

ACADEMIC PROFILE

NAME: INDRANI CHATTOPADHYAY

SEX : Female

CATEGORY : GEN

DATE OF BIRTH : 14th September 1979

DESIGNATION : Assistant Professor

SPECIALISATION : Quantum Information Theory

DEPARTMENT: Applied Mathematics, University of Calcutta

DATE OF JOINING IN PRESENT POST : 1st January 2009

Contact Information:

Permanent Residential Address: 2, T. N. Banerjee Bye Lane, P.O.+Vill.:- Sukchar,
Dist.- North 24 Parganas, Pin 700115.

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Academic Qualifications

Examination	Name of Board /Institution/	Year of Passing	% of marks	Division/ Class / Grade	Subjects with Specialization
MadhyamikPariksha	West Bengal Board of Secondary Education	1996	84.11	First Division	First Language -Bengali, Second Language – English, Additional Subject - Mathematics
Higher Secondary Examination	West Bengal Council of Higher Secondary Education	1998	72.6	First Division	Mathematics, Physics, Chemistry, Statistics, Bengali & English
B.Sc.	University of Calcutta	2001	60.38 (% in Hons.)	First Class	Mathematics (Hons.), Physics, Statistics
M.Sc.	Department of Applied Mathematics, University of Calcutta	2003	73.6	First Class	Applied Mathematics, Special Paper - Quantum Mechanics
Ph.D.	University of Calcutta	2008	---	---	Applied Mathematics, Specialization-Quantum Information Theory

POSITIONS HELD/HOLDING:

Designation	Name of Employer	Date of		Salary with Grade(in Rs)	Reason of Leaving
		Joining	Leaving		
Lecturer in Mathematics	Netaji Subhas Open University	9.11.06	31.12.08	8,000-13,500	To join in the post of CU
Assistant Professor Stage-1 in Applied Mathematics	University of Calcutta	01.01.09	31.10.12	8,000-13,500 Revised 15,600-39,100 with AGP 6,000	--
Assistant Professor Stage-2 in Applied Mathematics	University of Calcutta	1.11.12	Working till date	15,600-39,100 with AGP 7,000	--

LIST OF PUBLICATIONS :

Research papers published:

1. Amit Kundu, Mostak Kamal Molla, Indrani Chattopadhyay, Debasis Sarkar, "Maximal qubit violation of n-local inequalities in quantum network", *Physical Review A* **102**, 052222, 2020.
2. Dipayan Chakraborty, Prabir Kumar Dey, Nabendu Das, Indrani Chattopadhyay, Amit Bhar, and Debasis Sarkar, "Necessary and sufficient condition for the equivalence of two pure multipartite states under stochastic local incoherent operations and classical communications", *Phys. Rev. A* **100**, 052316, (2019).
3. C. Jebarathinam, Debarshi Das, SomKanjilal, R. Srikanth, Debasis Sarkar, Indrani Chattopadhyay, and A. S. Majumdar, "Superunsteerability as a quantifiable resource for random access codes assisted by Bell-diagonal states", *Phys. Rev. A* **100**, 012344 (2019).
4. SumanaKarmakar, Ajoy Sen, Indrani Chattopadhyay, Amit Bhar and Debasis Sarkar, "Coherence Fraction", *Quantum Information Processing*, **18**, 275(2019).
5. IndraniChattopadhyay and Debasis Sarkar, "Distinguishing quantum operations: LOCC versus separable operators", *Int. J. Quantum Inform.* **14**, 1640028 (2016).
6. AmitBhar, I. Chattopadhyay and D. Sarkar, "A comparative study on correlation measures of pure bipartite states through incomparability," *Journal of Quantum Information Science*, (2012), Vol. 2, 90-101, doi:10.4236/jqis.2012.23015.
7. I. Chattopadhyay and D. Sarkar, "Entanglement of formation is non-monotonic with concurrence: a simple proof", *Quantum Information Processing*, **7**, 243 (2008).
8. I. Chattopadhyay and D. Sarkar, "Character of locally inequivalent classes of states and entropy of entanglement", *Physics Review A, Rapid Communications*, **77**, 050305(R) (2008).
9. I. Chattopadhyay and D. Sarkar, "Local Indistinguishability and Possibility of Hiding cbits in Activable Bound Entangled States", *Physics Letters A*, **365**, 273 (2007).
10. I. Chattopadhyay and D. Sarkar, "General Classes of Impossible Operations through the Existence of Incomparable states", *Quantum Information and Computation*, Vol. **7**, No. **4**, 392, (2007).
11. A. Bhar, I. Chattopadhyay and D. Sarkar, "No-Cloning and No-Deleting Theorems through the Existence of Incomparable States Under LOCC", *Quantum Information Processing*, Vol. **6**, No. 2, 93, (2007).
12. I. Chattopadhyay and D. Sarkar, "Impossibility of exact flipping of three arbitrary quantum states via incomparability", *Physical Review A*, **73**, 044303 (2006).
13. I. Chattopadhyay, S. K. Choudhary, G. Kar, S. Kunkri and D. Sarkar, "No-Flipping as a consequence of No-Signalling and Non-increase of Entanglement under LOCC", *Physics Letters A*, 351, 384 (2006).
14. I. Chattopadhyay and D. Sarkar, "Deterministic Local Conversion of Incomparable States by Collective LOCC", *Quantum Information and Computation*, Vol. **5**, No. 3, 247 (2005).
15. S. Bandyopadhyay, I. Chattopadhyay, V. Roychowdhury and D. Sarkar, "Bell-correlated activable bound entanglement in multiqubit systems", *Physical Review A*, **71**, 062317 (2005).

