CURRICULUM VITAE

Personal Profile

Name:	Rajarshi Ray
Born / Sex:	October 24, 1973 / Male
Marital / Nationality:	Married / Indian
Present Position:	Associate Professor
Contact Address:	Department of Physics and Center for Astroparticle Physics & Space Science, Bose Institute EN-80, Sector 5, Bidhan Nagar Kolkata 700091, India
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Academic Profile

Areas of Research: Phase Transition, Quark Gluon Plasma, Topological Defects, Lattice field theory, Stochastic Process, Bio-molecular interactions.

Research Posisions:

Oct. 2012 Present:	Associate Professor Bose Institute, Kolkata, India.
Oct. 2008 Oct. 2012:	Assistant Professor Bose Institute, Kolkata, India.
Jan. 2008 Oct. 2008:	Visiting Fellow (Post-doctoral) National Center for Biotechnology Information, Bethesda, USA.
Apr. 2005 Dec. 2007:	Research Associate-II Saha Institute of Nuclear Physics, Kolkata, India.
Jan. 2003 Mar. 2005:	Visiting Fellow (Post-doctoral) Tata Institute of Fundamental Research, Mumbai, India.
Aug. 1998 Dec. 2002:	Senior Research Fellow Institute of Physics, Bhubaneswar, India.
Aug. 1996 Jul. 1998:	Junior Research Fellow Institute of Physics, Bhubaneswar, India.

Academic Records:

2003	Ph.D., in Physics (Advisor: Prof. Ajit M. Srivastava) Institute of Physics, Bhubaneswar, India.
1997	Post. M.Sc. Diploma in Advanced Physics Institute of Physics, Bhubaneswar, India.
1996	M.Sc., in Physics Science College, Rajabazar (University of Calcutta), India.
1994	B.Sc. (Honours), in Physics Asutosh College (University of Calcutta), India.

Other Awards:

1996	Qualified for Graduate Aptitude Test in Engineering (GATE 1996) in Physical Sciences.

Academic Activities:

Research:

Involved in full time research program at Bose Institute.

Total Publications: 68
A: Publications in peer-reviewed journals: 32
B: Other Research Articles: 4
C: Books/Edited volumes/Reports: 2
D: PhD Thesis: 1
E: Conference proceedings: 29

Involved as co-investigator / collaborator in various extramural research projects.

Human Resource Development / Outreach:

Involved in training several doctoral scholars. Formally supervising thesis work of five doctoral scholars.

Involved as coordinator as well as teacher in the integrated MSc-PhD (Physical Sciences) program of Bose Institute in collaboration with University of Calcutta.

Involved in organization and participation in various seminar, conference and outreach programs of Bose Institute especially in the North-East Student's Summer Training on Basic Science (NESST-BASE) school and in the Winter School and Conference on Astroparticle physics.

The information herein is true to the best of my knowledge.

Date: 16/03/2017 Rajarshi Ray

List of Publications of Rajarshi Ray:

A. Peer Reviewed Journals:

A.1. **Reparametrizing the Polyakov – Nambu – Jona-Lasinio model**
Abhijit Bhattacharyya, Sanjay K. Ghosh, Soumitra Maity, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in Phys.Rev. D95 (2017) no.5, 054005(1-13)
DOI: 10.1103/PhysRevD.95.054005
e-Print: arXiv:1609.07882 [hep-ph]

A.2. **Polyakov−Nambu−Jona-Lasinio Model In Finite Volumes**
Abhijit Bhattacharyya, Sanjay K. Ghosh, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in Europhys.Lett. 116 (2016) no.5, 52001(p1-p7)
DOI: 10.1209/0295-5075/116/52001
e-Print: arXiv:1507.08795 [hep-ph]

A.3. **Exploring Effects Of Magnetic Field On The Hadron Resonance Gas**
Abhijit Bhattacharyya, Sanjay K. Ghosh, Rajarshi Ray and Subhasis Samanta
Published in Europhys.Lett. 115 (2016) no.6, 62003(p1-p6)
DOI: 10.1209/0295-5075/115/62003
e-Print: arXiv:1504.04533 [hep-ph]

