CURRICULUM VITAE

OF

PROF. SISIR ROY

(I) Professor :

Physics and Applied Mathematics Unit

Indian Statistical Institute, Kolkata, since 1993

(II) Visiting Professor,

University of Arkansa,Fayettville, USA

2009 June -2009 August, 2008 June - August

(III) Distinguished Visiting Professor,

George Mason University, USA

2006 May -2007 May, 2002 Sept - Januray 2004, Feb.2001 - July 2001

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(IV) Associate Professor :

Indian Statistical Insititute, Kolkata, 1987-1993

(V) Visiting Scientist :

Henri Poincare Institute, Paris, 1986-87

(VI) Lecturer :

Indian Statistical Institute, Kolkata,1980-87

Fields of interest

1. Foundations of Quantum Mechanics
2. Brain Function modeling and Cognitive Science
3. Data Analysis and Quasar Astronomy

Editorial Board

1. World Scientific Publishing, Singapore : 199-2004.

2. Advancements and Developments in Modern Physics 2012-

3. Noetic Journal(USA) :1999 -

RESEARCH MONOGRAPHS/ EDITED VOLUMES

1. P.Bandyopadhaya and S.Roy (Eds.) : "On Quantum Statistics and Foundational Problems in Quantum Mechanics" : Two volumes in Hadronic Journal (Hadronic Press, 1985).

2. R.K. Roychoudhury, S. Roy and H.I. Anderson (Eds) : "Applications of Statistical Methods in Physics and Fluid Dynamics" : Supplementary Volume : Applicandae Mathematicae (Kluwer Academic Publishers, The Netherlands, 1992).

3. S. Jeffers, J.P. Vigier, S. Roy and G. Hunter (Edts) : "The Present Status of Quantum Theory of Light" (Kluwer Academic Publishers, The Netherlands, 1997).

4. M.W. Evans, J.P. Vigier, S. Roy and S. Jeffers (Authors) : "The Enigmatic Photon III" (Kluwer Academic Publishers, The Netherlands, 1996).

5. M.W, Evans, J.P. Vigier, S. Roy and G. Hunter (Edts) : "The Enigmatic Photon IV" (Kluwer Academic Publishers, The Netherlands, 1997).

6. S. Roy : "Statistical Geometry and Applications to Microphysics and Cosmology" (Kluwer Academic Publishers, The Netherlands, 1998).

7. Bo Lehnert and S. Roy : "Extended Electromagnetic Theory with Space-Charge in Vacuo and Nonzero Photon Mass" (World Scientific Publishers, Singapore, 1998).

8. G. Bernroider, S.Roy, R.Takaki (Edts.) (2004) : "Physical Correlate of Mind" FORMA(Special issue), JAPAN.

9. R. Abraham, S.Roy (2010): Demystifying Akasa : Quantum Vacuum and Consciousness, Epigraph, NY, USA.

LIST OF PUBLICATIONS :

FOUNDATIONS OF QUANTUM MECHANICS

1. Samyadeb Bhattacharya and Sisir Roy(2013). Hartman effect and Dissipative quantum systems (Accepted for publication in Journal of Mathematical Physics)

2. Samyadeb Bhattacharya and Sisir Roy(2012) Weak value of dwell time for quantum dissipative spin 1/2 systems, Phys. Rev. A 85, 062119 (2012).

3. Samyadeb Bhattacharya ,Suman Datta and Sisir Roy(2011)Schroedinger-Langevin equation and ion transport at nano-scale; Journal of Modern Physics**2**, 231-235

4. Samyadeb Bhattacharya and Sisir Roy(2011)Dissipative effect and tunnelling time ; Advances in Mathematical Physics, Article ID 138358.

5. Samyadeb Bhattacharya,Suman Datta and Sisir Roy(2010) Schroedinger-Langevin equation and ion transport at nano-scale , Front. of Non-linear Physics , p. 116-117.

