Curriculum Vitae

Present Address

Dr. Priyam Das
Assistant Professor,
Bankura Sammilani College,
Kenduadihi, Bankura,
West Bengal – 722102, India.

Email: (i) daspriyam3@gmail.com
Website: https://sites.google.com/site/daspriyam3/home

Permanent Address

C/o Dr. Prabir Kr. Das
Gurupally (West),
P.O. – Santiniketan,
Dist. – Birbhum,
West Bengal – 731235, India.

Phone - + 91-9205660991 (M)

Academic Qualification

- **Positions held:**
  - **Assistant Professor, D**epartment *of Physics, Bankura Sammilani College, Bankura – **December 2019 – till date***. **(2 years 8 months)**
    Date of Joining: 21/12/2019
  - **Assistant Professor,** *Department of Physics, Amity Institute of Applied Science, Amity University – Kolkata*, ***February 2018 – December 2019*** **(01 year 10 months).**
  - **Research Associate,** *Department of Physics, Indian Institute of Technology Delhi, New Delhi, India, **May 2016 – February 2018*** **(01 year 09 months)**.
  - **Postdoctoral Research Fellow,** *Institute of Nuclear Physics, Hacettepe University, Ankara, Turkey, **December 2014 – March 2016*** **(01 year 03 months)**.
  - **Visiting Research Fellow,** *Indian Institute of Science Education and Research – Kolkata, India, **May2014 – November 2014*** **(06 months)**.
  - **Research Fellow,** *Center for Quantum Technologies, **National University of Singapore**, Singapore*, ***February 2012 – March 2014*** **(02 years 02 months).**
  - **Research Assistant**,*Center for Quantum Technologies, **National University of Singapore**, Singapore*, ***July 2011 - September 2011*** **(02 months).**
- **Academics:**
  - **Doctor of Philosophy (Ph.D. in Physics) – December 2011**
    Title **: An investigation of the collective modes and phases of Bose-Einstein condensates**
    Supervisor **: Prof. Prasanta K. Panigrahi**
    Institute **:** *Indian Institute of Science Education and Research (IISER) – Kolkata, India*
  - **Junior Research Fellow,** *Physical Research Laboratory, Ahmedabad, India,* **2006 – 2008**.
  - **Master of Science (M.Sc. in Physics),** *Indian Institute of Technology, Guwahati, India*, **2006**, (**CPI: 8.25 out of 10**).
  - **Bachelor of Science (B.Sc. in Physics),** *Visva-Bharati University, Santiniketan, India*, **2004**, (**Percentage of marks:70.3%**).
  - **Pre-Degree Examination (Science),** *Visva-Bharati University, Santiniketan, India*, **2001**, (**Percentage of marks:79%**).
  - **School Certificate Examination,** *Visva-Bharati University, Santiniketan, India*, **1999**, (**Percentage of marks:79.1%**).

Research Interests

- **Ultra-cold atomic gasses and Bose Einstein Condensation,** Analog gravity**,** Sonic Black-hole
- **Quantum Optics** - light-matter and interactions, Quantum Simulation, Single photon transport,
- **Ultra-cold Chemistry – c**ontrolling chemical reaction front through various excitations
- **Quantum Information theory**: Entanglement and Nonclassicality

Membership of Professional bodies

- Life member of e-COST (**E**uropean **Co**operation in **S**cience and **T**echnology), since October 2015.
- Life member of ISAMP (Indian Society for Atomic and Molecular Physics), since January 2017.

Professional Duties as Referee for various Journals

- ***Journal of Physics A: Mathematical and Theoretical, IOP Publishing.***
- ***Journal of Physics B: Atomic Molecular and Optical Physics, IOP Publishing*.**
- ***SOP Transaction on Theoretical Physics, Scientific Online Publishing*.**

- ***International Journal of Geometric Methods in Modern Physics, World Scientific*.**