A.4. **Thermodynamics And Fluctuations Of Conserved Charges In A Hadron Resonance Gas Model In A Finite Volume**
Abhijit Bhattacharyya, Rajarshi Ray, Subhasis Samanta and Subrata Sur
Published in Phys.Rev. C91 (2015) no.4, 041901(1-6) (Rapid Communication)
DOI: 10.1103/PhysRevC.91.041901
e-Print: arXiv:1502.00889 [hep-ph]

A.5. **Fluctuation Of Strongly Interacting Matter In The Polyakov – Nambu – Jona-Lasinio Model In A Finite Volume**
Abhijit Bhattacharyya, Rajarshi Ray and Subrata Sur
Published in Phys.Rev. D91 (2015) no.5, 051501(1-6) (Rapid Communication)
DOI: 10.1103/PhysRevD.91.051501
e-Print: arXiv:1412.8316 [hep-ph]

A.6. **Shear Viscosity And Phase Diagram From Polyakov – Nambu – Jona-Lasinio Model**
Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in Phys.Rev. D91 (2015) no.5, 054005(1-11)
DOI: 10.1103/PhysRevD.91.054005
e-Print: arXiv:1411.2765 [hep-ph]

A.7. **Quark Number Susceptibility : Revisited With Fluctuation-Dissipation Theorem In Mean Field Theories**
Sanjay K. Ghosh, Anirban Lahiri, Sarbani Majumder, Munshi G. Mustafa Sibaji Raha and Rajarshi Ray
Published in Phys.Rev. D90 (2014) no.5, 054030(1-18)
DOI: 10.1103/PhysRevD.90.054030
e-Print: arXiv:1407.7203 [hep-ph]

A.8. **Fluctuations And Correlations Of Conserved Charges In An Excluded Volume Hadron Resonance Gas Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray and Subhasis Samanta
Published in Phys.Rev. C90 (2014) no.3, 034909(1-15)
DOI: 10.1103/PhysRevC.90.034909
e-Print: arXiv:1310.2793 [hep-ph]

A.9. **Isospin Symmetry Breaking And Baryon-Isospin Correlations From Polyakov − Nambu − Jona-Lasinio Model**
Abhijit Bhattacharyya, Sanjay K. Ghosh, Anirban Lahiri, Sarbani Majumder, Sibaji Raha and Rajarshi Ray
Published in Phys.Rev. C89 (2014) no.6, 064905(1-7)
DOI: 10.1103/PhysRevC.89.064905
e-Print: arXiv:1212.6134 [hep-ph]

A.10. **The Consequences Of SU(3) Colorsingletness, Polyakov Loop And Z(3) Symmetry On A QuarkGluon Gas**
Chowdhury Aminul Islam, Raktim Abir, Munshi G. Mustafa, Sanjay K. Ghosh and Rajarshi Ray
Published in J.Phys. G41 (2014) 025001(1-18)
DOI: 10.1088/0954-3899/41/2/025001
e-Print: arXiv:1208.3146 [hep-ph]

A.11. **Duality Between The Dynamics Of Line-like Brushes Of Point Defects In 2D And Strings In 3D In Liquid Crystals**
Sanatan Digal, Rajarshi Ray, P.S. Saumia and Ajit M. Srivastava
Published in J. Phys.: Condensed Matter 25 (2013) 404204(1-6)
DOI: 10.1088/0953-8984/25/40/404204

A.12. **Shear Viscosity Due To Landau Damping From The Quark-Pion Interaction**
Sabyasachi Ghosh, Anirban Lahiri, Sarbani Majumder, Rajarshi Ray and Sanjay K. Ghosh
Published in Phys.Rev. C88 (2013) no.6, 068201(1-5)
DOI: 10.1103/PhysRevC.88.068201
e-Print: arXiv:1311.4070 [nucl-th]

A.13. **Thermodynamic Properties Of Strongly Interacting Matter In Finite Volume Using Polyakov – Nambu – Jona-Lasinio Model**
Abhijit Bhattacharyya, Paramita Deb, Sanjay K. Ghosh, Rajarshi Ray and Subrata Sur
Published in Phys.Rev. D87 (2013) no.5, 054009(1-13)
DOI: 10.1103/PhysRevD.87.054009
e-Print: arXiv:1212.5893 [hep-ph]

