

Department of Applied Mathematics

Faculty Profile

Name: Satyabrata Adhikari

Designation: Assistant Professor (UGC-FRP)

Date of Birth: 25/08/1976

E-Mail Address: satyabrata@dtu.ac.in

Qualifications: Ph.d

Areas of Interest: Quantum Information Processing

Teaching Experience Details:

S.N.	From	To	Total Experience	Position Held	Institute / Organization
1	January, 2012	July, 2014	2 years 6 months	Assistant Professor	IIT Jodhpur, Jodhpur
2	February, 2015	December, 2017	2 years 10 months	Assistant Professor	BIT Mesra, Ranchi
3	December, 2017	Till date	11 months	Assistant Professor (UGC-FRP)	Delhi Technological University, Delhi

List of Books Published: Nil

Book Name	Publisher	Year

Participation of Faculty in Conference / Seminar / Symposia / Workshops:

Name of Faculty	Details of Conference / Seminar / Symposia / Workshops Attended	Venue	Dates
Satyabrata Adhikari	National Seminar on "Trends in Mathematics and its Application"	Calcutta Mathematical Society (CMS), Kolkata, West Bengal, India	September, 2001
Satyabrata Adhikari	International Symposium on "Pure and Applied Mathematics"	Calcutta Mathematical Society (CMS), Kolkata, West Bengal, India	December, 2002
Satyabrata Adhikari	International Symposium on "Recent Advances in Mathematics and its Application"	Calcutta Mathematical Society (CMS), Kolkata, West Bengal, India	December, 2003.
Satyabrata Adhikari	National Symposium on "Mathematics and its Application"	Department of Mathematics, University of Burdwan, West Bengal, India	December, 2004.

Satyabrata Adhikari	Workshop on “Quantum Information, Computation and Communication”	Centre for Theoretical Studies, IIT Kharagpur, West Bengal, India	February, 2005
Satyabrata Adhikari	International conference on “Quantum Computing: Back Action”	Department of Chemistry, IIT, Kanpur, Kanpur, India	March, 2006
Satyabrata Adhikari	Conference on “Theory and Technology in Quantum Information, Communication, Computation and Cryptography”	International Centre for Theoretical Physics, Italy	June, 2006
Satyabrata Adhikari	UGC DRS seminar on “Trends and Challenges in Quantum Information Theory”	Department of Applied Mathematics, Calcutta University, Kolkata, West Bengal, India	February, 2008
Satyabrata Adhikari	International School and Conference on Quantum Information	Institute of Physics, Bhubaneswar, India	March, 2008.
Satyabrata Adhikari	International Conference on Physics between India and Singapore 2009	S. N. Bose National Centre For Basic Sciences, Kolkata, West Bengal, India	January, 2009
Satyabrata Adhikari	International Program on Quantum Information (IPQI-2010)	Institute of Physics, Bhubaneswar, India	January, 2010.
Satyabrata Adhikari	International Symposium on 75 years of Quantum Entanglement: Foundations and Information Theoretic Applications	S. N. Bose National Centre for Basic Sciences, Kolkata, India	January, 2011.
Satyabrata Adhikari	International School and conference on Quantum Information Processing and Applications	Harish-Chandra Research Institute, Allahabad, India	February, 2011

Conference / Seminar / Symposia / Workshops Organized by Faculty:

Name of Faculty	Details of Conference / Seminar / Symposia / Workshops Organized	Venue	Dates
Satyabrata Adhikari	Workshop on Quantum Biology	IIT Jodhpur	January, 2013.

Details of Invited Talks / Guest Lectures:

Name	Details of Invited Talks / Guest Lectures	Venue	Dates
Satyabrata Adhikari	Invited talk on “An Overview of Witness Operators” in the Satellite Meeting on Quantum Correlation and its application in communication and cryptography	Indian Statistical Institute, Kolkata, India	September, 2013
Satyabrata Adhikari	Invited talk on “Upper Bound on Singlet Fraction of Mixed Entangled Two Qubit States” in International Program on Quantum Information	Institute of Physics, Bhubaneswar, India	February, 2014.
Satyabrata Adhikari	Invited talk on “An Analytical Condition for the violation of Mermin’s inequality by any three qubit states” in International School and Conference on Quantum Information	Institute of Physics, Bhubaneswar, India	February, 2016.

