
Bihar, India

Marks: 83.6%
Specialization: Science (MPC)

April 2008-May 2009

10TH BOARD, CBSE
Kendriya Vidyalaya, Hajipur
Bihar, India

Marks: 85.8%

RESEARCH EXPERIENCE

University of Catania -Post-doctoral Fellowship

May 2022 –May 2023

Post-Doctoral Fellow

Lab: Department of Drug and Health Sciences, University of Catania, Catania, Italy

Project: Mathematical modelling of biological scenarios

University of Cambridge -Newton-Bhabha Fellowship 2020

September 2021 –January 2022

Student Visitor

Lab: Department of Veterinary Medicine, University of Cambridge, U.K.

Project Topic: To develop a data-driven model combining the kinetics of viruses and antibodies in bats

The Institute of Mathematical Sciences, Chennai- AIS Mathematical Biology (2018), Workshop

2nd Dec 2018-15th Dec 2018

Research Fellow

TEACHING EXPERIENCE

Assistant Professor, Patna Women's College, Patna University, Bihar, India

January 2021–April 2021

Subject: Mathematics

Work: Online Teaching

Lab Assistant, DST-CIMS, Institute of Science, Banaras Hindu University, Varanasi

August 2019–December 2019

Subject: Mathematics and Computing

Campus Associate, Azim Premji Foundation, Tonk, Rajasthan, India

July 2016–May 2017

Subject: Mathematics

Work: Capacity building of teachers of government schools, fieldwork and working with students in mathematics subjects.

INVITED TALK

- ✎ Invited talk on Faculty Development Program titled “**Advancing Research Methodology through Scientific Tools and Artificial Intelligence**” for STEM Professionals w.e.f. Feb 5, 2024, to Feb 9, 2024, organized by MTTF in collaboration with Sardar Vallabhbhai National Institute of Technology, Surat, INDIA; Poornima College of Engineering, Jaipur, INDIA; Nexus University, South Africa; Poornima Innovation & Incubation Cell, Jaipur, India; and MTTF, Fazilka, INDIA.
- ✎ Invited talk on “**International Workshop on Computational Special Functions and Their Applications**” w.e.f. May 24, 2023, to May 30, 2023, organized by MTTF in collaboration with Malviya National Institute of Technology, Jaipur, INDIA; Sardar Patel University, Anand, INDIA; Central University of Punjab, Bathinda, INDIA.
- ✎ Invited talk on “**One-week Training/ Workshop on Mathematical Modeling with MATLAB: Models, Methods and Analysis**” w.e.f. May 15, 2023, to May 21, 2023, organized by MTTF, INDIA.
- ✎ Guest Lecture on “**Mathematical Modelling and its Application**” organized by Patna Women's College, Patna University, Bihar, India on 25th April 2023.

COMPUTER SKILLS

Expertise: MATLAB, XPPAUT, RStudio, PowerPoint, Word, Excel, Scilab, Mathematica and Latex
Knowledge: C programming, COPASI, Photoshop, and Python

ACHIEVEMENTS

- Awarded by **Post-Doctoral Fellowship 2022**
 - Awarded by **Newton-Bhabha Fellowship 2020**
 - DST Inspire **SRF**, 2020
 - Worked as a **Resource Person** in two two-day workshops on “Mathematics for Biologists Using Computational Tools” organized by the Bioinformatics Department, MMV, BHU, Varanasi
 - DST Inspire **JRF**, 2017
 - **Gold Medalist** of Central University of South Bihar in M. Sc Mathematics (2014-16)
 - **2nd Topper** of Patna University in B. Sc Math Hons. (2011-14)
 - **UG Rank Holder Scholarship** Program Scholar for Post-Graduation (2014)
 - **State Award** in Bharat Scouts & Guides
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PUBLICATIONS

