

Dr. SOMNATH BHATTACHARYA

Contact: somnath94347@gmail.com

Qualification: Ph.D

Designation: Assistant Professor and
Head of Department of Physics



Teaching Experience (in years): UG: **14** PG: **10**

Research Experience (in years): **20**

Date of Joining Present Institution: **01. 03. 2019**

Institutions/Companies Previously Served:

Name of Institution/Company	Designation	Tenure	
		From	To
Darjeeling Govt College	Assistant Professor I	30-04-2007	16-09-2010
Barasat Govt College	Assistant Professor I, II	18-09-2010	28-02-2019

Examinations cleared: NET-CSIR

Specialization/Research Interest:

Statistical Mechanics, Computational Physics, Nonlinear Dynamics

Awards & Recognitions

1. Gold Medal for best paper presentation in ICAMMP-2002 (ICTP sponsored Conf.) (2003)
2. Book-award for best-contributing talk in the 7th Workshop on Nonlinear Dynamics and Earthquake Prediction, (AS-ICTP), Trieste, Italy, (2003)
3. Reference letter from Prof. D. A. Rees, Head, International Judges committee of ICAMMP 2002 & ICAMMP 2004, Mech. Engg. ,University of Bath, UK for best performance and overall performance during ICAMMP 2002 & ICAMMP 2004, Sylhet, Bangladesh
4. Referee at District youth-meet and Judge at exhibition. (North 24 parganas 2018)
5. Referee at College-level Science exhibition at Durgapur Women's College, (2019)

Courses taught (Durgapur Govt College)

	B.Sc Honours	B.Sc. Program / Generic
Semester-I	Mechanics (Practical)	Mechanics (Practical)
Semester-II	Electricity and Magnetism, Computer Programming	Electricity and Magnetism
Semester-III	Thermal Physics I, Basic Electrical Wiring (SEC)	Statistical and Thermal Physics
Semester-IV	Waves and Optics	Waves and Optics
Semester-V	Thermal Physics II, Atomic and Molecular Physics	-
Semester-VI	Statistical Mechanics, Applied Optics	-

Teaching Experience (others):

- a) Instructor of Advanced Experiments for B.Tech 1st year students in IIT, Mumbai (2006-07)
- b) Lecturer at UGC-sponsored coaching centre for NET (in Physics) (Darjeeling Govt College, 2007 -2010)
- c) Lecturer at UGC-sponsored Remedial Coaching (in Physics) (Basirhat College 2011-2012)
- d) Under-graduate Honours and General level in Physics (2007-2010, Darjeeling Govt College; 2010-2019, Barasat Govt College)
- d) Councillor at NSOU (Barasat Govt College Centre, 2010-2019)
- e) Postgraduate Teaching at Barasat Govt College (2010-2019)
- f) PG Coordinator (Physics) (2014-2019), PG Coordinator (2018-2019) at Barasat Govt College.

Online Mode of Teaching

1. Undergraduate courses on Electricity and Magnetism, Computer Programming, Waves and Optics, Applied Optics, using available free video-conferencing tools (e.g., Zoom, Meet, Whatsapp video call) and uploading course-materials in Google classroom, whatsapp.
2. Postgraduate courses on Advanced Statistical Mechanics (elective paper) using available free video-conferencing tools and uploading course-materials in Google classroom.

Publications

Journals:

1. **Somnath Bhattacharya** and Asok K Sen (**2005**), Two early-stage inverse Power-law dynamics in nonlinear complex systems far from equilibrium, *Europhysics Letters*, 71(5), 797.
<https://doi.org/10.1209/epl/i2005-10158-3>
2. **Somnath Bhattacharya**, Dibyendu Das and Satya N. Majumdar (**2007**), Persistence of a Rouse polymer chain under transverse shear flow, *Physical Review E*, 75, 061122.
<https://doi.org/10.1103/PhysRevE.75.061122>
3. M.S. Rahaman, M. Yolmo, **Somnath Bhattacharya** and M. Gurung (**2009**), Effect of Aestivation on protein content of Blood of the pestiferous land snail *Achatina fulica*, *J. Int. Acad.*, 13 (3),277-283 (ISSN No: **0971-9016.**)
4. **Somnath Bhattacharya (2014)**, Bernoulli's Principle: Is manufactured improvisations, *Acad. J. Aureole*, 5(1), 28. (ISSN NO. **0976-9625**)
5. **Somnath Bhattacharya**, Pradip Mukherjee, Amit Singha Roy, Anirban Saha (**2018**), Non-minimally coupled quintessence dark energy model with a cubic galileon term: a dynamical system analysis, *Euro. Phys. J. C*, 78, 201. <https://doi.org/10.1140/epjc/s10052-018-5644-0>
6. **Somnath Bhattacharya (2019)**, Estimate of time-scale for the current relaxation of percolative Random Resistor cum Tunneling Network Model, *Physica A*, 521, 113. <https://doi.org/10.1016/j.physa.2019.01.090>

