

## CURRICULUM VITAE



1. **Full name of the faculty member:** SAMIRAN GHOSH
2. **Designation :** PROFESSOR
3. **Specialisation :** PLASMA DYNAMICS, NONLINEAR DYNAMICS
4. **Contact information :** Department of Applied Mathematics, University of Calcutta  
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### 5. Academic Qualifications:

- Ph. D (Sc.), Jadavpur University, 2001.
- M. Sc. in Applied Mathematics, Department of Applied Mathematics, University of Calcutta, 1995.
- B. Sc. (Hons.), University of Calcutta, 1993.

### 6. Positions Held/ Holding:

- Lecturer (& Senior Lecturer) in Mathematics (2002-2008): Govt. College of Engineering & Textile Technology, Berhampore, Murshidabad 742101.
- Reader in Applied Mathematics (2008-2011): Department of Applied Mathematics, University of Calcutta.
- Associate Professor in Applied Mathematics (2011-2014): Department of Applied Mathematics, University of Calcutta.
- Professor in Applied Mathematics (2014 - todate), Department of Applied Mathematics, University of Calcutta.

### 7. Research Interests:

- Nonlinear Wave Processes in Plasmas and Complex (Dusty) Plasmas.
- Nonlinear Dynamics
- Stochastic Processes

### 8. Research Guidance:

- **Post Doctoral Student**

Sl. No.	Name of the Students	Funding Agency	Year of Award
01	Dr. Sourav Pramanik	Dr. D S KOTHARI FELLOWSHIP (PH/19-20/0016)	2019

- **Ph. D Students (Degree awarded/ Submitted)**

Sl. No.	Name of the Students	Title of the Thesis	Year of Award of Degree	University
01	Tushar Kanti Chaudhuri (Joint Supervisor)	Some Problems of Wave Processes in Dusty Space Plasma	2007	Jadavpur University
02	Subrata Sarkar (Joint Supervisor)	Analytical and Computational Studies of Collective Phenomena in a Dissipative Dusty Plasma	2016	Jadavpur University
03	Ashish Adak (Joint Supervisor)	Study of Some Nonlinear Coherent Structures in Pair Ion Plasmas	2017	Jadavpur University
04	Satyasaran Changdar (Joint Supervisor)	Some Problems On The Nonlinear Blood Flow Through Stenosed Arteries	2018	University of Calcutta
05	Arnab Sikdar (Joint Supervisor)	Study of some problems on nonlinear wave processes in collisional pair ion plasmas	2019	Jadavpur University

- **Ph. D Students (Registered/Enrollment)**

Sl. No.	Name of the Students	University
01	Samarpita Ash (Supervisor)	University of Calcutta
02	Biplab Maity (Supervisor)	University of Calcutta
03	Saroj Kumar Mondal (Supervisor)	University of Calcutta
04	Aktar Alam (Supervisor)	University of Calcutta
05	Mohan Ghosh (Supervisor)	University of Calcutta
06	Arpita Shome (Supervisor)	University of Calcutta
07	Akash Biswas (Supervisor)	University of Calcutta
08	Debkumar Chakraborty (Supervisor)	University of Calcutta

9. **Projects:**

Sl. No.	Title of the Project	Funding Agency	Period	Amount
01	Studies of effects of dust charge variations on nonlinear collective phenomena in a dissipative electronegative dusty plasma (Co-Investigator)	CSIR, Govt. of India. Sanction no. 03 (1125) / 08/EMR-II.	01-04-2009 to 31-03-2013	15 Lakhs
02	Time dependent nonlinear structures in plasmas in the frame work of Lagrangian fluid description (Co-Investigator)	CSIR, Govt. of India. Sanction no. 03 (1384) / 16/EMR-II.	01-04-2017 to 31-03-2020	20 Lakhs (Approx.)

