

Debasis Sadhukhan

CONTACT INFORMATION	Harish-Chandra Research Institute, Chhatnag Road, Jhansi, Allahabad, 211019, India	<i>Voice:</i> (+91) 8765839618 <i>E-mail:</i> debsadhukhan@hri.res.in, <i>Web:</i> http://www.hri.res.in/~debsadhukhan
PERSONAL INFORMATION	<i>Gender:</i> Male <i>Nationality:</i> Indian	<i>Date of Birth:</i> 1st May, 1990 <i>Place of Birth:</i> Gopinagar, Hooghly, WB, India
EDUCATION	Harish-Chandra Research Institute (HRI) , Allahabad, India August, 2012 - current Ph.D.(ongoing) in Theoretical Physics at Quantum Information and Computation (QIC) Group, HRI, Allahabad, India Advisor: Prof. Aditi Sen(De) , QIC Group, HRI, Allahabad, India Research specialization: Quantum information theory and its interface with many-body physics, disordered systems, computational complexity of quantum correlation measures Indian Institute of Technology Bombay , Powai, Mumbai, India July, 2010 - May, 2012 M.Sc., Physics <ul style="list-style-type: none">• Dissertation Topic: Generalization of Quantum Search Algorithm• Advisor: Prof. T. A. Tuli, Dept. of Physics, IIT Bombay, Mumbai, India Result : 8.01 on a 10 point scale University of Calcutta , Kolkata, India July, 2007 - May, 2010 B.Sc. with Honours in Physics Result : First Class (69.48 percent)	
AWARDS	Bhabesh Gandhi Memorial Prize for being the most outstanding of all the students who completed the requirements for M.Sc. degree (Best Thesis Award) in Physics (2012). Gold Medal in the National Graduate Physics Examination (NGPE), conducted by Indian Association of Physics Teachers (IAPT), India (2010). Selected in Wipro in Wipro Academy of Software Excellence(WASE) (2010).	
MAJOR SCHOLARSHIPS	Senior Research Fellowship by Department of Atomic Energy, Govt. of India in August, 2014. Junior Research Fellowship (AIR 50) by Council of Scientific & Industrial Research (CSIR), Govt. of India in June, 2013. ‘Innovation for Scientific Pursuit of Inspire Research (INSPIRE)’ Scholarship awarded by Dept. of Science & Technology, Govt. of India (2007-12). West Bengal Govt. Scholarship for Higher Education, awarded by Ministry of Higher Education, Govt. of West Bengal (2007-10).	
SUMMER INTERNSHIP	Summer Research Fellowship, IISc, Bangalore, India <i>Guide:</i> Prof. Subroto Mukerjee	May, 2011- June, 2011 Visiting Student Fellowship, HRI, Allahabad, India <i>Guide:</i> Prof. Aditi Sen(De)

PREPRINTS &
PUBLICATIONS

1. A. Bera, T. Das, D. Sadhukhan, S. Singha Roy, A. Sen(De), U. Sen, *Quantum discord and its allies: a review*, arXiv:1703.10542 (2017)
2. D. Sadhukhan, S. Singha Roy, A. K. Pal, D. Rakshit, A. Sen(De), U. Sen, *Multipartite Entanglement Accumulation in Quantum States: Localizable Generalized Geometric Measure*, Phys. Rev. A **95** 022301 (2017)
3. T. Chanda, T. Das, D. Sadhukhan, A. K. Pal, A. Sen(De), U. Sen, *Scale-invariant freezing of entanglement*, arXiv:1610.00730 (2016)
4. T. Chanda, T. Das, D. Sadhukhan, A. K. Pal, A. Sen(De), U. Sen, *Static and dynamical quantum correlations in phases of an alternating field XY model*, Phys. Rev. A **94** 042310 (2016)
5. T. Chanda, T. Das, D. Sadhukhan, A. K. Pal, A. Sen(De), U. Sen, *Statistics of leading digits leads to unification of quantum correlations*, Europhys Lett. **114**, 30004 (2016)
6. D. Sadhukhan, R. Prabhu, A. Sen(De), U. Sen, *Quantum correlations in quenched disordered spin models: Enhanced order from disorder by thermal fluctuations*, Phys. Rev. E **93**, 032115 (2016)
7. D. Sadhukhan, S. Singha Roy, D. Rakshit, R. Prabhu, A. Sen(De), U. Sen, *Quantum discord length is enhanced while entanglement length is not by introducing disorder in a spin chain*, Phys. Rev. E **93**, 012131 (2016)
8. T. Chanda, T. Das, D. Sadhukhan, A. K. Pal, A. Sen(De), U. Sen, *Reducing Computational Complexity of Quantum Correlations*, Phys. Rev. A **92**, 062301 (2015)
9. D. Sadhukhan, S. Singha Roy, D. Rakshit, A. Sen(De), U. Sen, *Beating no-go theorems by engineering defects in quantum spin models*, New J. Phys. **17**, 043013 (2015)

