

Curriculum Vitae

Malay Bandyopadhyay

Assistant Professor
School of Basic Sciences
I. I. T. Bhubaneswar
Satyanagar, Bhubaneswar
ORISSA - 751007, India

Mobile: (+91)-8457812181/7407922366
Work Phone: (+91)674-257-6096
E-mail: malay@iitbbs.ac.in

Personal :

Birth : 1st May 1978
Sex : Male
Nationality : Indian
Status : Married
Category : General

Positions :

01.05.12 - Till Date : Assistant Professor, I.I.T. Bhubaneswar, India.
01.09.09 - 28.04.12 : Postdoctoral Research Fellow at U Of Toronto, Canada.
01.10.07 - 28.08.09 : Postdoctoral Research Fellow at TIFR, Mumbai, India.
01.07.07 - 30.09.07 : Visiting Research Fellow at IISER, Kolkata, India.
01.07.04 - 30.06.07 : Senior Research Fellow at S. N. Bose Centre, India
01.07.02 - 30.06.04 : Junior Research Fellow at S. N. Bose Centre, India

Academic History:

Ph.d in Physics : 2002-2007 : Jadavpur University
Graduate Thesis Title : On the Brownian motion : From classical to quantal
Thesis Supervisor : Professor Sushanta Dattagupta
M. Sc. in Physics : 1999 - 2001 : University of Calcutta
B. Sc. in Physics : 1996 - 1999 : University of Calcutta

Research Endeavours :

Broad : (A) Nanomagnetism (B) Quantum Dissipation (C) Biophysics
Specific :

- Thermodynamics and relaxation dynamics in nanomagnetic particles.
- Quantum heat transport, Decoherence, dissipation in nanostructures
- DNA breathing dynamics, Stochastic nonequilibrium systems.

Other Area

Fellowships, Honors & Affiliations :

2009-Till Date	: University of Toronto Postdoctoral Fellowship
2007-2009	: TIFR Postdoctoral Fellowship
2002-2007	: CSIR Fellowship
2002	: GATE AIR 50, Percentile : 98
1990-1996	: National Scholarship
2009-2011	: Member, Chemical Institute Canada.

Scholarly Professional Work :**(A) Publications in refereed journals :**

1. S. Chakraverty, **M. Bandyopadhyay**, S. Dattagupta, A. Frydman, S. Sengupta, P. A. Sreeram.
Memory in a magnetic nanoparticle system: Polydispersity and interaction effects.
Phys. Rev. B 71, 054401, (2005)
2. **Malay Bandyopadhyay**, Sushanta Dattagupta.
Dissipative Diamagnetism – A Case Study for Equilibrium and Nonequilibrium Statistical Mechanics of Mesoscopic Systems.
Journal of Statistical Physics 123, 1273 (2006)
3. **Malay Bandyopadhyay**, Sushanta Dattagupta, Monamie sanyal.
Diffusion Enhancement in a Periodic Potential under High-Frequency Space-Dependent Forcing
Phys. Rev. E 73, 051108 (2006)
4. **Malay Bandyopadhyay**
Dissipative Tunneling in 2 DEG: Effect of Magnetic Field, Impurity and Temperature
Journal of Statistical Mechanics: Theory and experiment,(2006) L03001.
5. **Malay Bandyopadhyay**, Sushanta Dattagupta.
Landau-Drude Diamagnetism: Fluctuation, Dissipation and Decoherence
Journal of Phys. : Condensed Matter. 18, 10029 (2006).
6. **Malay Bandyopadhyay**
Orbital magnetism of 2DEG in crossed electromagnetic field: Effect of spin-orbit interaction, confined geometries and defects.
Journal of Stat. Mech.: Theory and experiment (2006) P10010.