A.14. **Study Of Beta Equilibrated 2+1 Flavor Quark Matter In the Polyakov – Nambu – Jona-Lasinio Model**
Abhijit Bhattacharyya, Sanjay K. Ghosh, Sarbani Majumder and Rajarshi Ray
Published in Phys.Rev. D86 (2012) 096006(1-11)
DOI: 10.1103/PhysRevD.86.096006
e-Print: arXiv:1107.5941 [hep-ph]

A.15. **Heavy Lepton Pair Production In Nucleus-Nucleus Collisions At LHC Energy – A Case Study**
Jan-e Alam, Bedangadas Mohanty, Sanjay K. Ghosh, Sarbani Majumder and Rajarshi Ray
Published in Nucl.Phys. A889 (2012) 1-7
DOI: 10.1016/j.nuclphysa.2012.05.004
e-Print: arXiv:1102.1855 [nucl-th]

A.16. **Correlation Between Conserved Charges In Polyakov – Nambu – Jona-Lasinio Model With Multiquark Interactions**
Abhijit Bhattacharyya, Paramita Deb, Anirban Lahiri and Rajarshi Ray
Published in Phys.Rev. D83 (2011) 014011(1-9)
DOI: 10.1103/PhysRevD.83.014011
e-Print: arXiv:1010.2394 [hep-ph]

A.17. **Susceptibilities With Multi-Quark Interactions In the Polyakov – Nambu – Jona-Lasinio Model**
Abhijit Bhattacharyya, Paramita Deb, Anirban Lahiri and Rajarshi Ray
Published in Phys.Rev. D82 (2010) 114028(1-11)
DOI: 10.1103/PhysRevD.82.114028
e-Print: arXiv:1008.0768 [hep-ph]

A.18. **Investigation Of The Phase Diagram And Bulk Thermodynamic Properties Using The Polyakov – Nambu – Jona-Lasinio Model With Eight-Quark Interactions**
Abhijit Bhattacharyya, Paramita Deb, Sanjay K. Ghosh and Rajarshi Ray
Published in Phys.Rev. D82 (2010) 014021(1-11)
DOI: 10.1103/PhysRevD.82.014021
e-Print: arXiv:1003.3337 [hep-ph]

A.19. **Rigorous Treatment Of Electrostatics For Spatially Varying Dielectrics Based On Energy Minimization**
Oleg I. Obolensky, Timothy P. Doerr, Rajarshi Ray and Yi-Kuo Yu
Published in Phys. Rev. E79 (2009) 041907(1-15)
DOI: 10.1103/PhysRevE.79.041907
e-Print: arXiv:0901.0129 [physics.class-ph]

A.20. **Polyakov – Nambu – Jona-Lasinio Model With A Vandermonde Term**
Sanjay K. Ghosh, Tamal K. Mukherjee, Munshi G. Mustafa and Rajarshi Ray
Published in Phys.Rev. D77 (2008) 094024(1-10)
DOI: 10.1103/PhysRevD.77.094024
e-Print: arXiv:0710.2790 [hep-ph]

A.21. **Wakes In A Collisional Quark-Gluon Plasma**
Purnendu Chakraborty, Munshi G. Mustafa, Rajarshi Ray and Markus H. Thoma
Published in J.Phys. G34 (2007) 2141-2152
DOI: 10.1088/0954-3899/34/10/004
e-Print: arXiv:0705.1447 [hep-ph]

A.22. **Thermodynamics Of The Polyakov – Nambu – Jona-Lasinio Model With Nonzero Baryon And Isospin Chemical Potentials**
Swagato Mukherjee, Munshi G. Mustafa and Rajarshi Ray
Published in Phys.Rev. D75 (2007) 094015(1-14)
DOI: 10.1103/PhysRevD.75.094015
e-Print: hep-ph/0609249

A.23. **Susceptibilities And Speed Of Sound From The Polyakov – Nambu – Jona-Lasinio Model**
Sanjay K. Ghosh, Tamal K. Mukherjee, Munshi G. Mustafa and Rajarshi Ray
Published in Phys.Rev. D73 (2006) 114007(1-10)
DOI: 10.1103/PhysRevD.73.114007
e-Print: hep-ph/0603050