TEACHING
EXPERIENCE

As a teaching assistant, I have tutored the following graduate level courses at HRI, Allahabad:

1. *Quantum Mechanics - I* (Independence Semester, 2016)
2. *Research Methodology and Numerical Methods* (Independence Semester, 2015)

CONFERENCE &
WORKSHOP

1. Young Quantum-2017, HRI, Allahabad, India (February 2017)
Talk: *Statics and dynamical quantum correlations in phases of an alternating transverse field XY model*
2. Conference on Entanglement and Non-Equilibrium Physics of Pure and Disordered Systems, ICTP, Trieste, Italy (July 2016)
3. Conference on Long-Range-Interacting Many Body Systems: from Atomic to Astrophysical Scales, ICTP, Trieste, Italy (July 2016)
Poster: *Enhancement of Quantum Correlation Length in Quenched Disordered Spin Chains*
4. Meeting on Quantum Information Processing and Applications, HRI, Allahabad, India (December, 2015)
Poster: *Regional and global quantum correlations: their interrelations and use*
5. Young Quantum-2015, HRI, Allahabad, India (February 2015)
Poster: *Enhancement of Quantum Correlation Length in Quenched Disordered Spin Chains*
6. School on Topological Quantum Matter, HRI, Allahabad India (February, 2015)
7. School & Discussion Meeting on Frontiers in Light-Matter Interactions, IACS, Kolkata, India (December 2014)
Poster: *Beating no-go theorems by engineering defects in quantum spin models*
8. International Program on Quantum Information, Institute of Physics, Bhubaneswar, India (February, 2014)
Poster: *Enhancement of quantum correlations in disordered quantum systems*

OTHER TALKS /
SEMINARS

1. *'ETH and many-body localizations'*
QuIC Talk, HRI, Allahabad on 25th March, 2017.
2. *'Quantum correlation length in disordered spin systems'*
QOS group seminar, University of Freiburg, Germany on 4th August, 2016
Host: Prof. Andreas Buchleitner
3. *'Statics and dynamical quantum correlations in inhomogeneous transverse field XY model'*
CMSP Seminar, ICTP, Trieste, Italy on 2nd August, 2016
Host: Prof. Marcus Müller
4. *'Quantum correlations in realizable quantum systems'*
Joint Theoretical and Experimental Quantum Optics group seminar, University of Siegen, Germany on 21st July, 2016
Host: Prof. Christof Wunderlich
5. *'Detecting bound-entangled states using co-variance matrix criteria'*
QuIC Talk, HRI, Allahabad on 4th August, 2015.
6. *Quantum Computation with Trapped-Ions*
QIC seminar at HRI, Allahabad on 8th November, 2013.
7. *'Generalizations of Quantum Search Algorithms'*
Graduate Seminar at Dept. of Physics, IIT Bombay in April, 2012.

COMPUTER SKILLS

- **Languages:** C++, Matlab, Mathematica
- **Numerical Tools:** Lanczos, DMRG

POSITION OF
RESPONSIBILITY

- Member of Local Organizing Committee, Young Quantum-2017, HRI, Allahabad Feb, 2017
- Member of Local Organizing Committee, QIPA-2015, HRI, Allahabad Dec, 2015
- Member of Local Organizing Committee, Young Quantum-2015, HRI, Allahabad Feb, 2015
- Member of Local Organizing Committee, QIPA-2013, HRI, Allahabad Dec, 2013
- PG Cultural Secretary, Department of Physics, IIT Bombay July, 2011 - May, 2012

REFERENCE

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