

# Curriculum Vitae



## Dr. AVINITA GAUTAM

Post-Doctoral Fellow  
University of Catania,  
Sicily, Italy

Newton-Bhabha Fellow (2020)  
Department of Veterinary Medicine  
University of Cambridge  
Cambridge  
United Kingdom

DST-INSPIRE Fellow  
DST-CIMS, Banaras Hindu University  
Varanasi, India

## CONTACT

### PHONE:

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### LinkedIn

<https://www.linkedin.com/in/avinita-gautam-83b427120/>

### ResearchGate

<https://www.researchgate.net/profile/Avinita-Gautam>

### Skype

<https://join.skype.com/invite/U13gWBfzIOMX>

## LANGUAGES

English (Reading, Writing, Speaking)

Hindi (Reading, Writing, Speaking)

Bhojpuri (Mother Tongue)

Italian (A1-Basic)

## EDUCATION

DST Centre of Interdisciplinary Mathematical Science, Institute of Science, Banaras Hindu University, Varanasi

### **Ph.D. Mathematics: May 2017 – April 2022**

Topic of research: Impact of Nonlinear Dynamics and Chaos in Some computational Models of Neurological Disorders  
Specialization: Mathematical Modelling

Central University of South Bihar, Bihar

### **M. Sc Mathematics: June 2014 - June 2016**

Marks: CGPA 8.37(out of 10)

Specialization: Applied and Pure Mathematics

Patna Women's College, Patna, Bihar

### **B. Sc Mathematics: June 2011 - April 2014**

Marks: 88.25% in honors (Mathematics)

80.67% aggregate

Specialization: Mathematics

Kendriya Vidyalaya, Sonpur, Bihar

### **12<sup>th</sup> Board: July 2009 – May 2011**

Marks: 83.6%

Specialization: Mathematics, Physics, English, Chemistry and Hindi

Kendriya Vidyalaya, Hajipur, Bihar

### **10<sup>th</sup> Board: April 2008 – May 2009**

Marks: 85.8%

Specialization: Mathematics, Science, Social Science, English and Hindi

## WORK EXPERIENCE

### **University of Catania -Post-doctoral Fellowship**

**May 2022 –Present**

Post-Doctoral Fellow

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

### **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.

**DST Centre of Interdisciplinary Mathematical Science,**  
Institute of Science, Banaras Hindu University, Varanasi  
**August 2019–December 2019**

Subject: Mathematics and Computing  
Work: Lab assistantship

## INTERESTS

Dynamical Systems and Differential Equations

Time series and Bifurcation Analysis

Mathematical modelling of Biological Systems

Epidemiology

Infectious disease modelling

Computational Neuroscience

## HOBBIES

Yoga

Dance

Listening Songs

Watching Movies

Playing Carrom & Badminton

**Azim Prem Ji Foundation - Campus Associate**  
**July 2016–May 2017**

Work: Capacity building of teachers of government schools, field work and working with students in mathematics subject.

Location: Tonk, Rajasthan

## COMPUTER SKILLS

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Power point presentation, Word, Excel, C programming, XPPAUT, COPASI, MATLAB, Photoshop, Scilab, Mathematica, RStudio, Python and Latex.

## ACHIEVEMENTS

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- Awarded by **Post-Doctoral Fellowship**
- Awarded by **Newton-Bhabha Fellowship 2020**
- DST Inspire **SRF**, 2020
- Worked as a **resource person** in two days workshop on “Mathematics for Biologists Using Computational Tools” organized by Bioinformatics Department, MMV, BHU, Varanasi.
- DST Inspire **JRF**, 2017.
- **Gold Medalist** of Central university of South Bihar in M. Sc Mathematics (2014-16)
- **2<sup>nd</sup> 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

## PUBLICATIONS

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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, doi: 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](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.