Achievements: Scholarship and Awards

1. Received **Postdoctoral Research Fellowship** from the project "TUBITAK-1001, Grant No. 114F170" at Hacettepe University, Ankara, Turkey in the year 2014.
2. Received **Postdoctoral Research Fellowship** from the project "**Theory Group Dimitris Angelakis [R-710-000-019-271]**" at Center for Quantum Technologies, National University of Singapore, in the year 2012.
3. Selected as a **Senior Research Fellow** at Indian Institute of Science Education and Research, Kolkata, India, 2008 – 2011.
4. Selected as a **Junior Research Fellow** at Physical Research Laboratory, Ahmadabad, India, from 2006 - 2008.
5. Qualified in **Joint Entrance Screening Test (JEST-06)** conducted jointly by the various research institutes in India, in the year 2006.
6. Recipient of **Jagodish Bose National Science Talent Search (JBNSTS)** junior award in 2001 and participated various programs in science, in the year 2001-02.
7. Recipient of **scholarship on merit** in both **10th and 12th** standard from VisvaBharati University in the year 1999 and 2001.

Teaching :

Theory

- CORE T2 - Mechanics [B.Sc.(H) Sem - I]
- CORE T4 - Waves and Optics [B.Sc.(H) Sem-II]
- CORE T6 - Thermal Physics [B.Sc.(H) Sem-III]
- CORE T9 - Elements of Modern Physics [B.Sc.(H) Sem-IV]
- CORE T11 - Quantum Mechanics [B.Sc.(H) Sem-V]
- CORE T14 - Statistical Physics [B.Sc.(H) Sem-VI]
- DSE T2 - Classical Dynamics [B.Sc.(P) Sem - V]
- PHYS113 – Applied Physics – II (B. Tech. ECE & MAE)
- PHYS131 – Basic Physics – II for Bio Science (B. Tech. Bio-Tech)
- PHYS132 - Engineering Physics - B.Tech. (CSC, ECE, MAE & CE)
- PHYS104 - Physics - I (B.Sc. (H) - Chemistry)
- PHYS604 - Classical Mechanics (M.Sc. (AP) - Physics)
- PHYS123 - Quantum Mechanics (B.Sc. (H) - Physics)

Laboratory

- CORE P6 - Thermal Physics LAB [B.Sc.(H) Sem-III]
- CORE P8 - Mathematical Physics Lab - SCILAB [B.Sc.(H) Sem-IV]
- CORE P11 - Quantum Mechanics LAB [B.Sc.(H) Sem-V]
- CORE P14 - Statistical Mechanics LAB [B.Sc.(H) Sem-VI]
- PHYS113 – Basic Laboratory Courses for Applied Physics – II (B.Tech. ECE & MAE)
- PHYS132 - Basic Laboratory Courses for Engineering Physics - B.Tech. (CSC, ECE, MAE & CE)
- PHYS104 - Basic Laboratory Courses for Physics - I (B.Sc. (H) - Chemistry)

Project Students/Group members

Completed

1. **Mr. Sayan Mitra**, Under-graduate, B.Sc. (H) Physics, successfully defended his project, entitled "*Dyanmics of Bose-Einstein condensate in a harmonic trap*."
2. **Ms. Charulata Sil**, Under-graduate, B.Sc. (H.) Physics, successfully defended his project, entitled "Classical Phase transition in Bose-Einstein condensate."
3. **Mr. Nilanjan Mukherjee,** Post-graduate, M.Sc. (Applied Physics) Physics, successfully defended his project, entitled "*Analog Gravity models with Ultra-cold atoms*."
4. **Mr. Anirban Dasgupta,** Post-graduate at NIT Jamshedpur, M.Sc. (Physics) Physics, successfully completed his project, entitled "*Guage field induced Sonic Black-hole analog in Tonk-Girardeau Limit*."
5. **Mr. Shashwata Samanta,** Under-graduate, B.Sc. (H) Physics, successfully defended his project, entitled "*Dyanmics of Bose-Einstein condensate in a harmonic trap*."
6. Mr. Md. Sk Mohsin, Under-graduate, B.Sc. (H) Physics, successfully defended his project, entitled "Modulational Instability of Bose-Einstein condensate."
7. Mr. Sarashwat Acharyya, Under-graduate, B.Sc. (H) Physics, successfully defended his project, entitled "An application of particle in a box: Quantum dot."

8. Mr. Kumar Aryan, Under-graduate, B.Sc. (H) Physics, successfully defended his project, entitled "Nonlinearity and Solitons – a brief overview."