A.24. **Stochastic Resonance In Underdamped, Bistable Systems**
Rajarshi Ray and Supratim Sengupta
Published in Phys. Lett. A 353 (2006) 364-371
DOI: 10.1016/j.physleta.2005.12.105
e-Print: arXiv:nlin/0506039 [nlin.PS]

A.25. **Chiral Dynamics In QCD At Finite Chemical Potential**
Sourendu Gupta and Rajarshi Ray
Published in Phys.Rev. D70 (2004) 114015(1-11)
DOI: 10.1103/PhysRevD.70.114015
e-Print: hep-lat/0409126

A.26. **Sustaining Supercooled Mixed Phase Via Resonant Oscillations Of The Order Parameter**
Rajarshi Ray, Soma Sanyal and Ajit M. Srivastava
Published in Int.J.Mod.Phys. A19 (2004) 1511-1524
DOI: 10.1142/S0217751X0401818X
e-Print: cond-mat/0201063

A.27. **Measuring Cosmic Defect Correlations In Liquid Crystals**
Rajarshi Ray and Ajit M. Srivastava
Published in Phys.Rev. D69 (2004) 103525(1-10)
DOI: 10.1103/PhysRevD.69.103525
e-Print: hep-ph/0110165

A.28. **Stochastic Production Of Kink-antikink Pairs In The Presence Of An Oscillating Background**
Rajarshi Ray and Supratim Sengupta
Published in Phys.Rev. D65 (2002) 063521(1-10)
DOI: 10.1103/PhysRevD.65.063521
e-Print: hep-ph/0111152

A.29. **Formation And Collapse Of False Vacuum Bubbles In Relativistic Heavy-Ion Collisions**
Rajarshi Ray, Soma Sanyal and Ajit M. Srivastava
Published in Nucl.Phys. A712 (2002) 329-356
DOI: 10.1016/S0375-9474(02)01168-5
e-Print: hep-ph/0105272

A.30. **Resonant Production Of Topological Defects**
Sanatan Digal, Rajarshi Ray, Supratim Sengupta and Ajit M. Srivastava
Published in Phys.Rev.Lett. 84 (2000) 826-829
DOI: 10.1103/PhysRevLett.84.826
e-Print: hep-ph/9911446

A.31. **Possibility Of Forming A Large DCC In Ultra-Relativistic Heavy-Ion Collisions**
Sanatan Digal, Rajarshi Ray, Supratim Sengupta and Ajit M. Srivastava
Published in Int.J.Mod.Phys. A15 (2000) 2269-2288
DOI: 10.1142/S0217751X0000094X
e-Print: hep-ph/9805227

A.32. **Observing Correlated Production Of Defect and Antidefects In Liquid Crystals**
Sanatan Digal, Rajarshi Ray and Ajit M. Srivastava
Published in Phys.Rev.Lett. 83 (1999) 5030-5033
DOI: 10.1103/PhysRevLett.83.5030
e-Print: hep-ph/9805502

B. Other Research Articles:

B.1. **Centrality Dependence Of Chemical Freeze-out Parameters From Net-proton And Net-charge Fluctuations Using Hadron Resonance Gas Model**
Rama Prasad Adak, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray and Subhasis Samanta
e-Print: arXiv:1609.05318 [nucl-th]

B.2. **Net Charge Fluctuations As A Signal Of QGP From Polyakov – Nambu – Jona-Lasinio Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
e-Print: arXiv:1212.6010 [hep-ph]

B.3. **Entropy Scaling And Thermalization In Hadron-Hadron Collisions At LHC**
Supriya Das, Sanjay K. Ghosh, Sibaji Raha and Rajarshi Ray
e-Print: arXiv:1104.3053 [hep-ph]

B.4. **A Stochastic Approach To Pionization**
Abhijit Bhattacharyya, Sanjay K. Ghosh, Tamal K. Mukherjee, Sibaji Raha and Rajarshi Ray
Unpublished

C. Books / Edited Volumes / Reports:

C.1. **Challenges In QCD Matter Physics – The Compressed Baryonic Matter Experiment At FAIR**
CBM Collaboration
e-Print: arXiv:1607.01487 [nucl-ex]
Report of the CBM Collaboration to the FAIR Scientific Council, 2016