Conference Proceedings:

1. **Somnath Bhattacharya (2004)**, Partha Pratim Roy and Asok K Sen, *Two Early-stage Inverse Power-law Relaxations in the Far-from-Equilibrium Dynamics in Semi-Classical Percolative Composites*, International Conference on Applied Mathematics and Mathematical Physics (ICAMMP-2002), held at Sylhet, Bangladesh, during January 06-09, 2003, Eds. G. D. Roy and A. Hossain.
2. Asok K Sen and **Somnath Bhattacharya (2004)**, *Variable Range Hopping (VRH) Conduction in Complex Systems and a Percolation Model (RRTN) with Tunneling*, Tenth International Symposium on Continuum Models and Discrete Systems (CMDS10), held at Soresh, Israel, June 30 - July 04, 2003, Eds. D. J. Bergman and E. Inan, Kluwer Academic Publishers B.V.
3. Asok K. Sen and **Somnath Bhattacharya (2007)**, *VRH conduction in presence of a temperature dependent microscopic threshold*, published in AS-ICTP journal-preprint No. **IC/2006/089**.

4. Somnath Bhattacharya (2008), *Physics beyond conventional limit* (invited talk), State level seminar on "Science and Society", Darjeeling Govt College, Mar 27-28. (Sponsored by Higher Education Dept, Govt. Of West Bengal)

5. Somnath Bhattacharya (2019), *Time-scales of the current relaxation in the RRTN model*, Conference on Condensed Matter Physics, RKM VidyaMandir, Belurh, Feb 22. ISBN No: **978-81-940096-3-4**

Sponsored Research projects

1. Dr. Somnath Bhattacharya (PI), "Early stage dynamics of nonlinear systems and its effect on related properties. ", **UGC Minor Research Project** (File No. PSW-162/14-15(ERO)). Sanctioned: Rs. 1,50,000/- (2015-2017)

Guidance of M.Sc. Projects (2013- 2019)

1. Abu Sufian Mondal (2013, APC College)-` `Enthalpy: Importance in Relativistic Thermodynamics" (**Guide: Dr. Somnath Bhattacharya**)
2. Sk. Nasibul Haque(2013, APC College)- "Relativistic Statistical Mechanics and Black Body Radiation"-(**Guide: Dr. Somnath Bhattacharya**)
3. Sukhendu Jana (2014, Barasat Govt. College)-"A Numerical Study on Oscillation: Scopes and Difficulties" (**Guide: Dr. Somnath Bhattacharya**)
4. Subhankar Roy (2015, Barasat Govt. College) "Ingradients of Chaotic System: A nonlinear oscillation approach" (**Guide: Dr. Somnath Bhattacharya**)
5. Santu Dey (2015, Barasat Govt. College) "A Study of mathematical models: Route to Chaos" (**Guide: Dr. Somnath Bhattacharya**)
6. Diganta chakraborty (2015, Barasat Govt. College)"A Study Of Realistic Projectile Motions" (**Guide: Dr. Somnath Bhattacharya**)
7. Saunak Ghose (2016, APC College) "Interpretation of Quantum Mechanics-understanding through paradoxes" (**Guide: Dr. Somnath Bhattacharya**)
8. Mita Mandal (2016, APC College) "The Path Integral Formulation: An alternative approach to Quantum Mechanics" (**Guide: Dr. Somnath Bhattacharya**)
9. Debjyoti Majumdar (2016, Barasat Govt. College) "Mathematical modelling of Stochastic processes through random walk" (**Guide: Dr. Somnath Bhattacharya**)