List of Publications

1. M. Günay, **Priyam Das**, E. Yuce and M. E. Tasgin, Voltage-tunable integrated quantum entanglement device via nonlinear Fano resonances, Communicated for publication in **Nanophotonics** (2022).
2. S. Modok, **Priyam Das**, Challenger Mishra and P.K. Panigrahi, Chemical Oscillations in Ultra-cold Chemistry, communicated for publication in ***J. Phys.: At. MOl. Opt. & Phys***. (2022).
3. S. Modok, **Priyam Das**, and P.K. Panigrahi, Quantum State Transfer in Ultra-cold Chemistry, communicated for publication in ***Euro. Phys. J. D***. (2022).
4. Sayan Mitra, Charulata Si, **Priyam Das** and P.K. Panigrahi, Impurity induced grey solitons and bound state in Bose-Einstein Condensate, communicated for publication in *Euro. Phys. J. D.* (2022).
5. **Priyam Das**, A. Khan and A. Pathak, Formation of solitonic bound state via light-matter interaction, Euro. Phys. J. D. 74, 213 (2020).
6. **Priyam Das**, *Lattice and Quintic Nonlinearity Induced Stripe Phase in Bose-Einstein Condensate in a Non-inertial and Inertial Frame,* ***J. Phys. Commun.*** **2,** 055012 (2018).
7. **Priyam Das,** Ayan Khan and Prasanta K. Panigrahi, *Emerging novel phases of Bose-Einstein Condensate for various topology,* ***Journal of Physics***: Conf. Series **875** 082009(2017).
8. **Priyam Das**, Mehmet EmreTasgin and Ozgur E. Mustecaplioglu, *Collectively Induced Many-Vortices Topology via Rotatory Dicke Quantum Phase Transition*, ***New J. Phys.*****18**, 093022(2016).
9. **Priyam Das**, Ayan Khan and Prasanta K. Panigrahi, *Realization of Negative Mass Regime and Bound State of Solitons in Inhomogeneous Bose-Einstein Condensates*, ***Eur. Phys. J. D*****, 70,** 113 (2016).
10. **Priyam Das** and Prasanta K Panigrahi, *Controlled Generation of Nonlinear Resonances in Bose-Einstein Condensate*, ***Laser Phys.*****25**, 125501 (2015).
11. Dimitris G. Angelakis, **PriyamDas** and Changsuk Noh, *Probing the Topological Properties of the Jackiw-Rebbi Model with Light*, ***Nature Scientific Reports*****,4**, 6110 (2014).
12. **Priyam Das**, Changsuk Noh, Dimitris G. Angelakis, *Realization of Driven Nonlinear Schrödinger equation with stationary light*, ***Europhys. Lett.*** 103, 34001 (2013).
13. Prasanta K. Panigrahi, Rajneesh Atre, S. SreeRanjani, **Priyam Das** and Kumar Abhinav, *Bose-Einstein Condensates in a Harmonic Trap and Optical Lattice***,** Editor: Rajesh Srivastava, Rakesh Choubisa (Book: Atomic and Molecular Physics: Introduction to Advanced Topics), ***Narosa Publishing House,*** pp. 183 – 202 (2012). ***ISBN: 978-8184871692***
14. **Priyam Das**, Manan Vyas and Prasnata K. Panigrahi, *Loss of Superfluidity of Bose-Einstein Condensate in an Optical Lattice with Cubic and Quintic Nonlinearity*, ***J. Phys. B: At. Mol. & Opt. Phys.,*** **42**, 245304 (2009).
15. **Priyam Das**, T Soloman Raju, Utpal Roy and Prasanta K. Panigrahi, *Sinusoidal Excitation in Two Component Bose-Einstein Condensate in a Trap*, ***Phy. Rev. A***, **79**, 015601 (2009).
16. Prasanta K. Panigrahi, **Priyam Das** and Ayan Khan, *Bose Einstein condensate with a time varying scattering length in a trap*, Editor: E. Krishnakumar (Book: Advances in Atomic, Molecular and Optical Sciences), ***Allied Publishers Pvt. Ltd*****,**pp. 66 – 73(2007). **ISBN: 978-8184243413**
17. Challenger Mishra, **Priyam Das**, K. R. Dastidar and Prasanta K. Panigrahi, *New cross-phase modulated localized solitons in coupled atomic-molecular BEC*, [preprint: ***arXiv:1109.5571***].
18. **Priyam Das**, Sumona Gangopadhyay and Prasanta K. Panigrahi, *Effect of an Impurity on Grey Soliton Dynamics in Cigar-Shaped Bose-Einstein Condensate***,** [preprint: ***arXiv:1003.5745***].
19. **Priyam Das** and Mehmet EmreTasgin, *Generation of Entanglement between the output pulses from an optical cavity by Fano Resonance,* to be communicated for publication soon (2018).