C.2. **Formation Of Vortex-Antivortex Pairs**
Sanatan Digal, Rajarshi Ray, Supratim Sengupta and Ajit M. Srivastava
Published in Connectivity and Superconductivity edited by Jorge Berger and Jacob Rubinstein, Monographs LNP m62 (2002) 215: Springer Publication
DOI 10.1007/3-540-44532-3_10

D. Doctoral Thesis:

D.1. **Studies Of Phase Transition Dynamics: Formation Of Disoriented Chiral Condensates And Topological Defects**
Rajarshi Ray
Published in the Thesis submitted to the Utkal University for the degree of Doctor of Philosophy in Science (Physics) (2002) 1-169

E. Proceedings:

E.1. **Scaling Behaviour Of μ_B/T In The STAR Experiment**
Rama Prasad Adak, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray and Subhasis Samanta
Published in DAE Symp.Nucl.Phys. 61 (2016) 828-829
Prepared for the Proceedings of 61st DAE-BRNS Symposium on Nuclear Physics, held at Saha Institute of Nuclear Physics, Kolkata, India, during 5-9 December, 2016

E.2. **Looking For Possible Volume Scaling Violations In Finite Volume Polyakov − Nambu − Jona-Lasinio Model**
Kinkar Saha, Sudipa Upadhaya, Abhijit Bhattacharyya, Sanjay K. Ghosh, and Rajarshi Ray
Published in DAE Symp.Nucl.Phys. 60 (2015) 802-803
Prepared for the Proceedings of 60th DAE-BRNS Symposium on Nuclear Physics, held at the Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, Andhra Pradesh, India, during 7-11 December, 2015

E.3. **Thermal Di-muon From QGP Source At FAIR Energy**
Rama Prasad Adak, Subhasis Chattopadhyay, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray and Subhasis Samanta
Published in DAE Symp.Nucl.Phys. 60 (2015) 798-799
Prepared for the Proceedings of 60th DAE-BRNS Symposium on Nuclear Physics, held at the Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, Andhra Pradesh, India, during 7-11 December, 2015

E.4. **Quark Number Susceptibility: Revisited In Mean Field Theories**
Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Anirban Lahiri, Sarbani Majumder and Munshi G. Mustafa.
Published in DAE Symp.Nucl.Phys. 60 (2015) 17-18
Prepared for the Proceedings of 60th DAE-BRNS Symposium on Nuclear Physics, held at the Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, Andhra Pradesh, India, during 7-11 December, 2015

E.5. **"Soft" And "Hard" Interactions In Proton-Proton Collisions At LHC Energies**
Sidharth K. Prasad, Supriya Das, Sanjay K. Ghosh, Premomoy Ghosh, Sanjib Muhuri, Tapan K. Nayak and Rajarshi Ray
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 213-216
DOI: 10.16943/ptinsa/2015/v81i1/48071
Prepared for the Proceedings of International Conference on Matter at Extreme Conditions : Then & Now (ICMEC 2014), held at Bose Institute, Kolkata, India, during 15-17 January, 2014

E.6. **Study Of D-measure From Polyakov – Nambu – Jona-Lasinio Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 152-157
DOI: 10.16943/ptinsa/2015/v81i1/48062
Prepared for the Proceedings of International Conference on Matter at Extreme Conditions : Then & Now (ICMEC 2014), held at Bose Institute, Kolkata, India, during 15-17 January, 2014

E.7. **Study Of Fluctuations From Polyakov – Nambu – Jona-Lasinio Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 56-61
DOI: 10.16943/ptinsa/2015/v81i1/48051
Prepared for the Proceedings of International Conference on Matter at Extreme Conditions : Then & Now (ICMEC 2014), held at Bose Institute, Kolkata, India, during 15-17 January, 2014

E.8. **Study Of Fluctuations In Excluded Volume Hadron Resonance Gas Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray, Subhasis Samanta
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 51-55
DOI: 10.16943/ptinsa/2015/v81i1/48050
Prepared for the Proceedings of International Conference on Matter at Extreme Conditions : Then & Now (ICMEC 2014), held at Bose Institute, Kolkata, India, during 15-17 January, 2014

