

Biplab Bhattacharjee

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[Profile on Google Scholar](#)



Personal Details

Date of Birth: 17.01.1988
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Education

Ongoing: Senior Research Fellow, S. N. Bose National Center for Basic Sciences, India.
2011: Master of Science in PHYSICS, S. N. Bose National Center for Basic Sciences, India (DGPA 7.6).
2009: Bachelor of Science in PHYSICS (Honors), Durgapur Govt. College, University of Burdwan, India (66 %).
2006: Higher Secondary, West Bengal Council of Higher Secondary Education(84.2 %).
2004: Secondary, West Bengal Board of Secondary Education (86 %).

Computer Skills

Full working proficiency in Fortran programming language.
Accustomed with Linux and Windows Operating System.
Basic knowledge of html.
Habituated in writing articles using \LaTeX .

Languages

English: Fluent
Bengali: Mother Tongue
Hindi: Fluent

Research Interest

My research interest involves analysis of systems showing collective behaviour, under different interactive mechanism and noise conditions using agent based modelling and looking for a noise-type-independent general framework using agent based modelling and theoretical analysis. A variable speed model of collective behaviour of flocks depicting interesting critical phenomena and dynamical transitions is under active analysis. Also an inertial model of collective motion with inertia playing a pivotal role is under consideration.

I am also working on a hierarchical growth and infection propagation during cell division model and analysing the transmission rate dependent dynamics.

A trading protocol with multi agent interaction and power breach policy is also under consideration.

Also have plans of network based analysis, using visibility graph, of rare events like earthquakes and financial breakdown, by analysing the time series of the amplitude of earthquake and of systemic risk in financial markets, to look for a common structures for such rare event systems.

Among other interests, Order to Disorder transition and criticality in systems with emerging collective behaviour, emergence of long range correlations in dynamical non-equilibrium systems, naming game and opinion dynamics, agent based modelling of social, financial and biological networks, Information propagation and developed frustration in complex dynamical systems, minority games, modelling optimisation problems, percolation and explosive percolation are among the problems, I have idea of working and want to apply my technical skills based on these on practical problems.

Turbulent and chaotic systems are those, I have basic idea about, haven't worked directly but would love to work.

I am open to problems within my realm of expertise or beyond with the prospect of bolstering my skills and its applicability.

Research Experience

August 2013–Present: Senior Research Fellow
Department of Theoretical Sciences,
S. N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES, Kolkata, India.

August 2011–July 2013: Junior Research Fellow
Department of Theoretical Sciences,
S. N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES, Kolkata, India.

July 2013: Visiting Research Fellow
Department of Computer Sciences,
IIT KGP, Kharagpur, India.

List of Publications

1. **B. Bhattacharjee**, S. S. Manna and Animesh Mukherjee, “ Information sharing and sorting in a community”, Phys. Rev. **87**, 062808, June 2013. [Pdf](#)
2. **B. Bhattacharjee**, K. Bhattacharya and S. S. Manna, “Cyclic and Coherent States in Flocks with Topological Distance”, Frontier in Phys. **1**, (2013). [Pdf](#)
3. **B. Bhattacharjee**, S. Mishra and S. S. Manna, “Topological-distance-dependent transition in flocks with binary interactions”, Phys. Rev. E **92**, 062134 (2015). [Pdf](#)
4. **B. Bhattacharjee**, A. Datta and S. S. Manna, “Asymptotic properties of restricted naming games”, Physica A **478** (2017) 177-187. [Pdf](#)

Masters’ Research Projects

- June-July 2010: Masters’ Summer Project
Dynamics In Low Dimensions,
Supervisor: Prof. Jayanta K. Bhattacharjee.
- August-December 2010: Masters’ Course Work Project
Collective Motion and Pattern Formation,
Supervisor: Prof. S. S. Manna.
- January-June 2011: Masters’ Course Work Project
Theoretical Approach to Flocking in Continuum,
Supervisor: Prof. Jayanta K. Bhattacharjee,

Research Presentations

1. Presented poster on ‘*Topological-distance-dependent transition in flocks with binary interactions*’, **CCP2015- XXVII IUPAP Conference on Computational Physics**, INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI, Assam, India, (December 2015) .
2. Presented oral presentation on ‘*Cyclic and coherent states in flocks with topological distance*’, **BOSEFEST 2014**, S. N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES, Kolkata, India, (January 2014) .
3. Presented invited talk on ‘*Information sharing and sorting in a community*’, INDIAN INSTITUTE OF TECHNOLOGY (IIT), Kharagpur, India, (July 2013).
4. Presented oral presentation on ‘*Information sharing and sorting in a community*’, **BOSEFEST 2013**, S. N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES, Kolkata, India, (January 2013) .
5. Presented poster on ‘*Explosive Percolation*’, **BOSEFEST 2012**, S. N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES, Kolkata, India, (January 2012) .

Awards and Certificates

- December 2015: Excellent poster award for presenting
Topological-distance-dependent transition in flocks with binary interactions
CCP2015, IIT GUWAHATI, Guwahati, Assam, India.
- January 2014: Best Oral Presentation award for presenting
Cyclic and coherent states in flocks with topological distance
BOSE FEST-2014, S. N. BOSE NATIONAL CENTRE FOR BASIC SCIENCES, Kolkata, India.
- March 2009: Qualified Joint Entrance Screening Test (**JEST**).

Attended Schools/Conferences

1. *XXVII IUPAP Conference on Computational Physics (CCP2015)*, IIT GUWAHATI, Guwahati, Assam, India, (December 2015).
2. *Emerging Patterns*, NANYANG TECHNOLOGICAL UNIVERSITY, Singapore, (March 2015).
3. *NTU-Warwick Winter School on Introduction to Complexity Science*, NANYANG TECHNOLOGICAL UNIVERSITY, Singapore, (February 2015).
4. *STATPHYS-Kolkata VIII*, December 2014, S N BOSE NATIONAL CENTER FOR BASIC SCIENCES, Kolkata, India, (December 2014).
5. *Bangalore School on Statistical Physics-V*, RRI BANGALORE, (March-April 2014).
6. *Diversity and Complexity: Realm of Today's Statistical Physics*, SAHA INSTITUTE OF NUCLEAR PHYSICS, Kolkata, (January 2014).
7. International School and Conference on 'Networks in Biology, Social Science and Engineering', INDIAN INSTITUTE OF SCIENCE, Bangalore, India, (July 2012).
8. International Conference on *Statistical Physics and Non Linear Dynamics*, S N BOSE NATIONAL CENTER FOR BASIC SCIENCES, Kolkata, India, (March 2012).