Satyabrata Adhikari	Invited talk on “Application of Structural Physical Approximation (SPA) of Partial Transpose in Teleportation” in the International Symposium on New Frontiers in Quantum Correlation (ISNFQC18)	S.N.Bose National Centre for Basic Sciences, Kolkata, India	January, 2018
Satyabrata Adhikari	Invited talk on “Classification of three qubit pure states” in the National Workshop on Quantum Information and Information Security (NWQIIS)	IIT Hyderabad, Hyderabad, India	October, 2018

Visit of Faculty to Other Institutions:

Name	Name of Institute / Organization Visited	Purpose of Visit	Dates
Satyabrata Adhikari	IIT Kharagpur	Research Collaboration	June, 2017
Satyabrata Adhikari	IIT Kharagpur	Research Collaboration	June, 2018

Participation of Faculty in Short Term Courses: Nil

Name	Name Of Course	Venue	Dates

List of PhD’s Supervised: Nil

Name of The Student	Title of Thesis	Duration

Honours, Awards and Distinctions:

1. K. K. Mukherjee memorial award for the first class 1st in B.Sc (Mathematics Honours) at Sreerampur college, West Bengal, India.
2. Dr. Shyamal Hazra memorial award for the first class 1st in B.Sc (Mathematics Honours) at Sreerampur college, West Bengal, India.

Personal Affiliations: Nil

List of Research Papers Published in Journals:

1. **Satyabrata Adhikari**, and B. S. Choudhury, Deletion of Imperfect Cloned Copies, Journal of Physics A: Mathematical and General 37, 11877 (2004).
2. **Satyabrata Adhikari**, Quantum Deletion: Beyond the No-Deletion Principle, Physical Review A 72, 052321 (2005).

3. **Satyabrata Adhikari**, B. S. Choudhury, and I. Chakrabarty, Broadcasting of Inseparability, *Journal of Physics A: Mathematical and General* 39, 8439 (2006).
4. **Satyabrata Adhikari**, and B. S. Choudhury, Improving the Fidelity of Deletion, *Physical Review A* 73, 054303 (2006).
5. **Satyabrata Adhikari**, and B. S. Choudhury, Broadcasting of Three Qubit Entanglement via Local Copying and Entanglement Swapping, *Physical Review A* 74, 032323 (2006).
6. I. Chakrabarty, **Satyabrata Adhikari**, and B. S. Choudhury, Probabilistic Exact Deletion and Probabilistic No-Signalling, *Physica Scripta* 74, 555 (2006).
7. I. Chakrabarty, **Satyabrata Adhikari**, Prashant, and B. S. Choudhury, Inseparability of Quantum Parameters, *International Journal of Theoretical Physics* 46, 2829 (2007).
8. I. Chakrabarty, **Satyabrata Adhikari**, and B. S. Choudhury, Revisiting Impossible Quantum Operations Using Principle of No-Signalling and Non Increase of Entanglement Under LOCC", *International Journal of Theoretical Physics* 46, 2513 (2007).
9. **Satyabrata Adhikari**, A. K. Pati, I. Chakrabarty, and B. S. Choudhury, Hybrid Quantum Cloning Machine, *Quantum Information Processing* 6, 197 (2007).
10. **Satyabrata Adhikari**, A. S. Majumdar, and N. Nayak, Broadcasting of Continuous Variable Entanglement, *Physical Review A* 77, 042301-042305 (2008).
11. **Satyabrata Adhikari**, A. S. Majumdar, and N. Nayak, Teleportation of Two-Mode Squeezed States, *Physical Review A* 77, 012337-012341 (2008).
12. **Satyabrata Adhikari**, N. Ganguly, I. Chakrabarty, and B. S. Choudhury, Quantum Cloning, Bell's Inequality and Teleportation, *Journal of Physics A: Mathematical and Theoretical* 41, 415302 (2008).
13. **Satyabrata Adhikari**, and S. Gangopadhyay, A Study of the Efficiency of the Class of W-States As a Quantum Channel, *International Journal of Theoretical Physics* 48, 403-408 (2009).
14. **Satyabrata Adhikari**, B. Chakraborty, A. S. Majumdar, and S. Vaidya, Quantum Entanglement in a Non-Commutative System, *Physical Review A* 79, 042109-042126 (2009).
15. Nirman Ganguly and **Satyabrata Adhikari**, Witness for Edge States and Its Characteristics, *Physical Review A* 80, 032331-032337 (2009).
16. **Satyabrata Adhikari**, S. Roy, B. Ghosh, A. S. Majumdar, and N. Nayak, Teleportation via Maximally and Non-Maximally Entangled Mixed States, *Quantum Information and Computation* 10, 398-419 (2010).
17. **S. Adhikari**, A.S. Majumdar, Dipankar Home, Alok Kumar pan, Swapping Path-Spin Intraparticle Entanglement onto Spin-Spin Interparticle Entanglement", *Europhysics Letters* 89, 10005 (2010).
18. T. Pramanik, **S. Adhikari**, A.S. Majumdar, Dipankar Home, Alok Kumar pan, Information Transfer Using a Single Particle Path-Spin Hybrid Entangled State, *Physics Letters A* 374, 1121-1125 (2010).
19. **Satyabrata Adhikari**, Entanglement and Teleportation in Bipartite System, *International Journal of Quantum Information* 8, 1153-1163 (2010).