E.9. **Combining EVHRG And PNJL Model In Contrast To Continuum LQCD Data**
Abhijit Bhattacharyya, Sanjay K Ghosh, Soumitra Maity, Rajarshi Ray, Kinkar Saha, Subhasis Samanta and Sudipa Upadhaya
Published in DAE Symp.Nucl.Phys. 59 (2014), 774-775
Prepared for the Proceedings of 59^{th} DAE-BRNS Symposium on Nuclear Physics, held at Banaras Hindu University, Varanasi, India, during 8-12 December, 2014

E.10. **Net Charge Fluctuations In PNJL Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in DAE Symp.Nucl.Phys. 59 (2014), 692-693
Prepared for the Proceedings of 59^{th} DAE-BRNS Symposium on Nuclear Physics, held at Banaras Hindu University, Varanasi, India, during 8-12 December, 2014

E.11. **Thermodynamics Of QCD Matter At Finite Volume**
Abhijit Bhattacharyya, Paramita Deb, Sanjay K. Ghosh, Rajarshi Ray and Subrata Sur
Published in DAE Symp.Nucl.Phys. 59 (2014), 674-675
Prepared for the Proceedings of 59^{th} DAE-BRNS Symposium on Nuclear Physics, held at Banaras Hindu University, Varanasi, India, during 8-12 December, 2014

E.12. **Behavior Of Shear Viscosity From PNJL Model**
Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha and Sudipa Upadhaya
Published in DAE Symp.Nucl.Phys. 59 (2014), 694-695
Prepared for the Proceedings of 59th DAE-BRNS Symposium on Nuclear Physics, held at Banaras Hindu University, Varanasi, India, during 8-12 December, 2014

E.13. **Fluctuations At Finite Volume In Strongly Interacting Matter**
Abhijit Bhattacharyya, Rajarshi Ray and Subrata Sur
Published in DAE Symp.Nucl.Phys. 59 (2014), 708-709
Prepared for the Proceedings of 59th DAE-BRNS Symposium on Nuclear Physics, held at Banaras Hindu University, Varanasi, India, during 8-12 December, 2014

E.14. **Study Of Charge Fluctuations In Interacting Hadron Resonance Gas Model**
Abhijit Bhattacharyya, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray, Subhasis Samanta
Published in DAE Symp.Nucl.Phys. 58 (2013), 714-715
Prepared for the Proceedings of 58th DAE-BRNS Symposium on Nuclear Physics, held at Bhabha Atomic Research Center, Mumbai, India, during 2-6 December, 2013

E.15. **Shear Viscosity Due To Quark-Pion Interaction**
Sabyasachi Ghosh, Anirban Lahiri, Sarbani Majumder, Rajarshi Ray and Sanjay K. Ghosh
Published in DAE Symp.Nucl.Phys. 58 (2013), 682-683
Prepared for the Proceedings of 58th DAE-BRNS Symposium on Nuclear Physics, held at Bhabha Atomic Research Center, Mumbai, India, during 2-6 December, 2013

E.16. **Polyakov Loop And Recombination Dynamics Of Quarks And Gluons**
Chowdhury Aminul Islam, Raktim Abir, Munshi G. Mustafa, Rajarshi Ray and Sanjay K. Ghosh
Published in DAE Symp.Nucl.Phys. 57 (2012) 840-841
Prepared for the Proceedings of 57th DAE-BRNS Symposium on Nuclear Physics, held at New Delhi, India, during 3-7 December, 2012

E.17. **QCD Phase Diagram Using PNJL Model With Eight-Quark Interactions**
Paramita Deb, Abhijit Bhattacharyya, Sanjay K. Ghosh, Rajarshi Ray, Anirban Lahiri
Published in Nucl.Phys. A862-863 (2011) 267-270
DOI: 10.1016/j.nuclphysa.2011.05.068
e-Print: arXiv:1101.5228 [hep-ph]
Prepared for the Proceedings of the 6th International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2010), held at Goa, India, during 5-10 December, 2010

