Faculty Profile

1. Name: Shreekantha Sil
2. Designation: Associate Professor
3. Email(s): shreekantha.sil@visva-bharati.ac.in
4. Date of Birth: 06.02.1962
5. Contact number(s): 9433946679
6. Address: Department of Physics, Visva-Bharati, Santiniketan, 731235
7. Research ID (Google Scholar, ORCID ID, Scopus ID, WOS ID, Vidyan ID, Research Gate):
8. Membership of Learned Societies:
9. Homepage (If any):
10. Publication Summary:
    (a) No. of Research papers - 84
    (b) No. of Book Chapters -
    (c) No. of Conference papers -
    (d) h-index -
    (e) i-10 index -
11. Date of Joining Visva-Bharati Service:
12. Education:

Degree	Year	University/Institution
Ph. D.	1994	University of Jadavpur, Kolkata
M. Sc. / M. Tech.	1985	
B. Sc.	1982	

13. Academic Positions held (in reverse chronological order)

Sl. No.	Positions held	Institution	Period
1.	May(7th) 2010- Associate Professor in Department of Physics Visva-bharati, Santiniketan. May 2007-2010 Reader in Department of Physics, Visva Bharati, Santinike-tan December 1999-August 2007 lecturer, Department of Physics, Visva Bharati, Santiniketan		

	June 1999 to Dec 1999 Postdoctoral fellow in Indian Institute of Science, Bangalore August 1998 to May 1999 Guest Scientist in the Condensed matter group in University of Duisburg, Germany August 1997 to august 1998 Guest Scientist in the Condensed matter group in University of Koeln, Germany October 1996 to present July 1997 Senior Post Doctoral associate with the condensed matter group at Institute of Physics, Bhubaneswar, India. December 1994 to September 1996: Post Doctoral Associate at Condensed matter group of Saha Institute of Nuclear Physics, Calcutta, India. August, 1987 - November, 1994: Research Fellow at Saha Institute of Nuclear Physics, Calcutta. August, 1986 - July, 1987: Predoctoral Fellow at Saha Institute of Physics, Calcutta.		

14. Areas of Research: Correlated systems, Spintronics, electronic transport in non-interacting and interacting electroc systems. Transport in ferromagnetic systems in very low temperatures.
15. Subject Specialization: Condensed Matter Physics
16. Courses Teach / Taught:

Undergraduate Courses	
Postgraduate Courses: Mathematical method,Condensed	

Matter Physics, Statistical Physics, Classical Mechanics and General theory of Relativity, Relativistic Mechanics and Field theory, Quantum mechanics,Computational and Numerical Methods in Physics, General Laboratory courses for MSC SEM-III	
Ph.D. Course-work: Many Particle Physics	

17. Research Guidance:
    (a) No. of Postdoctoral students (Completed / Ongoing)
    (b) No. of Doctoral students (Completed / Ongoing)
    (c) No. of M.Sc. Dissertations: 12
18. Research Collaboration (National / International):
19. Research Grants/Projects

Sl. No.	Project Title	PI/Co-PI	Funding Agency	Amount	Completed/Ongoing

20. Professional Recognition/ Award/ Prize/Fellowship

Sl. No.	Name of Award	Awarding Agency	Year

21. Books / Book Chapters

Sl. No.	Title	Name of Author(s)	Publisher	Year of Publication

22. Detail of Patent received (if any)

Sl. No.	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country

23. Talks Delivered at International / National Conferences/Seminars/Symposium:

24. List of Scientific Publications:

List of publications

1. Edge sates and persistent current in a PT symmetric extended Su-
Schrieffer Heeger model with generic boundary condition
Supriyo Ghosh, Pijush Ghosh and Shreekantha Sil Phys. Rev. B. 111 (245428)
245428 (2025).

2. Spin transport across a two dimensional metal-semiconductor interface

with infinite potential in presence of spin-orbit interaction: Double reflection and spin filtering effect.
Kuntal Bhattacharyya, Mansa Kala, Shreekantha Sil,Ashok Chatterjee, Micro and Nano structures 175, 207496, (2023).

3. SpinHall conductivity and Hall angle in a twodimensional system with impurities in the presence of spinorbit interactions
Hemant Kumar Sharma, Shreekantha Sil and Ashok Chatterjee Scientific Reports 12, 14202, (2022).