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
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](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.
8. Anupam Priyadarshi, **Avinita Gautam**, and Akash Gautam, Odd Ratio, In: Vonk J., Shackelford T. (eds) Encyclopedia of Animal Cognition and Behavior. Springer, Cham. (2022)

## REFEREES

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### **Prof. Francesco Pappalardo**

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### **Dr. Anupam Priyadarshi**

Assistant Professor  
Department of Mathematics  
Banaras Hindu University  
Varanasi-221005  
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### **Dr. Roushan Kumar Singh**

Associate Professor  
Department of Mathematics  
Central University of South Bihar, Gaya  
Phone No: 09507733055  
Email: roushanitbhu@gmail.com

### **Dr. Olivier Restif**

Associate Professor  
Department of Veterinary Medicine  
University of Cambridge, U.K.  
Phone No: 441223764963  
Email: or226@cam.ac.uk

## CONFERENCES AND WORKSHOPS

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

17. Attended the one-day *Webinar* on “**Academic Publishing and Enhancing Research Effectiveness**” on 9<sup>th</sup> June 2020 organized by Dr. Zakir Husain Library, Jamia Millia Islamia, New Delhi.
18. Attended the one-day National *Webinar* on “**Application of Algebra and Analysis**” on 14<sup>th</sup> June 2020 organized by Department of Mathematics, Shri Muktanand College, Aurangabad.
19. Completed an online non-credit course on “**COVID-19 Contact Tracing**” organized by Johns Hopkins University offered through Coursera on 14<sup>th</sup> June 2020.
20. Attended the one-day National *Webinar* on “**Research Methodology**” on 15<sup>th</sup> June 2020 organized by Research Center Political Science and Economics, Yeshwantrao Chavan College, Nagpur.
21. Attended the *Webinar* on “**Linear Regression**” on 15<sup>th</sup> June 2020 organized by Dr. Shivnand Nautiyal Government Post Graduate College, Karanprayag, Chamoli (Uttarakhand).
22. Attended three days International Webinar on “**Google Mathematical Tools in Research: Theory and Applications**”, during 15<sup>th</sup> – 17<sup>th</sup> June 2020 organized by Department of Mathematics (FOECS) TMU, India.
23. Attended three days long DAVCB – CUPB-INYAS Lecture Workshop “**# ZeoWaste**” during 16<sup>th</sup> -18<sup>th</sup> June 2020 organized by DAV College Bhatinda, Central University of Punjab, Bhatinda and Indian National Young Academy of Sciences, New Delhi.
24. Attended an International Webinar on “**Quintic and Quinticated Nonlinear Oscillators**” on 17<sup>th</sup> June 2020 organized by Department of Civil Engineering, Poornima College of Engineering, Rajasthan.
25. Attended the *Webinar* on “**Developing Leadership Skills**” on 18<sup>th</sup> June 2020 organized by De. Shivnand Nautiyal Government Post Graduate College, Karanprayag, Chamoli (Uttarakhand).
26. Attended the Faculty Development Programme on “**Role of LaTeX in Scientific Writing**” during 19<sup>th</sup> -21<sup>st</sup> June 2020 organized by Department of Mathematics, Babu Banarsi Das Northern India Institute of Technology, Lucknow.
27. Attended one-week online Faculty Development Programme on “**Mathematics: A Practical Approach in Science and Technology**”, during 28<sup>th</sup> June – 3<sup>rd</sup> July 2020 organized by Department of Basic Science and Humanities, Deogiri Institute of Engineering and Management Studies, Aurangabad (Maharashtra).
28. Attended two days workshop on “**Google Apps for Education and Moodle**”, during 2<sup>nd</sup> -3<sup>rd</sup> July 2020 organized by Rajaram College, Kolhapur, Maharashtra.
29. Attended and made oral presentation in three days international web-conference (CMSIM 2020) on “**Chaotic Modeling and Simulation**”, during 22<sup>nd</sup> October – 24<sup>th</sup> October, 2020 organized by Athens, Greece on the topic “Sensitivity of Dynamics of Toxoplasma Gondii and Host Immune Response”.
30. Attended and made oral presentation in three days international conference (ICAMNM 2020) on “**Applied Mathematics and Numerical Methods**”, during 29<sup>th</sup> October – 31<sup>st</sup> October, 2020 organized by Department of Applied Mathematics, Faculty of Science, University of Craiova, Romania on the topic “Impact of External Applied Currents in BVP Model”.

**DATE: 18/04/2023**

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