## 10. International Assignments:

Sl. No.	Institute / Country Visited	Year	Period of Visits	Purpose of Visits
01	International Union of Radio Science (Ghent, Belgium) Maastricht, NetherLands	2002	Two Weeks	General assembly of International Union of Radio Science (URSI)
02	University of the Watersrand, Wits, Johannesburg, South Africa	2006	Three Months	Collaborative Research work as a visiting Scientist in a Indo-South African bilateral programme
03	The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy	2008	Two Weeks	International Workshop on the Frontiers of Modern Plasma Physics
04	Centro de Física dos Plasmas Instituto Superior Técnico Avenida Rovisco Pais, Lisboa Portugal (Azores, Portugal)	2008	One Week	International Conference of Physics of Dusty Plasma
05	Max-Planck Institut für Extraterrestrische Physik, Garching, Germany	2011	One Week	International Conference of Physics of Dusty Plasma
06	University of Western Cape, South Africa	2013	Two Weeks	Collaborative Research work as a visiting Senior Research Scientist in a Indo-South African bilateral programme

## 11. Selected list of publications:

### a) Journals:

#### INDIVIDUALS WORKS

1. Nonlinear ion acoustic wave and group dynamics near critical density in a plasma with negative ion, *Journal of Physical Society of Japan* **88**, 074501 (2019).
2. Quasi-longitudinal soliton in a two-dimensional strongly coupled complex dusty plasma in the presence of an external magnetic field, *Physical Review E* **90**, 033108 (2014).
3. Weakly dissipative soliton in quantum plasma, *Euro Physics Letters (EPL)*, **99**, 36002 (2012).
4. Shock wave in two-dimensional dusty plasma crystal, *Physics of Plasmas*, **16**, 103701 (2009)
5. Damped dust lattice shock wave in strongly coupled complex (dusty) plasma, *JETP Letters*, **87**, 281 (2008); **88**, 702 (2008).

6. Weakly dissipative ion acoustic solitary waves in a dusty plasma: roles of dust charge variation, ion loss and ionization, *Journal of Plasma Physics*, **73**, 515 (2007).
7. Dust acoustic solitary wave with variable dust charge: Role of negative ions, *Physics of Plasmas*, **12**, 094504 (2005).
8. Dust acoustic shock wave in two component plasma, *New Journal of Physics*, **5**, 142.1 (2003).

## COLLABORATIVE WORKS

1. **Samiran Ghosh**, B. Maity and S. Poria, Chaos in positive ion - negative ion magnetized plasmas, *J. Plasma Phys.* (accepted for publication) (2020).
2. A. Biswas, **Samiran Ghosh**, N. Chakrabarti, Nonlinear structure formation of electron acoustic waves in plasmas, *Physica Scripta*, **95**, 105603 (2020).
3. Z. Ehsan, M. M. Abbasi, **Samiran Ghosh**, M. Khan and M. Ali, Shock wave in a rotating non-Maxwellian viscous dusty plasma, *Contrib. Plasma Phys.*, DOI: 10.1002/ctpp.202000030 (2020)
4. S. Jana, **Samiran Ghosh**, N. Chakrabarti and M. Khan, Nonlinear density collapse in a one-dimensional cold atomic gas, *Physica Scripta*, **94**, 055210 (2019).
5. A. Sikdar, A. Adak, **Samiran Ghosh** and M. Khan, Electrostatic wave modulation in collisional pair-ion plasmas, *Physics of Plasmas*, **25**, 052303 (2018).
6. M. Dutta, **Samiran Ghosh** and N. Chakrabarti, Nonlinear coupling of Langmuir and electron acoustic waves in a viscous plasma, *Physics of Plasmas*, **25**, 012103 (2018).
7. S. Jana, **Samiran Ghosh** and N. Chakrabarti, Effect of electron inertia on dispersive properties of Alfvén waves in cold plasmas, *Physics Plasmas*, **24**, 102307 (2017).
8. **Samiran Ghosh** and N. Chakrabarti, Nonlinear low-frequency electrostatic wave dynamics in a two-dimensional quantum plasma, *Annals of Physics*, **371**, 67 (2016).
9. S. Jana, **Samiran Ghosh** and N. Chakrabarti, Nonlinear coherent structures of Alfvén wave in a collisional plasma, *Physics Plasmas*, **23**, 072304 (2016).
10. S. Poria and **Samiran Ghosh**, Chaotic behavior of collective ion dynamics in the presence of an external static magnetic field, *Physics of Plasmas*, **23**, 062315 (2016).
11. B. Bagchi, **Samiran Ghosh**, B. Paul and S. Poria, Qualitative analysis of certain generalized classes of quadratic oscillator systems, *Journal of Mathematical Physics*, **57**, 022701 (2016).
12. B. Maity, **Samiran Ghosh** and R. Bharuthram, Nonlinear Ion Acoustic wave in a pair-ion plasma in a weak magnetic field, *Physica Scripta*, **90**, 045604 (2015).