Book published: *Entanglement – A queer in the world of quantum: Some perspectives*, Lambert Academic Publishing, 2010.

INVITED TALK, PAPER/POSTER PRESENTATION IN SEMINERS, ETC.:

1. Deliver a lecture on "The theory of Quantum Computation", on 12.03.2020, in the Three Day workshop on "Interdisciplinary Cyber Physical Systems (ICPS)", organized by CDAC Kolkata at Hotel IndiSmart, Salt Lake from March 11 to 13 '2020 sponsored by Department of Science and Technology, Govt. of India.
2. Deliver two invited lectures entitled "Quantum Information and Quantum Computation Theory", on All India Council for Technical Education founded Faculty Development Programme (FDP) on Quantum Computational Intelligence, held on 2.11.19-14.11.19 at Department of Computer Science and Engineering (CSE), RCC Institute of Information Technology, Kolkata.
3. Deliver invited lecture entitled "Basics of Entanglement Theory", in the two day workshop titled "Quantum Information and Applications" on 12th and 13th September, 2019, organized by Advanced Signal Processing Group, Centre For Development of Advanced Computing(CDAC).
4. Deliver a lecture on 2nd August 2019 in **E-LEARNING** program "Online Annual Orientation Programme through **SWAYAM** for Mathematics & Statistics" organized by University of Calcutta.
5. Invited lecture on "Characterization of Local Quantum Processes by Local Quantum Uncertainty", in 'INTERNATIONAL SCHOOL AND CONFERENCE ON QUANTUM INFORMATION (ISCQI-2016)', held at the Institute of Physics, Bhubaneswar, Orissa, during February 9-13, 2016.
6. Visited the Department of Physics, Harish-Chandra Research Institute, Allahabad on 29.10.2015-5.11.2015 and present an Invited lecture on "Disentanglement Process and Local Quantum Uncertainty".

7. Invited lecture on "**Characterization of Local Quantum Processes by Local Quantum Uncertainty**", given at the "International Conference on Recent Trends in Mathematics (ICRTM2015)", organized by the Department of Mathematics, University of Allahabad on July 10 to 12, 2015.
8. Invited special lecture on "**Local Conversion of Quantum States**", given at the Summer School on 'Quantum Correlation; Foundation, Information Processing and Various Applications' to be organized by PAMU at ISI from 22nd June to 3rd July, 2015.
9. Participated and presented Invited Talk entitled "**Distinguishability of Quantum Operations: LOCC vs Separable Superoperator**", in 'INTERNATIONAL PROGRAM ON QUANTUM INFORMATION 2014 (IPQI-2014)', held at the Institute of Physics, Bhubaneswar, Orissa, during February 17-28, 2014.
10. Invited talk given at Department of Mathematics, Jogesh Chandra Chaudhuri College, Kolkata, in a UGC National Seminar on Quantum Information Theory and Computer Science, during February 14-15, 2012 on "**Hiding Information**".
11. Participated and presented Invited Talk entitled "**On Discrimination of Quantum Operations**", in 'INTERNATIONAL SCHOOL and CONFERENCE ON QUANTUM INFORMATION 2011 (ISCQI-2011)', held at the Institute of Physics, Bhubaneswar, Orissa, during December 13-22, 2011.
12. Participated and presented a Talk entitled "**On Characterization of Multiparticle Entangled States**", in 'International Program on Quantum Information (IPQI-2010)', held at the Institute of Physics, Bhubaneswar, Orissa, during January 4-30, 2010.
13. Participated in "Teachers Enrichment workshop in Mathematics" organized by CMS during June 15-29, 2017.
14. Participated in 3rd International Conference on Quantum Foundations (ICQF-17) organized by National Institute of Technology, Patna, India during December 4-9, 2017.
15. Participated in International Symposium on New Frontiers in Quantum Correlations (ISNFQC18), organized by S.N. Bose National Centre for Basic Sciences, on January 29th to February 2nd 2018.

Ongoing Sponsored Projects:

S.No.	Title	Sponsoring Agency	Duration	Cost
1.	Non-Classical Correlations- Entanglement and Beyond Entanglement	DST	3yrs Approval date- 08/02/2019	Total-Rs. 103,98,000 mobilized, Govt. Of India initiative on QuEST. PI- Prof. Debasis Sarkar, Co-PI- Dr. Indrani Chattopadhyay
2.	Technology-aware modelling and implementation of single, two and multi qubit quantum operations for Quantum nanostructures including Quantum Dots (QDs) and Nanowires (NWs)	DST	3yrs Approval date- 08/02/2019	Total-Rs. 10,00,00,000 mobilized, Govt. Of India initiative on QuEST. PI- Dr. S. Chattopadhyay, Co-PI's- Prof. D. Sarkar, Prof. A. Chakrabarti, Dr. A. Bhattacharyya, Dr. K. Das Sharma, Dr. I. Chattopadhyay

Act as a joint-coordinator/joint-convenor for

- Winter School on "Recent Trends in Mathematical Methods", on December 14 – 21, 2011;
- National Seminar on "Recent Advances in Applied Mathematics and its Computational Aspects", on March 25-27, 2015;
 - National Symposium on "Recent Trends in Quantum Theory 2017(RTQT17)" on March 09-10, 2017;
- National Symposium On "Recent Trends in Applied Mathematics 2018 (RTAM18), Thrust areas: Computational Mathematics and Quantum Mechanics during March 26-28, 2018;
- National Symposium On "Recent Trends in Applied Mathematics 2019, Thrust areas: Computational Mathematics and Quantum Mechanics", on March 12-14, 2019; organized by Department of Applied Mathematics, University of Calcutta.