E.18. **Entropy Scaling From Chaotically Produced Particles In p-p Collisions At LHC Energies**
Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray
Published in Nucl.Phys. A862-863 (2011) 438-441 (Unavailable online)
e-Print: arXiv:1304.5855 [hep-ph]
Prepared for the Proceedings of the 6^{th} International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2010), held at Goa, India, during 5-10 December, 2010

E.19. **Models For Strong Interaction Physics**
Rajarshi Ray
Published in Nucl.Phys. A862-863 (2011) 118-124
DOI: 10.1016/j.nuclphysa.2011.05.029
Prepared for the Proceedings of the 6^{th} International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2010), held at Goa, India, during 5-10 December, 2010

E.20. **QGP Susceptibilities From PNJL Model**
Sanjay K. Ghosh, Tamal K. Mukherjee, Munshi G. Mustafa and Rajarshi Ray
Published in Indian J.Phys. 85 (2011) 87-91
DOI: 10.1007/s12648-011-0023-9
e-Print: arXiv:0805.4690 [hep-ph]
Prepared for the Proceedings of the 20^{th} International Conference on Ultra-Relativistic Nucleus Nucleus Collisions (Quark Matter 2008), held at Jaipur, India, during 4-10 February, 2008

E.21. **Chiral Dynamics And Operator Relations At Non-zero Chemical Potential**
Sourendu Gupta and Rajarshi Ray
Published in J.Phys.Conf.Ser. 50 (2006) 430-433
DOI: 10.1088/1742-6596/50/1/064
Prepared for the Proceedings of the 5^{th} International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2005), held at Variable Energy Cyclotron Center, Kolkata, India, during 8-12 February, 2005

E.22. **Working Group Report: Heavy-Ion Physics And Quark-Gluon Plasma**
Munshi G. Mustafa et. al.
Published in Pramana 67 (2006) 961-981
DOI: 10.1007/s12043-006-0106-x
e-Print: hep-ph/0607117
Prepared for Proceedings of the Activity Report on Heavy-Ion Physics And Quark-Gluon Plasma in the IX Workshop on High Energy Physics Phenomenology (WHEPP-09), held at Institute of Physics, Bhubaneswar, India, during 3-14 January, 2006

E.23. **Operator Relations And Chemical Effects On Chiral Dynamics In QCD**
Rajarshi Ray and Sourendu Gupta
Published in PoS LAT2005 (2006) 162
Prepared for Proceedings of the XXIII^d International Symposium on Lattice Field Theory (Lattice 2005), held at Trinity College, Dublin, Ireland, during 25-30 July, 2005

E.24. **Working Group Report: Heavy Ion Physics**
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E.25. **Taylor Expansions In Chemical Potential**
Rajiv Gavai, Sourendu Gupta and Rajarshi Ray
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E.26. **Working Group Report: Quantum Chromodynamics (QCD) And Hadronic Structure**
Rahul Basu, V Ravindran, D Choudhury, R Gavai, S Gupta, JP Singh, Swapan K Majhi, BP Mahapatra, Prakash Mathews, Rajarshi Ray, D Chakrabarti, Pijush Bhattacharjee
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E.27. **Observing B-violation In Relativistic Heavy-Ion Collisions**
Rajarshi Ray
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E.28. **Kink-Antikink Pair Production In The Presence Of A Stochastic And Oscillating Background**
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E.29. **Defect Correlation In Liquid Crystals: Experimental Verification Of Cosmological Kibble Mechanism**
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Involvement in Projects and Collaborations of Rajarshi Ray:

Extramural Projects (DST, CSIR, DAE, etc.):

1. Co-investigator in Study of Cosmic ray interactions and Cosmic Ray Aerosol Cloud connection in the context of regional climate change, Submitted to DST, Govt. of India (Continuing)
2. Co-investigator in Study of microphysics and dynamics of clouds in eastern Himalayas: Cloud formation and development, Submitted to MOES, Govt. of India (Completed)
3. Co-investigator in Study of thermodynamic properties of strongly interacting matter using QCD inspired model Submitted to DST, Govt. Of India. (Completed)

Collaborations:

1. Involved as collaborator in the Compressed Baryonic Matter experiment at the Facility for Antiproton and Ion Research being developed at Darmstadt, Germany.