Invited Talk/Oral presentations

1. *Coherent State transfer of Atomic to Molecular Bose-Einstein condensates,* International Conference on Quantum & Atom Optics, Indian Institute of Technology Patna, (December 2018).
2. *Collectively Induced Many-Vortices Topology via Rotatory Dicke Quantum Phase Transition,* CQT10 Conference, Center for Quantum Technologies, National University of Singapore, Singapore, (December 2017).
3. *Rotatory Dicke quantum phase transition: Many-vortices topology,* National Conference on Atomic and Molecular Physics, Physical Research Laboratory, Ahmedabad, India (January 2017).
4. *Realization of Strongly Correlated Many-body Physics withStationary Light,* Invited Talk at Koc University, Istanbul, Turkey (April 2015).
5. *Nonlinear Transport Phenomena with Atom-Photon Interactions,* Conference on Recent Trends in Information Optics and Quantum Optics, Indian Institute of Technology Patna, India, (November 2014).
6. *Existence of Jackiew-Rebbi Model with Stationary Light,* Recent Trends in Field Theory, Banaras Hindu University, Banaras, India, (November 2014).
7. *Controlled Photon Transport*, Workshop on Quantum Paradigms and Security, Indian Institute of Science Education and Research – Kolkata, India, (September 2014).
8. *Realization of Driven Nonlinear Schrodinger equation with Stationary Light,* Symposium on Atomic, Molecular and Optical Physics 2012, Indian Institute of Science education and Research – Kolkata, India, (December 2012).
9. *Investigation of Various Nonlinear Excitations in Bose-Einstein Condensates,* Indian Institute of Technology, Guwahati, India, (December 2012).
10. *Solitons & Bose-Einstein Condensates,* Raman Research Institute, Bangalore, India, (June, 2011).
11. Dynamics and Phase Transitions of Bose-Einstein Condensates, Indian Institute of Astrophysics, Bangalore, India (March 2011).
12. *Density wave ground state in Bose-Einstein Condensate in an optical lattice,* International Conference on Cold Atoms (ICCA), 2008, held at Indian Institute of Science Education and Research (IISER), Kolkata, India(December 2008).
13. *A bird's eye view to Bose-Einstein Condensate,* Students Forum, Indian Institute of Science Education and Research, Kolkata, India(September 2009).
14. Dynamics of Feshbach managed soliton solutions in Two-Component Bose-Einstein condensates*,* Theoretical Physics Division, Physical Research Laboratory, Ahmedabad, India (January 2007).

Paper presented at the Conference/Symposium/Workshop

1. **Priyam Das***,* S. Modak, P.K. Panigrahi, *Coherent State transfer of Atomic to Molecular Bose-Einstein condensates,* International Conference on Quantum & Atom Optics, Indian Institute of Technology Patna, (December 2018).
2. **Priyam Das**, Mehmet EmreTasgin and Ozgur Mustecapliogly, *Collectively Induced Many-Vortices Topology via Rotatory Dicke Quantum Phase Transition,*CQT10 Conference, Center for Quantum Technologies, National University of Singapore, Singapore, (December 2017).
3. **Priyam Das**, Mehmet Emre Tasgin and OzgurMustecapliogly, *Dicke quantum phase transition: Many-vortices topology,* National Conference on Atomic and Molecular Physics, Physical Research Laboratory, Ahmedabad, India (January 2017)
4. **Priyam Das,** Mehmet EmreTasgin, Ozgur E. Mustecaplioglu, *Superradiant Phase Transition of Bose-Einstein Condensate with l-fold Laguerre-Gaussian Laser*, Hybrid System for Quantum Optics, Bad Honnef, Germany, January 2016.
5. **Priyam Das,** Mehmet EmreTasgin, Ozgur E. Mustecapliogu, *Entanglement of Cavity Output Pulses through Enhanced Plasmonic Nonlinearity by Fano Resonance*, Nanoscale Quantum Optics - ESR workshop, University of Malta, Malta (held at Corinthia Palace Hotel), (November 2015).
6. **Priyam Das,** ChangsukNoh and Dimitris G. Angelakis, *Nonlinear Transport Phenomena with Atom-Photon Interactions,* Conference on Recent Trends in Information Optics and Quantum Optics, Indian Institute of Technology, Patna, India, (November 2014).
7. **Priyam Das,** Dimitris G. Angelakis,andChangsuk Noh, *Existence of Jackiew-Rebbi Model with Stationary Light,*Recent Trends in Field Theory, Banaras Hindu University, Banaras, India, (November 2014).
8. **Priyam Das,** Changsuk Noh and Dimitris G. Angelakis, *Realization of Nonlinear Schrodinger Equation with Stationary Light,* presented at Symposium on Atomic, Molecular and Optical Physics 2012, Indian Institute of Science Education and Research – Kolkata, West Bengal, India (December 2012).