13. A. Adak, **Samiran Ghosh** and N. Chakrabarti, Ion Acoustic shock wave in collisional equal mass plasma, *Physics of Plasmas*, **22**, 102307 (2015).
14. N. Chakrabarti and **Samiran Ghosh**, Longitudinal dust acoustic solitary waves in a strongly coupled complex (dusty) plasma, *Journal of Plasma Physics*, **1**, 81 (2015).
15. A. Adak, **Samiran Ghosh** and N. Chakrabarti, Raleigh Taylor instability in Pair-ion plasma, *Physics of Plasmas*, **21**, 92120 (2014).
16. **Samiran Ghosh**, A. Adak and M. Khan, Weakly dissipative solitons in pair-ion plasma, *Physics of Plasmas*, **21**, 102303 (2014).
17. **Samiran Ghosh** and N. Chakrabarti, Nonlinear wave collapse, shock, and breather formation in an electron magnetohydrodynamic plasma, *Physical Review E* **90**, 063111 (2014).
18. **Samiran Ghosh**, N. Chakrabarti and F. Haas, New nonlinear structures in a degenerate one- dimensional electron gas, *Euro Physics Letters (EPL)*, **105**, 30006 (2014).
19. M. Dutta, **Samiran Ghosh**, R. Roychoudhury, M. Khan and N. Chakrabarti, Small amplitude nonlinear electron acoustic solitary waves in weakly magnetized plasma, *Physics of Plasmas*, **20**, 012113 (2013).
20. **Samiran Ghosh** and N. Chakrabarti, Shock wave structure in dissipative quantum Plasma, *Physical Review E* **87**, 033102 (2013).
21. **Samiran Ghosh** and N. Chakrabarti, Magnetic electron Drift solitons in electron magnetohydrodynamic plasmas, *Plasma Physics and Controlled Fusion*, **65**, 035002 (2013).
22. M. Dutta, **Samiran Ghosh**, R. Roychoudhury, M. Khan and N. Chakrabarti, Nonlinear Electron Acoustic cyclotron waves in presence of uniform magnetic field, *Physics of Plasmas*, **20**, 042301 (2013).
23. M. Dutta, **Samiran Ghosh**, M. Khan and N. Chakrabarti, Nonlinear Electron Acoustic wave in presence of Shear magnetic field, *Physics of Plasmas*, **20**, 122112 (2013).
24. B. Bagchi, S. Das, **Samiran Ghosh** and S. Poria, Reply to Comment" Nonlinear Dynamics of a position-dependent mass-driven Duffing-type Oscillator", *Journal of Physics A* **46**, 368002 (2013).
25. B. Bagchi, S. Das, **Samiran Ghosh** and S. Poria, Nonlinear Dynamics of a position-dependent mass-driven Duffing-type Oscillator, *Journal of Physics A (Fast Track Communication)* **46**, 032001 (2013).
26. **Samiran Ghosh**, N. Chakrabarti and P. K. Shukla, Linear and nonlinear electrostatic modes in a strongly coupled quantum plasma, *Physics of Plasmas*, **19**, 072123 (2012).