20. Nirman Ganguly, **Satyabrata Adhikari**, A. S. Majumdar, Jyotishman Chatterjee, Entanglement Witness Operator for Quantum Teleportation, *Physical Review Letters* 107, 270501-270505 (2011).
21. **Satyabrata Adhikari**, A. S. Majumdar, D. Home, A. K. Pan, P. Joshi, Quantum Teleportation Using Non-Orthogonal Entangled Channels, *Physica Scripta* 85, 045001-045007 (2012).
22. T. Pramanik, **S. Adhikari**, A.S. Majumdar, D. Home, Proposal for Testing Non-Locality of Single Photons in Cavities, *Physics Letters A* 376, 344-348 (2012).
23. **Satyabrata Adhikari**, Indranil Chakrabarty, Pankaj Agrawal, Probabilistic Secret Sharing Through Noisy Quantum Channels, *Quantum Information and Computation* 12, 0253 (2012).
24. **Satyabrata Adhikari**, Nirman Ganguly, A. S. Majumdar, Construction of Optimal Teleportation Witness Operators from Entanglement Witnesses, *Physical Review A* 86, 032315-032318 (2012).
25. **Satyabrata Adhikari**, Subhashish Banerjee, An Operational Meaning of Discord in Terms of Teleportation Fidelity, *Physical Review A* 86, 062313-062317 (2012).
26. Nirman Ganguly, **Satyabrata Adhikari**, A.S.Majumdar, Common Entanglement Witnesses and Their Characteristics, *Quantum Information Processing* 12, 425-436 (2013).
27. Atul Kumar, **Satyabrata Adhikari**, Pankaj Agrawal, Generalized Form of Optimal Teleportation Witnesses, *Quantum Information Processing* 12, 2475-2485 (2013).
28. Sovik Roy, Nirman Ganguly, Atul Kumar, **Satyabrata Adhikari**, A. S. Majumdar, A Cloned Qutrit and Its Utility in Information Processing Tasks, *Quantum Information Processing* 13, 629 (2014).
29. Sk. Sazim, **Satyabrata Adhikari**, Subhashish Banerjee, T. Pramanik, Quantification of Entanglement of Teleportation in Arbitrary Dimensions, *Quantum Information Processing* 13, 863-880 (2014).
30. **Satyabrata Adhikari**, Sovik Roy, Shantanav Chakraborty, V. Jagadish, M. K. Haris, Atul Kumar, Controlled Secret Sharing Protocol Using a Quantum Cloning Circuit, *Quantum Information Processing*, 13, 2071-2080 (2014).
31. **Satyabrata Adhikari**, D. Home, A. S. Majumdar, A. K. Pan, Akshata Shenoy H., R. Srikanth, Toward Secure Communication Using Intra-Particle Entanglement, *Quantum Information Processing* 14, 1451-1468 (2015).
32. Pankaj Agrawal, **Satyabrata Adhikari**, Sumit Nandi, More Communication With Less Entanglement, *European Physical Journal D* 69, 1-6 (2015).
33. **Satyabrata Adhikari**, Atul Kumar, Upper bound on Singlet Fraction of Two Qubit Mixed Entangled State, *Quantum Information Processing* 15, 2797-2803 (2016).
34. Parvinder Singh, **Satyabrata Adhikari**, Atul Kumar, Usefulness of Multiqubit W-type States in Quantum Information Processing Task, *Journal of Experimental and Theoretical Physics* 123, 572-581 (2016).
35. Bibhas Adhikari, Subhashish Banerjee, **Satyabrata Adhikari**, Atul Kumar, Laplacian Matrices of Weighted Digraphs Represented as Quantum States, *Quantum Information Processing* 16, 1-22 (2017).
36. **Satyabrata Adhikari**, Structural Physical Approximation for the Realization of the Optimal Singlet Fraction With Two Measurements, *Physical Review A* 97, 042344 (2018).

37. Chandan Datta, **Satyabrata Adhikari**, Arpan Das, Pankaj Agrawal, Distinguishing Different Classes of Entanglement of Three-Qubit Pure States, Accepted in European Physical Journal D (2018).
38. SK Sazim, **Satyabrata Adhikari**, Arun K. Pati, and Pankaj Agrawal, Mutual Uncertainty, conditional uncertainty, and strong subadditivity, Physical Review A 98, 032123 (2018).
39. Arpita Maitra, Bibhas Adhikari, **Satyabrata Adhikari**, Proposal for Dimensional Testing in Quantum Private Query, Quantum Information and Computation 18, 1125-1142 (2018).

List of Research Paper Published in Conference Proceedings: Nil

Any Other Information: NA