3. Tailoring flat bands and topological phases in a multi-strand Cruez network
Amrita Mukherjee, Atanu Nandy. Shreekantha Sil and Arunava Chakrabarti, Phys. Rev B 105, 035428,(2022).

5. Double refraction of electron spin across a metal-semiconductor junction with Rashba and Dresselhaus spin-orbit interactions: A stronger spin-filtering effect
Manasa Kalla, D. Sanjeev Kumar, Shreekantha Sil , Ashok Chatterjee, Superlattices and Microstructures 156, 106951, (2021).

6. Favorable Thermoelectric Performance in a Rashba Spin-orbit coupled ac-driven Graphene Nanoribben.
Sudin Ganguly, Santanu Maiti and Shreekantha Sil, Carbon, 172, 302,(2021).

iv7. Engineering topological Phase Transition and aharonov Bhom Caging in a Flux Staggered Lattice
Amrita Mukherjee, Atanu Nandy. Shreekantha Sil and Arunava Chakrabarti. Journal of Physics Condensed Matter, ,33, 035502,(2021).

8. Spin-transport in Two dimensional Tight-binding System with Rashba and Dresselhaus Spin-orbit Interaction in Presence of Static Disorder.
Hemant Kumar Sharma, Shreekantha Sil and Ashok Chatterjee, Journal of Magnetism and Magnetic Materials, 529, 167711, (2021).

9. Engineering Spin Polarization in a Driven Multistanded Magnetic quantum network.
Manik sarkar, Moumita Dey, Santanu Maiti and Shreekantha Sil, Physical Review B, 102, 195435, (2020).

10. Spin Hall Conductance in a Twodimensional Tight-binding model in the Presence of Rashba spin-orbit interaction and Random Impurities.
Hemant Kumar Sharma, Shreekantha Sil and Ashok Chatterjee, International Journal of Innovative Reaserch in Physics, 1, 15, (2020).

11. Spin torque induced spincurrent in two dimensional tight-binding system with Rashba coupling in presence of random impurty

Hemant Sharma, Shreekantha sil and Ashok Chatterjee, JMMM 500 166329,2020

12. Model of a centrifugal-force aided convective heat engine-an attempt to miniaturise solar updraft tower technology

Amitava Satpathi, Shreekantha Sil and Arani Chakravarti, Energy, 193, 116787, 2020

13. Engineering magneto resistance : A new persoective

Moumita Patra, Santanu Maity, Shreekanthan Sil, Journal of Physics Con-vdensed Matter 31 355303, 2019

14. Phase cintrolled metal insulator transition in multi-leg quasi periodic optical lattice

Santanu Maiti, Shreekantha Si and Arunava Chakrabarti Annals of Physics 382 150 (2017)

15. Persistent current in a correlated quantum ring with electron-phonon interaction in presence of Rashba interaction and Aharonov-Bohm flux.

P. J. Manisha, I. V. Sankar, Shreekantha Sil and Ashok Chatterjee Scientific Reports 6 20056 (2016).

16. Persistent current and the existance of metallic phase flanked by two insulating phases in a quantum ring with both electron-electron and electron-phonon interaction.

I. V. Sankar, P.J. Manisha, Shreekantha Sil and Ashok Chatterjee Physica E 73 175 (2015)

17. Effect of spin-orbit interaction on persistent current in nano ring.

P.J. Monisha, I. V. Sankar, Shreekantha Sil and Ashok Chatterjee Material-today proceeding 2, 4495, (2015).

18. Lattice Bosons in a quasi disordered environment: The effect of a super lattice potential on a single particle and many particle properties.

R. Ramkumar, A. N. Das and S. Sil Physica.A 436 814 (2015).

19. Lattice bosons in quasi-disordered environment: The effect of next near-est neighbour hopping on localization and Bose Einstein Condensation

R. Ramkumar, A. N. Das and S. Sil Physica.A 401 214 (2014).

20. Spin-orbit interaction induced spin selective transmission through a mul-vititerminal mesoscopic ring

Moumita Dey, Santanu Maity, Shreekantha Sil, S. N. Karmokar Jour. Appl. Physics 114 164318 (2013).