10. Mousri Paul (2016, Barasat Govt. College) "An Introductory study on Non-extensive entropy: requirement and significance" (**Guide: Dr. Somnath Bhattacharya**)
11. Suman Hazra (2016, Barasat Govt. College) "Time Independent Schrodinger Equation – A Numerical study with shooting and Matching method" (**Guide: Dr. Somnath Bhattacharya**)
12. Didhiti Bhattacharya (2017, Barasat Govt. College) "A Study of Multi-barrier Fabricated System" (**Guide: Dr. Somnath Bhattacharya**)
13. Soumita Biswas (2017, Barasat Govt. College) "Study of Noise in Condensed Matter System" (**Guide: Dr. Somnath Bhattacharya**)
14. Shiladitya Karmakar (2017, Barasat Govt. College) "Kolkata Price Restaurant Problem – An example of application of Statistical Physics on Game Theory" (**Guide: Dr. Somnath Bhattacharya**)
15. Aparna Kundu (2017, APC College) "Bifurcation in one dimensional autonomous system" (**Guide: Dr. Somnath Bhattacharya**)
16. Shrabanti Barman (2017, APC College) "Application of operator method in quantum mechanics" (**Guide: Dr. Somnath Bhattacharya**)
17. Dwaipayan Biswas (2018, APC College) "Noise: Useful or Useless"-(APC College) (**Guide: Dr. Somnath Bhattacharya**)
18. Sanjukta Dey (2018, Barasat Govt. College) "Investigation on the time-scales of RRTN current relaxation for varying initial condition" (**Guide: Dr. Somnath Bhattacharya**)

Invited Lectures

1. Invited Lecture on "*Physics beyond conventional limit (Dr. Somnath Bhattacharya)*", *State level seminar on "Science and Society"*, organised by Darjeeling Govt College, Mar 27-28, 2008. (Sponsored by Higher Education Dept, Govt. Of West Bengal)
2. Invited Lecture on "*Open Higher Education in India: All is not well (Dr. Somnath Bhattacharya)*", *National level seminar on "Higher Education in India: Critical issues and Challenges"*, organised by Doranda College, Ranchi, Sept 16, 2016.
3. Invited Lecture on "*Interpretations of Quantum Mechanics (Dr. Somnath Bhattacharya)*", *Regional level meeting on "Recent Trends in Physics"*, organised by Postgraduate Dept of Physics, Barasat Govt College, Sept 13, 2018.

4. Invited Lecture on “Interpretation of Quantum Mechanics : An *introductory Discussion* (Dr. **Somnath Bhattacharya**)”, A State level seminar on Physics- World Science Day : Circulating Physics to everyone and everywhere, organised by Dept of Physics and Mathematics , Kulti College, Nov 22, 2019.

Paper Presentation in seminar/conference/symposium/workshop/discussion meeting (from Durgapur Government College)

1. Oral Presentation on “*Approach towards stable fixed points in the response dynamics for Nonlinear Percolative RRTN model* (Dr. **Somnath Bhattacharya**)” in the International Conference on Recent Developments in Nonlinear Dynamics and its Applications held on Mar 12-14, 2019 organized by Dept of Physics , Durgapur Govt College.

Participation in faculty development programmes

1. 37thOrientation Course from 29/08/2011 to 26/09/2011 (Dr. **Somnath Bhattacharya**) organized by UGC-HRDC, Jadavpur University.
2. Science Academies' Refresher Course on “Statistical Mechanics” from 29/04/2012 - 12/05/2012 (Dr. **Somnath Bhattacharya**) organized by Indian Academy of Science, Bangalore, Indian National Science Academy, New Delhi and National Academy of Science (India), Allahabad.
3. Refresher Course on “Physics” from 11/02/2014 - 03/03/2014 (Dr. **Somnath Bhattacharya**) organized by UGC-HRDC, North Bengal University.
4. Science Academies' Refresher Course on “Classical Mechanics and Electromagnetism” from 08/12/2014 - 20/12/2014 (Dr. **Somnath Bhattacharya**) organized by Indian Academy of Science, Bangalore, Indian National Science Academy, New Delhi and National Academy of Science (India), Allahabad.
5. Refresher Course on “Physical Science” from 02/09/2016 - 22/09/2016 (Dr. **Somnath Bhattacharya**) organized by UGC-HRDC, Ranchi University.

Participation in committees of Durgapur Government College since 2019

1. UG semester examination committee (Member -2019-20)
2. College Journal Committee (Member -2019-20)
3. Library Committee (Member -2019-20)