9. **Priyam Das,** Sumona Gongopadhyay and Prasanta K. Panigrahi, *Grey Soliton Dynamics of Bose-Einstein Condensate: Effect of an Impurity,* presented at Conference on Research Frontiers of Ultra-Cold Atomic and Molecular Gases, 2011, International Center for Theoretical Physics, held in Goa, India.
10. **Priyam Das,** Manan Vyas and Prasanta K. Panigrahi, *Dynamical superfluid-insulator transition of Bose-Einstein condensate in an optical lattice with cubic and quintic nonlinearity,* poster presented at the International Conference on Cold Ions and Atoms (ICCIA) 2010, Indian Association for the Cultivation of Science, held at Shankarpur, West Bengal, India.
11. **Priyam Das,** Manan Vyas and Prasanta K. Panigrahi, *Density wave ground state in Bose-Einstein Condensate in an optical lattice,* presented at the International Conference on Cold Atoms (ICCA) 2008, Indian Institute of Science Education and Research, Kolkata - West Bengal, India.
12. **Priyam Das,**Prasanta K Panigrahi and T Solomon Raju, *Sinusoidal Excitation in Two-Component Bose-Einstein Condensation in presence of an optical lattice*, poster presented at National Conference on Nonlinear System and Dynamics (NCNSD) 2008, Physical Research Laboratory, Ahmedabad, India.
13. **Priyam Das,**Prasanta K Panigrahi and T Solomon Raju, *Sinusoidal Excitation in Two-Component Bose-Einstein Condensation in presence of Harmonic Oscillator Potential*, poster presented at Topical Conference on Atomic and Molecular Physics (TC2008) 2008 in Sardar Patel University, Baroda, India.