21. Anisotropic ferromagnetism in carbon doped zinc oxide from first prin-ciple studies

Sanjeev K. Nayak, Markus Gruner, Sung Sakong, Shreekantha Sil, Peter kartzer, S.N. Behera and P. Entel Phys. Rev. B. 86 054441 (2012).

22. Electric current induced torque in the one and two dimensional domain walls
S. Sil and P. Entel, AIP. Proceedings 1461 104 (2012)
23. Exact diagonalization study of quantum spin clusters
S Sahoo, A Hucht, S. Sil and P. Entel AIP Proceedings 1461 199 (2012)
24. Fermions in anisotropic harmonic trap
A. N. Das and S. Sil Phys. Lett. A. 376 1698 (2012)
25. A proposal for the measurement of Rashba Dresselhaus spin-orbit interaction strength in a single sample.
Santanu K Maity, Shreekantha Sil, Anunava chakrabarti, Phys. Lett. A 376 2147 (2012)
26. Interplay of magnetic field and geometry in magneto transport of mesoscopic loops with Rashba and Dresselhaus spin-orbit interactions.
Shreekantha Sil, Santanu K. Maity Jour. Appl. Phys. 112 024321 (2012).
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29. Quasi One dimensional graphite ribon structure in presence of magnetic field and on-site Coulomb Correlation at half filling
Jayeeta Chowdhury, Shreekantha Sil, S. N. Karmokar and Bibhas Bhattacharyya EPJB 76 435 2010
30. Magnetic properties of small pt-capped Fe,Co and Ni cluster: A density functional study
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31. A novel attempt to calculate the velocity correlation coefficients in Ternary electrolyte solution
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32. A voltmeter with browser based control: an inexpensive instrument
S. Ray, S Sil, A. Chakravarti Ind. Jour. Phys. 84 301 2010
33. Flux induced semiconducting behaviour of a quantum network
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34. Ladder network as a mesoscopic switch: an exact result.
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35. Metal-insulator transition in an Aperiodic ladder network: An exact viiiresult.
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36. Thermodynamic properties of Holstein polarons and effect of disorder.
A. N. Das and S. Sil J. Phys. Condens. Matter 20 354222 (2008).
37. 2D disordered electronic system in presence of strongb electromagnetic field
S. Sil, S. Karmakar and E. Shimshoni ; Physics of zero and one dimensional nano systems. Springer series in solid state sciencs i 156 (2007)
38. Studies on bosons in optical lattice in harmonic potential
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44. Electronic transport in magnetic domain wall structure S. Sil and P. Entel, phase transition, 76 467 (2003).
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47. Bound-States in dimerized and Frustrated Heisenberg Chains
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55. Restricted pair tunneling model
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A. N Das , Jaydev Lahiri and S. Sil Physica C 294 97 (1998).
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S. Sil and A. N. Das, J. Phys. Cond. Matt. 9 3889 (1997)
59. Magnetic Properties of Disordered Binary Heisenberg Alloy
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60. Effect of electron-phonon interaction on a one dimensional correlated electron system.

xiShreekantha Sil and Bibhas Bhattacharyya, Phys. Rev. B 54 14349 (1997)

61. Pressure coefficient of the super conducting transition in the strong coupling limit
S. Basu, Sujit Sarker and S. Sil Mod. Phys. Lett. 10 839 (1996).

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M. Sen, A. Ghoshray, K. Ghoshray, S. Sil and N. Chatterjee,
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Real space renormalisation group in fermion system: An improved scheme.
Bibhas Bhattacharyya and Shreekantha Sil, Phys.Lett. A 210 129 (1996).

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Bibhas Bhattacharyya and Shreekantha Sil, J. Phys. Cond. Mat. 7 6663 (1995).

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Shreekantha Sil, S. N. Karmaker, R. K. Moitra and Arunava Chakrabarti,
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xii69. Ground state of the non-half-filled Hubbard model: A RSRG study
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Shreekantha Sil and Ashok Chatterjee, J. Phys. Cond. Matt. 3 9401
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Shreekantha Sil and Ashok Chatterjee, Phys. Lett. A 140 59 (1989)
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A. N. Das and Shreekantha Sil, Physica C 161 325 (1989).

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