

Curriculum Vitae



Abhijit Kar Gupta, M.Sc., Ph.D

Associate Professor

Department of Physics

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Educational Qualifications and Experiences:

- B.Sc. (Phys. Hons.) from Presidency College, Kolkata
- M.Sc. (Physics) from Calcutta University
- Post M.Sc. Associate and Ph.D from Saha Institute of Nuclear Physics, Kolkata
- Postdoctoral Fellowships: (1) Institute of Mathematical Sciences, Chennai, (2) Raman Research Institute, Bengaluru (Bangalore)
- Visited ICTP, Trieste (Italy), University of Cologne, Germany

Teaching Experience:

More than 13 years (Date of Joining at PBC: 2 May, 2000)

Research Interest and Skill:

Computer Simulations, Statistical and Condensed Matter Physics, Interdisciplinary Applications of Statistical Physics.

List of Publications

Sociophysics & Econophysics:

7. **Abhijit Kar Gupta** and Sourabh Banerjee, *Parrondo's Paradox: New Results and New Ideas*, *Research Journal of Recent Sciences*, Vol.5 (ISC-2015), 8-12 (2016) [Presented in International Science Congress, Nepal, 2015]
6. **Abhijit Kar Gupta**, *Punctuated Equilibrium and Power Law in Economic Dynamics*, *Physica A*, **391**, 1509-1514 (2012); also see [arXiv:1012.5896](https://arxiv.org/abs/1012.5896)
5. **Abhijit Kar Gupta**, *Relaxation in the wealth exchange models*, *Physica A*, **387**, 6819-6824 (2008); also see [arXiv:0806.3813](https://arxiv.org/abs/0806.3813)
4. **Abhijit Kar Gupta**, *Models of wealth distributions – a perspective*, <http://arxiv.org>, **Physics/0604161**, appeared as a **chapter in a book**, page 161 (Chapter 6): “*Econophysics and Sociophysics: trends and perspectives*”, eds. B.K. Chakrabarti, A.K. Chakraborty, A.K. Chatterjee, **Wiley-VCH, Verlag GmbH & Co. KGaA (2006)**.
3. **Abhijit Kar Gupta**, *Role of Selective Interaction in Wealth Distribution*, *Commun. Comp. Phys*, **1**, 503 (2006). Also see [arXiv:physics/0509172v1](https://arxiv.org/abs/physics/0509172v1); *ICTP preprint IC/2005/051*.
2. **Abhijit Kar Gupta**, *Money Exchange model and a general Outlook*, *Physica A*, **359**, 634 (2006). Also see <http://arxiv.org>, **Physics/0505115**.
1. **Abhijit Kar Gupta** and Dietrich Stauffer, *Social Percolation on Inhomogeneous Spanning Network*, *Int. J. Mod. Phys. C* **11**, 695 (2000).

Percolation and Resistor Network:

8. **Abhijit Kar Gupta** and Asok K Sen, *Frequency-dependent (ac) Conduction in Disordered Composites: a Percolative Study*, *Phys. Rev. B* **59**, 9167 (1999)
Also see [cond-mat/9806282](https://arxiv.org/abs/cond-mat/9806282).
7. **Abhijit Kar Gupta** and Asok K Sen, *DC-Response in Nonlinear Composites: a Percolative Study*, *Phys. Rev. B* **57**, 3375 (1998).
Also see [cond-mat/9707125](https://arxiv.org/abs/cond-mat/9707125).
6. **Abhijit Kar Gupta** and Asok K Sen, *Aspects of Dielectric Breakdown in a Model for Disordered Nonlinear Composites*, *Physica A* **30**, 247 (1997).
5. **Abhijit Kar Gupta** and Asok K Sen, *Temperature dependent conduction in nonlinear composites: a percolative approach*, *Ind. J. Physics* **71A**, 357 (1997).
4. **Abhijit Kar Gupta** and Asok K Sen, *Shape of the clusters of a percolative system in the presence of tunneling bonds and a finite electric field*, *Journal of Stat. Phys.* **80**, 1425 (1995).

3. Abhijit Kar Gupta and Asok K Sen, *Study of percolation in the presence of tunneling bonds*, *Physica A* **215**, 1-9 (1995).

2. Abhijit Kar Gupta and Asok K Sen, *On a new percolation in the presence of tunneling bonds*, *ICTP preprint*, IC/94/212.

1. Abhijit Kar Gupta and Asok K Sen, *Scaling Behaviour of Electric Response in a Non-linear Composite*, in *“Non-linearity and Breakdown in Soft Condensed Matter”*, eds. K.K. Bardhan, B.K. Chakrabarti and Alex Hansen, *Lecture Notes in Physics*, **437**, 271 (Springer-Verlag), Berlin 1994.

Transport and Localization in One Dimension:

8. Sandeep K. Joshi, Abhijit Kar Gupta and A. M. Jayannavar, *Wigner delay time from a random passive and active medium*, *Phys. Rev. B* **58**, 1092 (1998). Also see [cond-mat/9712251](https://arxiv.org/abs/cond-mat/9712251).