7. **Malay Bandyopadhyay**, Sushanta Dattagupta.
Memory in nanomagnetic systems: Superparamagnetism versus Spinglass behavior
Phys. Rev. B *74*, 214410 (2006).
8. **Malay Bandyopadhyay**, Jayee Bhattacharya.
Magnetic and caloric properties of superparamagnetic particles: An equilibrium study
Journal of Phys. : Condensed Matter. *18*, 11309 (2006)
9. S. Chakraverty, **M. Bandyopadhyay**
Coercivity of Nanomagnetic particles - A stochastic model
Journal of Phys. : Condensed Matter *19*, 216201 (2007).
10. **Malay Bandyopadhyay**, and Sushanta Dattagupta.
Quantum Mechanics of Rapidly and Periodically Driven Systems.
Review Article, Pramana *70*, 381 (2008).
11. **Malay Bandyopadhyay**
Tunneling in bistable system under rapid pumping.
Physica Scripta *77*, 055006 (2008).
12. **Malay Bandyopadhyay.**
Nucleation of superconductivity under rapid cycling of an electric field.
Superconductor Science and Technology *21*, 105011 (2008).
13. **Malay Bandyopadhyay**
Thermodynamic properties of magneto-anisotropic nanoparticles.
J. Phys. Cond. Matt. *21*, 236003 (2009)
14. **Malay Bandyopadhyay** *Quantum thermodynamics of a charged magneto-oscillator coupled to a heat bath.*
J. Stat. Mech. Theory and Expt. (2009) P05002
15. **Malay Bandyopadhyay and Mustansir Barma**
Quantum Brownian motion under rapid periodic forcing.
J. Stat. Mech. Theory and Expt. (2009) P07018.

16. **Malay Bandyopadhyay and Sushanta Dattagupta**
Role of quantum heat bath and confinement in the low-temperature thermodynamics of cyclotron motion.
Phys. Rev. E 81, 042102 (2010).

17. **Malay Bandyopadhyay** *Dissipative cyclotron motion of a charged quantum-oscillator and third law.* **J. Stat. Phys. 140, 603 (2010).**

18. **Malay Bandyopadhyay**
Does the second law hold in the quantum regime?
Physica Scripta 81, 065004 (2010).

19. **Malay Bandyopadhyay**
Memory effects in the transport properties of a charged magneto-oscillator in a heat bath. **Physica Scripta 82, 035002 (2010)**

20. **Malay Bandyopadhyay, Shamik Gupta and Dvira Segal**
DNA breathing dynamics: Analytic results for distribution functions of relevant Brownian functionals
Phys. Rev. E 83, 031905 (2011)

21. **Malay Bandyopadhyay, and Dvira Segal**
Quantum thermal transport in the self-consistent harmonic chain model: Numerical simulations beyond linear response
Phys. Rev. E 84, 011151 (2011)

22. **Shamik Gupta, and Malay Bandyopadhyay**
Quantum Langevin equation of a charged oscillator in a magnetic field and coupled to a heat bath through momentum variables
Phys. Rev. E 84, 041133 (2011)

23. **Malay Bandyopadhyay**
Role of environment and confinement in quantum dissipative dynamics : A pedestrian approach
Physica A 391, 3399 (2012)

24. **S Bedkihal, Malay Bandyopadhyay, and Dvira Segal**
Flux dependent occupations and occupation difference in geometrically symmetric and energy degenerate double-dot Aharonov-Bohm interferometers
Phys. Rev. B 87, 045418 (2013)

25. **S Bedkihal, Malay Bandyopadhyay, and Dvira Segal**
Magnetic field symmetries of nonlinear transport with elastic and nonelastic scattering
Phys. Rev. B 88, 155407 (2013)

26. **S Bedkihal, Malay Bandyopadhyay, and Dvira Segal**
The probe technique far from equilibrium : Magnetic field symmetries of nonlinear transport
Eur. Phys. J. B 86, 1 (2013)

27. **A Rajesh, and Malay Bandyopadhyay**
Control of quantum thermodynamic behaviour of a charged magneto-oscillator with momentum dissipation
Phys. Rev. E 89, 062116 (2013)

28. **Shamik Gupta, and Malay Bandyopadhyay**
Free energy of a charged oscillator in a magnetic field and coupled to a heat bath through momentum variables
J. Stat. Mech. Theory and Expt. P04034 (2013)

29. **Malay Bandyopadhyay**
Zeno and anti-Zeno effect in a dissipative quantum Brownian oscillator model
J. Stat. Mech. Theory and Expt. P04001 (2014)