6. R. Dasgupta and Sisir Roy (2008): Multinomial Distribution, Quantum Statistics and Einstein-Podolsky-Rosen Like Phenomena, Foundations of Physics, **38**, 384.

7. R. Abraham and S. Roy (2007) : The Planck Scale and Agent Based Simulations of Quantum Space-time, Int. J. Pure and Appl. Math.**39**,445.

8. R.Dasgupta and S.Roy (2007),Spectrum of zero point field and Statistical Stability, Communications in Applied Analysis **11**,15.

9. R. Dasgupta and Sisir Roy (2007) : Double Coil Resonance Experiment and Partial Reduction of Wave Packet in Quantum Mechanics, Int. J. of Theor. Physics, Springer US, **46**,2976.

10. M. Draganescu and S. Roy (2004) : Pretopology, Quanta of Space and the Fundamental Phenomenological Information of the Universe, FORMA, **19**, N2, 85(JAPAN).

11. S. Roy (2003) *Planck Scale Physics, Pregeometry and the Notion of Time*, in Geometry, p. 341, *Geometry,Physics and Perception* Ed. Buccheri R. et al, NATO series, Kluwer Academic Publsihers, The Netherlands.

12. S. Roy, M. Roy and M. Kafatos (2003) : Maxwell vacuum, the fourth Heisenberg Uncertainty Relation and Space-time Metric Fluctuation : Problems in Classical Electromagnetic theory: Ed. by A.Chykubla (NY)

13. M. Revzen, A. Mann, F. Khanna and S. Roy (2002) : Bell's inequality violation and symmetry : Phys. Lett. A, **224**, 1.

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15. Roy, S. and M. Requardt (2001) : (Quantum) Space-time as a Statistical Geometry of Fuzzy Lumps and the connection with random metric spaces : Classical and Quantum Gravity, **18**, 3039-3058.

16. Roy, S. (2001) : Frequency dependent Speed of Light and Stochastic Background, in *Contemporary Optics and Electrodynamics, (Second editon of Modern Nonlinear Optics, Vol. 85, of Advances in Chemical Physics)*, ed. by I. Progogine & S.A. Rice (Wiley, NY), pp. 571-621.

17. Roy, S. (2001), Unsharp Observables, non-locality and Fry, Walther and Li Experiment : Pramana, **56**, 189.

18. Roy, S. and Kafatos, M. (2000) : Quantum Correlations, Large Scale structure of the Universe and Temporal Non-locality, Proceedings of the First Int. Conf., "*On Studies of Time : From Physics to Psycho (patho)logy*" Kluwer Academic Publishers.

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1. Sisir Roy, Malabika Roy and Menas Kafatos (2013): Dynamic Multiple Scattering, frequency shift and possible effects on quasars astronomy; Journal of Computational Methods in Sciences and Engineering V.12 p.211-233.

2. S.Mukhopadhaya,S.Roy and S.Bhattacharya (2012): *Fast Bayesian curve-fitting and Clustering in Massive Data with Application to Cosmology*; Sankhya **B**;**74**, Issue 1, pp 77-106.

3. S.Mukhopadhaya,S.Roy and S.Bhattacharya (2012):*Curve-Fitting and Clustering in SDSS Data*; Science: Image in Action Edt. by B.Zavidovique et al, p.290-296.

4. S. Roy, D. Datta, J. Ghosh, M. Roy and M. Kafatos (2007) : *Non-parametric tests for Quasar Data and Hubble Diagram*, *Data Analysis in Astronomy: Modeling and Simulation in Science, Erice, Sicily,Italy*(World Scientific Publications) Eds.Vito de Gesu et al. p.90.

5. S. Roy, J. Ghosh, M. Roy and M. Kafatos (2007) : *Statistical analysis of Quasar data and Validity of the Hubble law*, *Data Analysis in Astronomy: Modeling and simulation in Science, Erice, Sicily,Italy*(World Scientific Publications) Eds.Vito de Gesu et al. p.99.