7. Sandeep K. Joshi, Abhijit Kar Gupta and A. M. Jayannavar, *Transport and Wigner delay time distribution across a random active medium*, *Ind. J. Physics* **72A**, 371 (1998).

6. Abhijit Kar Gupta and A.M. Jayannavar, *Electron wave transport in coherently absorptive random media*, *Phys. Rev. B* **52**, 4156 (1995).

5. Abhijit Kar Gupta and Asok K Sen, *Scaling of localization length of a quasi 1D system with longitudinal boundary roughness*, *ICTP preprint*, IC/94/213.

4. Abhijit Kar Gupta and Asok K Sen, *Novel Localization Properties in a One-dimensional Inhomogeneous Potential*, in *Ordering Disorder: Prospect and retrospect in Condensed Matter Physics (Proceedings of the Indo-US workshop, held in Hyderabad, India 1992-93)*, eds. Vipin Srivastava, Anil K. Bhatnagar, Donald G. Naugle, *AIP Conference Proceedings*, **286**, 252-254 (1994).

3. Abhijit Kar Gupta and Asok K Sen, *Scaling of Decay Lengths for 'Surface States' in the gaps of One-dimensional Semi-infinite Superlattices*, *Z. Phys. B* **91**, 493 (1993).

2. Abhijit Kar Gupta, A.M. Jayannavar and Asok K Sen, *Distribution of Conductances and its Universal Fluctuations in 1-D Disordered, Mesoscopic Systems*, *J. Phys. I (France)* **3**, 1671 (1993).

1. Abhijit Kar Gupta and Asok K Sen, *Behaviour of the Electronic States in the Harper Model in One Dimension*, *J. Phys. I (France)* **2**, 2039 (1992).

Other Publications

- My article, *“Games, Gambling and Game Theory”* to be published in *ICFAI University Press’ Professional Reference Book: “Game Theory - An Important Tool In Decision Making”* (in press, 2009)
- Physics Quiz published in *Science Reporter*, India, Nov 2007 issue
- A basic physics article *“Outflow of water: how the level goes down with time”* published in *IAPT teaching journal* (Ref. 245), India (2008).

- A series of popular science articles in Bengali published in 'Anustup', a renowned magazine in Bengali, published from Kolkata.
- My **Lecture Notes** and other writings in: www.scribd.com/people/view/345115
- My Photography: <http://www.flickr.com/photos/kgabhi/>, www.500px.com/AbhijitGupta
- My Blog: <http://www.123funda.blogspot.com/>

Other activities (other than teaching) in last few years

Present Research work:

Conducted research work on "Models of wealth Distributions" in *Econophysics*, an interdisciplinary application of Statistical Physics under *UGC minor project* (The project report submitted in Dec, 2010).

Book:

Ongoing work on writing books on *Applications of Statistics* and on *Statistical Physics*.

International Conferences attended in last few years:

- Participated in "*Econophys Kolkata III*", an International Workshop on 'Econophysics & Sociophysics of Markets and Networks' held at *Saha Institute of Nuclear Physics*, Kolkata, India during 12-15 March, 2007
- Participated in an International workshop on "*Econophys Kolkata II*" on Physics of stock markets and Minority Games held at Saha Institute of Nuclear Physics, Kolkata during 13-16 Feb, 2006.
- International Workshop "*Econophys-Kolkata I*" on Econophysics of Wealth Distributions, held at *Saha Institute of Nuclear Physics*, Kolkata, 15-19 March, 2005.
- Summer School on Design and Control of Self-Organization in Physical, Chemical, and Biological Systems, 25 July - 5 August, 2005, *ICTP*, Trieste, Italy.

Visiting Other Institutes and Formal Talks Delivered:

- Invited to visit Condensed Matter division of *ICTP*, Trieste, Italy for one month during 2 Nov – 3 Dec, 2009.
- Delivered an invited lecture on '*Econophysics: the physics of money and market*' at Vidyasagar college, Kolkata at UGC sponsored seminar on the occasion of Centenary Celebration, December 2008 (The lecture note was published in a commemorative volume.)
- Delivered an invited lecture on *Innovative Experiments* at West Bengal University of Technology (WBUT), Salt Lake, Kolkata during a workshop organized by WBUT on 29 March, 2007
- Visited *Saha Institute of Nuclear Physics (SINP)*, Kolkata during the period of 1, February to 28, March, 2006 for a research collaboration with Prof. Bikas Chakrabarti and his group at the *Centre for Applied Mathematics and Computer Science*, SINP.

- Visited *International Centre for Theoretical Physics (ICTP), Trieste, Italy* during the period: 11 July – 6 August, 2005.

Outside duties in the recent times:

- Examiner for Computational Physics in PG at Visva Bharti University
- Examiner for Computational Physics in PG at WB State University, Barasat
- Teaching a regular course on Mathematical Methods in Physics for M.Sc. 1st year students of *W.B. State University, Barasat*.
- External examiner for the practical exams of B.Tech students at *Guru Nanak Institute of Technology, Sodepur* (under WBUT, Kolkata)

Other works:

- Designed webpages for Panskura Banamali College [PBC] (www.panskuracollege.com) [linked herein]
- Designed College Admission Prospectus for PBC