30. **A K Behera, S. Fasco, M Bandyopadhyay, S. Das, and S. Chatterjee**
Amorphization and recrystallization of single-crystalline hydrogen titanate nanowires N^+ ion irradiation
J. Appl. Phys. 115, 233505 (2014)

31. **A Rajesh, and Malay Bandyopadhyay**
Quantum Brownian magneto-oscillator : Role of environmental spectrum and external magnetic field in decoherence and decay processes
Phys. Rev. A 92, 012105 (2015)

Preprints:

1. **Malay Bandyopadhyay, Rajeev Kapri, and Mustansir Barma**
Order parameter fluctuations in fluctuation dominated phase ordering
In preperation

(B) Book Published:

Title: On The Brownian Motion: From Classical To Quantal

Author: Malay Bandyopadhyay

ISBN: 3639241061

ISBN-13: 9783639241068, 978-3639241068

Publishing Date: Mar 2010

Publisher: Vdm Verlag, GERMANY

(C) Referee in International Journals:

IOP Publication : (i) J. Stat. Mech.: Theory & Expt.,(ii)J. Phys. A
(iii)J. Phys. D, (IV)J. Phys. Condens. Matt., (V)Chinese Phys. Lett.
Elsevier Publication : Phys. Lett. A.

Presentations in conferences/workshops :

1. Presented a lecture on “Role of DNA breathing dynamics in gene expression : Some relevant Brownian functionals” at the CBP-2011, CANADA
2. Presented a poster on “DETUNING DISSIPATION BY VOLTAGE BIAS AND TEMPERATURE BIAS” at the CSC-2010, CANADA
3. Presented a talk on “Rapidly forced quantum Brownian motion” at the DISCOMB-09 at Banaras Hindu University.
4. Presented a poster on the “Thermodynamics of nanoparticles” at the NSNT-2007, during 20-24th February, 2007 at Hyderabad, INDIA.
5. Presented a poster on the “Memory effect in nanomagnetic systems: superparamagnetism and spinglasses” at the INDO-SWEDISH conference at SNBNCBS during January 8-11, 2007.
6. Presented a Invited Lecture on the “Memory effect in nanomagnetic particles” at TIFR, Mumbai, India during 6-8 Dec., 2006.
7. Presented a poster on the “Diffusion enhancement under rapid forcing” in the CAMS-06, JN-CASR, Bangalore, India
8. Presented a lecture on the “Dissipative diamagnetism : Einstein versus Gibbs approach” in the SERC School on Condensed Matter Physics at Saha Institute of Nuclear Physics, Kolkata, India during 02 - 31 January, 2006.

References

PROF. SUSHANTA DATTA GUPTA

Theoretical Condensed Matter Group
IISER, Kolkata
Mohanpur Campus, Nadia,
Mohanpur - 741252, INDIA

Phone: 9433013858
Fax : +91-33-2334-8092
E-mail: sushantad@gmail.com
WWW: [://www.iiserkol.ac.in/people/](http://www.iiserkol.ac.in/people/)

PROF. MUSTANSIR BARMA

Department of Theoretical Physics
Tata Institute of Fundamental Research
2 Homi Bhabha Road, Colaba, Navy Nagar
Mumbai 400 005, INDIA

Phone: 9892105000
Fax : +91-22-2280 4611
E-mail: barma@theory.tifr.res.in
WWW: [://www.theory.tifr.res.in/~barma/](http://www.theory.tifr.res.in/~barma/)

PROF. DVIRA SEGAL

Chemical Physics Theory Group
University of Toronto
80 St. George Street, Toronto
ON-M5S 3H6, Canada

Phone: (001)-416-946-0559
Fax : 416-978-8775
E-mail: dsegal@chem.utoronto.ca
WWW: [://www.chem.utoronto.ca/~dsegal/](http://www.chem.utoronto.ca/~dsegal/)

PROF. ARUN JAYANAVAR

Theoretical Condensed Matter Group
Institute of Physics
Sachivalaya Marg, Orissa
Bhubaneswar - 751005, INDIA

Phone: +91-674-230 1058
Fax : +91-674-2300 142
E-mail: jayan@iopb.res.in
WWW: [http://iopb.res.in/~jayan.](http://iopb.res.in/~jayan)