6. M. Kafatos, S. Roy and M. Roy (2005) : Variation of Physical Constants, Redshift and Arrow of Time, Acta Physica Polonica B, **36**, N10,3139.

7. H.C. Kandpal, S. Roy and M. Kafatos (2002) : Experimental verification of screen effect and Dynamic Multiple Scattering theroy,SPIE **4929**, 74.

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BRAIN FUNCTION MODELING

1. Sarangam Majumdar, Suman Dutta, Sisir Roy(2012) MATHEMATICAL MODELING OF QUORUM SENSING AND BIOLUMINESCENCE IN BACTERIA, International Journal of Advances in Applied Sciences (IJAAS),**1**,No3 p.139-146.

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3. Ralph Abraham and Sisir Roy (2012)A Digital Solution to the Mind/Body Problem;Integral Biomathics Ed. By Plamen L. Simeonov, Leslie S. Smith, Andre C. Ehresmann (Springer) P.213-225.

4. S.Roy and R.Llinas (2012)The role of Noise in Brain Function, Science :Image in Action Ed. by Z.Bertrand et al (World Scientific Publsihers, Singapore),p.34-44.

5. Sisir Roy and Rodolfo Llinas (2009),Relevance of Quantum Mechanics on some aspects of Ion Channel Function, Accepted for publication in Comptes Rendus B **332**,517.

6. Rodolfo Llinas and Sisir Roy (2009),The "Prediction Imperative" as the Basis for Self Awareness; Philosophical Transaction of Royal Soceity B **364**,1301.

7. Sisir Roy , Indranil Mitra, Rodolfo Llinas (2008),Non Markovian Noise mediated through Anomalous Diffusion within Ion Channels, Phys.Rev. E, **78**,041920.

8. S. Roy and R. Llinas (2008) : Dynamic Geometry, Brain Function Modeling and Consciousness, Progress in Brain Research,**168**,133.

9. Sisir Roy and Indranil Mitra (2008):Neurons, Cooperativity and the Role of Noise in Brain, NeuroQuantology **6**, No.2.

10. G. Bernroider and S. Roy (2005): Quantum entanglement of K^+ ions, multiple channel states, and the role of noise in the brain, SPIE **5841**, 205-213.

11. S. Roy and Menas Kafatos (2004): Quantum Processes, Functional Geometry : New Perspectives in Brain Dynamics :FORMA **19**, 69.

12. G. Bernroider and S. Roy(2004): Quantum - Classical Correspondences in Brain : Scaling, Action Distances and Predictability behind Neural Signals : FORMA, **19**,55.

13. Sisir Roy (2003),Quantum Information and levels of consciousness; Philosophy and Science: An Exploratory Approach to Consciousness, RKMIC, Calcutta,p.223.

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COMPUTER SCIENCE AND IMAGE ANALYSIS

1. Vito de Gesu and S. Roy (2002) : Pictorial indexes and soft-image Distances :Lecture notes in Artificial Intelligence (Springer) : **2275**, 360.

2. Vito de Ges, S. Roy(2000): Fuzzy measures for image distance, in: F. Masulli, R. Parenti, G. Pasi (Eds.), Advances in Fuzzy Systems and Intelligent Technologies, Shaker Publishing, NL.

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ELECTROMAGNETIC THEORY

1. R. Dasgupta and Sisir Roy (2007) : Spectrum of the Zero-point Field and Statistical Stability, Comm. Appl. Analysis (Dynamic Publishers, USA), **11**,N1, 23.

2. Roy, S. (with AIAS Group)(2004) : Development of the Evans Wave Equation in the Weak Field Limit : The Electrogravitic Equation, Found. Phys. Lett.(FPL) **17**, 497.

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4. Roy, S. (with AIAS Group) (2003) : Aharanov Bohm effect at the basis of electromagnetic energy in the vacuum : Found. Phys. Letter **33**, N1, 561

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PHILOSOPHICAL PAPERS

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