1. **Avinita Gautam** and Anupam Priyadarshi, **Mathematical modelling of Toxoplasma Gondii and host immune response**, AIP Conference Proceedings 1975, 030002 (2018); American Institute of Physics, <https://doi.org/10.1063/1.5042172>
2. **Gautam A.**, Priyadarshi A. (2022) **Mathematical Perspective of Hodgkin-Huxley Model and Bifurcation Analysis**. Methods of Mathematical Modelling and Computation for Complex Systems. Studies in Systems, Decision and Control, vol 373. Springer, Cham. https://doi.org/10.1007/978-3-030-77169-0_3
3. **Avinita Gautam** and Anupam Priyadarshi, **Periodic firings in neurons with external sinusoidal applied current**, Journal of Mathematical and Computational Science, Vol 9, No 6 (2019), 707-725 <https://scik.org/index.php/jmcs/article/view/4223>
4. Ashutosh Maurya, Anupam Priyadarshi and **Avinita Gautam**, **Competition enhances Coexistence and support Biodiversity**, AIP Conference Proceedings 2253, 020025 (2020), <https://doi.org/10.1063/5.0018929>
5. **Avinita Gautam** and Anupam Priyadarshi, **Sensitivity of Dynamics of Toxoplasma Gondii and Host Immune Response**. Chaotic Modeling and Simulation (CMSIM) 2: 71–90, 2021, ISSN 2241-0503 http://www.cmsim.eu/papers_pdf/april_2021_papers/April_1_2021_CMSIM_Gautam_71-90.pdf
6. Anupam Priyadarshi, **Avinita Gautam**, and Akash Gautam, **Odd Ratio**, In Vonk J., Shackelford T. (eds) Encyclopedia of Animal Cognition and Behavior. Springer, Cham. (2020) https://doi.org/10.1007/978-3-319-47829-6_185-1
7. **Avinita Gautam** and Anupam Priyadarshi, **Impact of External Applied Currents in BVP Model**, ITM Web of Conferences. Vol. 34. EDP Sciences, 2020 <https://doi.org/10.1051/itmconf/20203403007>

Note: There are some papers in the lineup

CONFERENCES

1. Attended and **made an oral presentation** at the 6th China India Japan Korea Mathematical Biology Colloquium cum Conference held at the Department of Mathematics and Statistics, IIT Kanpur from 23rd August to 26th August 2017 on the topic “Epilepsy-Its Chaotic Behaviour and Mathematical Modelling”.
2. **Participated in a poster presentation** on “Epilepsy-Its Chaotic Behaviour and Mathematical Modelling” at 2nd Institution Day (11th-12th December 2017).
3. Attended and **made an oral presentation** at the International Conference on Mathematical Modelling and Computations in Bio-Systems held at the Department of Mathematics, IIT ROORKEE from 12th March to 14th March 2018 on the topic “A Mathematical model for Toxoplasma gondii and host immune response dynamics”.
4. Attended and **made an oral presentation** at the One-day National Conference on Recent Advances in Mathematical Sciences held at DST-Centre of Interdisciplinary Mathematical Sciences, on 22nd April 2018 on the topic “Dynamics of T. gondii within-host and between-host”.
5. Attended and **made an oral presentation** at the International Conference on Frontiers in Industrial and Applied Mathematics (FIAM-2018) held at the Department of Mathematics, NIT Hamirpur (H.P.) from 26th April to 27th April 2018 on the topic “Mathematical Modeling of Toxoplasma Gondii and Host Immune Response”.
6. Attended workshop on **Differential Equation, Bifurcation and Chaos with Numerical Simulation in MATLAB** 27th-28th October 2018 at the Department of Mathematics, Banaras Hindu University, Varanasi.
7. Attended “**International Conference on Neuroscience and XXXVI Annual Meeting of Indian Academy of Neurosciences**” from 29th -31st October 2018 on “**Translation Research in Improving Mental Health**” at Centre of Advance Study, Department of Zoology, Banaras Hindu University, Varanasi.
8. Attended **AIS in Mathematical Biology, 2018** at The Institute of Mathematical Sciences, Chennai -600113 from 3rd December to 15th December 2018.
9. Attended workshop on “Exploring Some Applications of Mathematical Sciences” from 19-20 January 2019 at the Department of Mathematics, Banaras Hindu University, Varanasi.
10. Attended and **made an oral presentation** at the National Conference on Recent Advances in Mathematics and Scientific Computing (RAMSC-2019) held at the Department of Applied Sciences, MMMUT, Gorakhpur from 5th April to 6th April 2019 on the topic “Periodic External Currents and Transmission of Neural Signals”.
11. Attended and **made an oral presentation** at “Second International Conference on Applications of Mathematics to Nonlinear Sciences (AMNS-2019)” held at Pokhara, Nepal from 27th June 2019 to 30th June 2019 on the topic “Effect of External Applied Current on Neural Signals and Bifurcation Analysis”.
12. Attended and **made an oral presentation** at “Second International Conference on Mathematical Modelling, Applied Analysis and Computation (ICMMAAC-2019)” held at JECRC, Jaipur from 8th August 2019 to 10th August 2019 on the topic “Mathematical Perspective of Hodgkin-Huxley Model and Bifurcation Analysis”.
13. Attended and **made an oral presentation** the 35th Annual Conference of the Mathematical Society –BHU on “Advancements in Mathematical Analysis and their Application” (AMATA-2019), in the Department of Mathematics, Institute of Science, Banaras Hindu University-Varanasi from 11th November 2019 to 12th November 2019.
14. Attended the two-day International Workshop on “Numerical Methods in Scientific Computing”, during 21st -22nd February 2020 at South Asian University, New Delhi, India.
15. Attended the National *Webinar* on “Impact of Lockdown on Biodiversity” on 5th June 2020 organized by SKMU, Dumka, Jharkhand.

