

Dr. Somenath Jalal

Affiliation :

Assistant Professor of Physics
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Personal Website of Somenath Jalal

Academic positions :

- Assistant Professor, Department of Physics, Netaji Mahavidyalaya, Arambagh, 30 December, 2020 - to present
- Assistant Professor, Department of Physics, Hooghly Women's College, 03 April, 2017 - 29 December, 2020
- Nov-2014 to Nov, 2016, Post-doctoral fellow, Department of Physical Sciences, IISER Kolkata: (Worked with Dr. Siddhartha Lal)

Educational Qualification :

- 2008 - 2014; Ph.D, Theoretical Condensed Matter Physics
School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India - 110067
Thesis supervisor: Dr. Brijesh Kumar
- 2006-2008; M.Sc. in Physics, School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India.
- 2003-2006; B.Sc. in Physics (Honours), Burdwan Raj College, University of Burdwan, West Bengal, India.
- 2003; Higher Secondary : Arambagh High School, Dist: Hooghly, WBCHSE, West Bengal, India
- 2001; Madhyamik (Secondary), Rajagram Sasi Bhushan Raha Institution, Dist: Bankura, West Bengal, India

Research Interests

Quantum phase transition, Ising models, Coupled quantum cavity array, Topological states of matter, Bose/Fermi - Hubbard model, Frustrated systems, Quantum spin liquid.

Publications in peer reviewed journals :

3. Transmigration of edge states with interaction in Su-Schrieffer-Heeger chain, Jyoti Bisht, Somenath Jalal and Brijesh Kumar, Phys. Rev. B **110**, 245110 (2024) [arXiv:2404.02259]
<https://doi.org/10.1103/PhysRevB.110.245110>
2. Edge modes in a frustrated quantum Ising chain,
S. Jalal and B. Kumar, Phys. Rev. B **90**, 184416 (2014) [arXiv:1407.0201]
<https://doi.org/10.1103/PhysRevB.90.184416>
1. Quantum Ising dynamics and Majorana-like edge modes in the Rabi lattice model, B. Kumar and S. Jalal, Phys. Rev. A **88**, 011802 (R) (2013) [arXiv:1210.6922]
<https://doi.org/10.1103/PhysRevA.88.011802>

Preprints:

2. Topological transitions in Ising models,
Somenath Jalal, Rishabh Khare, and Siddhartha Lal, [arXiv:1610.09845]
<https://doi.org/10.48550/arXiv.1610.09845>
1. Quantum Ising Systems, Edge Modes, and Rabi Lattice,
Somenath Jalal
<https://doi.org/10.48550/arXiv.1608.07380>

Google Scholar Citation

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Talk/Presentation in Seminar/Workshop/National and/or International Conferences/:

1. A seminar for students : Re-deriving the PYTHAGORAS THEOREM following Prof. Kaushik Basu's proof (in 2015 paper) [talk on 29-04-2025]
2. Poster Presentation on our article "Transmigration of Edge States with Interaction in Su-Schrieffer-Heeger Chain" in International Seminar On Recent Advancement in Materials Science and Engineering held on 30th January, 2025 organized by Vivekananda Mahavidyalaya Burdwan
3. Short Talk on "Density Matrix, Pure States, Mixed States and Entanglement" in the International Conference on Frontiers in Physics held on 28th September, 2024 at AKPCM, Bengai, W.B., India
4. Dept. of Physics, Netaji Mahavidyalaya organised a one day seminar with Physics faculties of AKPC, Bengai, as a part of MoU between the two colleges, on 09-August-2023. [My talk file [here](#)].
5. Contributory speaker on "SERB sponsored International Seminar on Tools in Sciences", 25 June 2022, Organized by AKPC Mahavidyalaya, Bengai, Dist: Hooghly.

6. Successfully completed Refresher Course on Earth System Science (IDC) conducted by UGC-Human Resource Development Centre - Jadavpur University, from 11 Nov, 2021 to 25 Nov, 2021.
7. Contributory speaker in "International Webinar on Rendezvous with Quantum Physics" on 12-06-2021 - 13-06-2021, Organized by AKPC Mahavidyalaya, Bengai, Dist: Hooghly.
8. From 05-02-2021 to 6-03-2021 I attended "1st Faculty Induction Programme" organised by HRDC, The University of Burdwan.
9. Workshop - ("Journey towards self-expression for the betterment of our students") from 27-01-2018 to 02-02-2018 at HWC IQAC
10. Resource person in "Celebration of National Mathematics Day" (22 December, 2018) in Hooghly Women's College
11. Celebrating 125th year of birth of Satyendra Nath Bose at Hooghly Women's College on 11 Sept, 2018
12. Workshop on SCILAB (BU Physics Department) in 17-08-2018 to 18-08-2018
13. Five Days workshop on CBCS syllabus of Physics Hons from 30-10-2017 to 03-11-2017 at the University of Burdwan.
14. Poster presentation in "International Seminar on Science: Past, Present and Future" on 12-12-2017 in Syamsundar College, Dist: Burdwan in collaboration with Indian Chemical Society, Kolkata.

Awards and Honours:

- CSIR-(NET-JRF) India (June 2008) [Council of Scientific and Industrial Research (CSIR) financially supported me during PhD for 5 years] (fellowship from Jan, 2009 - Dec, 2013)
- IISER -Kolkata funded Post-doctoral fellowship Nov, 2014 - Nov, 2016

Last updated: July 13, 2025