27. **Samiran Ghosh** and P. K. Shukla, Dynamical behaviour of stochastic dust charge fluctuations, *Physics Letters A* **376**, 2552 (2012).
28. M. Dutta, **Samiarn Ghosh** and N. Chakrabarti, Electron acoustic shock waves in collisional plasma, *Physical Review E* **86**, 066408 (2012).
29. **Samiran Ghosh**, S. Sarkar, M. Khan and M. R. Gupta, Low-frequency wave modulations in an electronegative dusty plasma in the presence of charge variations, *Physical Review E* **84**, 046601 (2011).
30. **Samiran Ghosh**, M. R. Gupta, N. Chakrabarti and M. Chaudhuri, Nonlinear wave propagation in a strongly coupled collisional dusty plasma, *Physical Review E* **83**, 066406 (2011).
31. **Samiran Ghosh** and N. Chakrabarti, Nonlinear wave propagation in a gravitating quantum fluid, *Physical Review E* **84**, 066401 (2011).
32. **Samiran Ghosh** and R. Bharuthram, Ion acoustic solitons and double layers in electron-positron-ion plasmas with dust particulates, *Astrophysics and Space Science*, **314**, 121 (2008).
33. **Samiran Ghosh**, S. Sarkar, M. Khan, K. Avinash and M. R. Gupta, Dust acoustic shock wave at high dust density, *Physics of Plasmas*, **10**, 977(2003).
34. **Samiran Ghosh**, R. Bharuthram, M. Khan and M. R. Gupta, Instability of dust acoustic wave due to nonthermal ions in a charge varying dusty plasma, *Physics of Plasmas*, **11**, 3602(2004).
35. M. R. Gupta, S. Sarkar, **Samiran Ghosh**, M. Debnath and M. Khan, Effect of nonadiabaticity of dust charge variation on dust acoustic waves: Generation of dust acoustic shock waves, *Physical Review E* **63**, 046406 (2001).
36. **Samiran Ghosh**, S. Sarkar, M. Khan and M. R. Gupta, Dust ion acoustic shock waves in a collisionless dusty plasma, *Physics Letters A* **274**, 162 (2000).

b) *Conference/ seminar volumes:*

1. S. Changdar, S. De and **Samiran Ghosh**, Numerical Simulation of Nonlinear Newtonian blood flow through a stenosed artery under the influences of periodic body acceleration (5<sup>th</sup> International and 41<sup>st</sup> National Conference on Fluid Mechanics and Fluid Power – FMFP 2014), Conference Proceedings, Springer-Verlag, Berlin.
2. N. Chakrabarti and **Samiran Ghosh**, Nonlinear wave propagation in a strongly correlated dusty plasma (IEEE 39<sup>th</sup> International Conference on Plasma Science -ICOPS 2012, Edinburgh International Conference Centre, United Kingdom).

## 12. Membership of Learned Societies:

- Plasma Science Society of India (Life Member)
- Indian Association for the Cultivation of Science (Life Member)
- Calcutta Mathematical Society (Life Member)
- Institute of Theoretical Physics (Life Member)
- Advanced Centre of Nonlinear and Complex Phenomena (Life Member)

## 13. Professional Recognitions:

- Referee of Several International and National Research Journals.
- Member of Advisory and Organising Committee of several National and International Conferences.