Conference/School attended

1. **International Conference on Quantum & Atom Optics**, Indian Institute of Technology Patna, (December 16 – 18, 2018).
2. **CQT10 Conference**, Center for Quantum Technologies, National University of Singapore, Singapore, December 7 - 8 2017.
3. **National Conference on Atomic and Molecular Physics**, Physical Research Laboratory, Ahmedabad, India, January 3 – 6, 2017.
4. **Conference on Hybrid System for Quantum Optics**, Physikzentrum, Bad Honnef, Germany, January 10 - 13, 2016
5. **Conference on Nanoscale Quantum Optics - ESR workshop** in University of Malta, Malta (held at Corinthia Palace Hotel), November 15 - 18, 2015.
6. **Conference on Recent Trends in Information Optics and Quantum Optics** in Indian Institute of Technology, Patna, India, November 7 - 8, 2014.
7. **Recent Trends in Field Theory** in Banaras Hindu University, Banaras, India, November 01 - 05, 2014.
8. **Workshop on Quantum Paradigms and Security** at Indian Institute of Science Education and Research – Kolkata, India, September 27 - 28, 2014.
9. **Symposium on Atomic, Molecular and Optical Physics, 2012** at Indian Institute of Science Education and Research – Kolkata, India, December 14 - 17, 2012.
10. **Sao Paulo School Advanced Science, "New Trends in Quantum Matter in Cold Atoms and Molecules,** IFSC, Universidade De Sao Paulo, Instituto de Fisica de Sao Carlos, Brazil, April 04 – 14, 2011.
11. **Conference on Research Frontiers of Ultra-Cold Atomic and Molecular Gases**, International Center for Theoretical Physics (held in Goa, India), January 10 – 14, 2011.
12. **International Conference on Cold Atoms and Ions,** Indian Association for the Cultivation of Science (Held in Shankarpur), January 18 – 22, 2010.
13. **International School on Cold Atoms,** Indian Association for the Cultivation of Science, January 06 – 16, 2010.
14. **DAE-BRNS Symposium on Atomic, Molecular and Optical Physics, 2009,** Inter University Accelerator Center, New Delhi, February 10 – 13, 2009.
15. **International Conference on Cold Atoms (ICCA), 2008,** Indian Institute of Science Education and Research, Kolkata, December 12 – 16, 2008.
16. **New Trends on Field Theory,** Banaras Hindu University, Banaras, India, November 1 – 2, 2008.
17. **International Conference on Nonlinear Dynamical Systems and Turbulence,** Indian Institute of Science, Bangalore, July 17 – 22, 2008.
18. **DST-SERC school on Nonlinear Dynamics,** Indian Institute of Science, Bangalore, India, June 25 – July 16, 2008.
19. **National Conference on Nonlinear System and Dynamics (NCNSD08)**, Physical Research Laboratory, Ahmadabad, January 3 – 5, 2008.
20. **Topical Conference on Atomic and Molecular Physics (TC2008)** in Sardar Patel University, Baroda, India, January 3 – 5, 2008.
21. **National Conference on Atomic and Molecular Physics (NCAMP-07)** in Tata Institute of Fundamental Research, Mumbai, India, January 2007.

22. **Workshop on Modern Physics,** Jagadish Bose National Science Talent Search (JBNSTS), Kolkata, India, November 2 – 4, 2001.
23. **Turning Point Lectures – A contact program in Science,** Jagadish Bose National Science Talent Search (JBNSTS), Kolkata, India, May 25 – June 10, 2001.

Project Undertaken

1.	*Title*	:	Solar Pond
	Supervisor	:	Dr. Arani Chakravarti
	Place	:	Visva Bharati University, Santiniketan
	Period	:	B.Sc.
2.	*Title*	:	Electronic Structure of substitutional disordered System: Various Approximations
	Supervisor	:	Dr. Subhradip Ghosh
	Place	:	Indian Institute of Technology, Guwahati
	Period	:	M.Sc.
3.	*Title*	:	Dynamics of Solitons in two-component Bose-Einstein condensates
	Supervisor	:	Prof. Prasanta K. Panigrahi
	Place	:	Physical Research Laboratory
	Period	:	Ph.D. course work

Computational Skill

- Operating Systems: **Linux, Mac,** and **Windows**
- Programming Languages: **FORTRAN**, **MATLAB,** and C.
- Software Packages: **MATHEMATICA**, **GNUPLOT, LATEX** etc.

Personal Information

- Father's Name : **Dr. Prabir Kr. Das**
- Mother's Name : **Mrs. Sandhya Das**
- Spouse Name : **Mrs. Shilpi Mukherjee**
- Date of Birth : **01st January'1983**
- Sex : **Male**
- Nationality : **Indian**
- Marital Status : **Married**
- Language: **Bengali, English, Hindi**
- Passion :**Photography,Solving Math. puzzle**.

Name of the Referees

1. Prof. Prasanta K. Panigrahi, Indian Institute of Science Education and Research (IISER) Kolkata, Mohanpur Campus, Mohanpur, West Bengal – 741246, India Email: panigrahi.iiser@gmail.com Phone: +91-9748918201	**2. Prof. Mehmet Emre Tasgin** Institute of Nuclear Sciences, Hacettepe University, Beytepe Campus, Ankara – 06800, Turkey Email: metasgin@hacettepe.edu.tr Phone: +90-5303755479
3. Prof. Ozgur E. Mustecaplioglu Department of Physics, Koc University, Sariyer, Istanbul - 34450, Turkey Email: omustecap@ku.edu.tr Phone: +90- 2123381424	**4. Prof. Anirban Pathak** Department Of Physics And Material Science, Jaypee Institute Of Information Technology, Uttar Pradesh, India Email: anirban.pathak@jiit.ac.in Phone: +91-9717066494