16. Attended the one-day *Webinar* on “Academic Publishing and Enhancing Research Effectiveness” on 9th June 2020 organized by Dr. Zakir Husain Library, Jamia Millia Islamia, New Delhi.
17. Attended the one-day National *Webinar* on “Application of Algebra and Analysis” on 14th June 2020 organized by the Department of Mathematics, Shri Muktanand College, Aurangabad.
18. Completed an online non-credit course on “COVID-19 Contact Tracing” organized by Johns Hopkins University offered through Coursera on 14th June 2020.
19. Attended the one-day National *Webinar* on “Research Methodology” on 15th June 2020 organized by Research Center Political Science and Economics, Yashwantrao Chavan College, Nagpur.
20. Attended the *Webinar* on “Linear Regression” on 15th June 2020 organized by Dr. Shivanand Nautiyal Government Post Graduate College, Karan Prayag, Chamoli (Uttarakhand).
21. Attended three days International Webinar on “Google Mathematical Tools in Research: Theory and Applications”, from 15th – 17th June 2020 organized by the Department of Mathematics (FOECS) TMU, India.
22. Attended the *Webinar* on “Developing Leadership Skills” on 18th June 2020 organized by De. Shivanand Nautiyal Government Post Graduate College, Karanprayag, Chamoli (Uttarakhand).
23. Attended the **Faculty Development Programme** on “Role of LaTeX in Scientific Writing” from 19th -21st June 2020 organized by the Department of Mathematics, Babu Banarsi Das Northern India Institute of Technology, Lucknow.
24. Attended a one-week online **Faculty Development Programme** on “Mathematics: A Practical Approach in Science and Technology”, from 28th June – 3rd July 2020 organized by the Department of Basic Science and Humanities, Deogiri Institute of Engineering and Management Studies, Aurangabad (Maharashtra).
25. Attended and **made an oral presentation** at a three-day international web conference (CMSIM 2020) on “Chaotic Modeling and Simulation”, from 22nd October – 24th October 2020 organized by Athens, Greece on the topic “Sensitivity of Dynamics of Toxoplasma Gondii and Host Immune Response”.
26. Attended and **made an oral presentation** at a three-day international conference (ICAMNM 2020) on “Applied Mathematics and Numerical Methods”, from 29th October – 31st October 2020 organized by the Department of Applied Mathematics, Faculty of Science, University of Craiova, Romania on the topic “Impact of External Applied Currents in BVP Model”.

REFERENCES

(Available on Demand)

DECLARATION

I hereby declare that all the particulars stated above are true to the best of my knowledge and beliefs.

Dr. Avinita Gautam
Date:04/02/2024