## 14. Selected List of Invited lectures

1. Prof. P. P. Chatterjee Memorial Lecture, St. Paul's C M College (2018), Kolkata.
2. DST-SERB School on "Plasma Theory" (2016), Institute of Advanced Study in Science and Technology, Paschim Boragaon, Guwahati, Assam.
3. National Conference on Computational Mathematics and Nonlinear Dynamics (CMND-2016), Department of Mathematics, Siksha Bhavana, Visva-Bharati.
4. 30<sup>th</sup> Symposium on Plasma Science & Technology (Plasma 2015), Saha Institute of Nuclear Physics, Kolkata, India.
5. International Conference of the Physics of Dusty Plasma ( ICPDP 2014) , University of Delhi, New Delhi, India
6. National Symposium on nonlinear and complex phenomena (2014), Jadavpur University, Jadavpur, Kolkata, India
7. National Seminar on Recent Perspective on Nonlinear Mathematics and its Applications (2014), Department of Mathematics, Siksha Bhavana, Visva-Bharati
8. Special Lecture on "Plasma MHD Theory" for Post-Graduate Students (2014), Department of Physics, University of Gour Banga, Malda, West Bengal, India
9. Micro-Conference on nonlinear Phenomena (2014), Institute of Advanced Study in Science and Technology, Paschim Boragaon, Guwahati, Assam.
10. UGC Sponsored National Seminar on "Plasma Science and Technology" ( 2013), Department of Physics, Nabajyoti College, Kalagachia, Assam, India
11. National Workshop on Nonlinear Waves: Theory and Simulation (2013), National Institute of Technology, Durgapur.
12. Workshop on "fluctuations phenomena in plasmas" (2013), Department of Physics, University of Western Cape, Cape Town, South Africa.

13. International Conference On Complex Processes in Plasma (2012), Institute for Plasma Research, Gandhinagar, Gujrat, India
14. Micro-Conference on nonlinear Phenomena, Department of Mathematics (2012), Dibrugarh University, Assam, India
15. Special Lecture on “ Plasma Waves and Instabilities” for Post-Graduate Students (2013), Department of Physics, University of Gour Banga, Malda, West Bengal, India
16. Training Courses on “Techniques for solving ordinary differential equations” for post graduate students (2013), Calcutta Mathematical Society, West Bengal
17. Training Courses on “Markov processes and its applications” for post graduate students, (2013), Department of Applied Mathematics, University of Calcutta.
18. Training Courses on “Green’s function technique” for post graduate students (2012), Calcutta Mathematical Society, West Bengal
19. UGC Sponsored Refreshers Course (2012), Department of Applied Mathematics, University of Calcutta, Kolkata, India
20. Special Lecture on “Nonlinear Differential Equations” for Post-Graduate Students (2011-2013), Post-Graduate Unit, Bethune College, West Bengal, India
21. Special Lecture on “Linear Wave Theory” for the Post-Graduate Student (2012-2013), Post-Graduate Unit, Motijheel College, Dumdum, West Bengal, India
22. DST-SERB School on “Theory of Plasma Waves and Instabilities” (2011), Institute of Advanced Study in Science and Technology, Paschim Boragaon, Guwahati, Assam.

**15. Awards:**

- NET (National Eligibility Test), Conducted by UGC-CSIR.
- National Scholarship (Department of Education).
  - i) Secondary Examination
  - ii) B. Sc. (Hons.) Examination
- URSI-Young Scientist 2002.
- Scholarship (Centro de Física dos Plasmas Instituto Superior Técnico Avenida Rovisco Pais, Lisboa Portugal) to attend the International Conference, 2008.
- Scholarship (Max-Planck Institut für Extraterrestrische Physik, Garching, Germany) to attend the International Conference, 2011.

**16. Research Collaborations:**

**International Collaborations:**

- Max-Planck Institut für Extraterrestrische Physik, Garching, Germany (2010-2012)
- Ruhr University, Bochum, Germany (2010-2013)
- University of Western Cape, Cape Town, South Africa
- Departamento de Física, Universidade Federal do Parana, Curitiba, Parana, Brazil



**National Collaborations:**

- Saha Institute of Nuclear Physics (SINP), Kolkata
- Indian Statistical Institute (ISI), Kolkata
- Institute for Plasma Research (IPR), Gandhinagar, Gujrat
- Jadavpur University, Kolkata
- West Bengal State University, Barasat
- Gour Banga University, Malda

A handwritten signature in black ink on a light grey background. The signature reads "Samiran Ghosh" in a cursive script.

*Signature of the faculty member*