

# PROF. PROBIR ROY

## CV

- *Work address*

DAE Raja Ramanna Fellow  
Saha Institute of Nuclear Physics  
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- *Personal*

1942 Year of birth  
Birthplace: Calcutta, India  
Marital Status: married with two children  
Nationality: Indian

- *Degrees*

1962 B.Sc. Physics Honours, Presidency College, Calcutta Univ., First Class  
1965 M.A. (Cantab.), Kings College, First Class in Nat. Sci. Tripos Parts I and II (Physics)  
1968 Ph.D. (Stanford)

- *Professional and scientific posts held*

1966-68 Stanford Linear Accelerator Center, Research Assistant  
1968 Stanford Linear Accelerator Center, Temporary Research Associate  
1968-71 Cornell University, Instructor-Research Associate  
1971-72 CERN, Visiting Scientist  
1972-73 Tata Institute of Fundamental Research, Visiting Fellow  
1973-76 Tata Institute of Fundamental Research, Fellow  
1976-83 Tata Institute of Fundamental Research, Reader

1983-90 Tata Institute of Fundamental Research, Associate Professor  
1990-93 Tata Institute of Fundamental Research, Professor  
1993-98 Tata Institute of Fundamental Research, Senior Professor (H)  
1991-94 Member, Research Committee, Council of Scientific and Industrial  
Research, Government of India  
1997-02 Member, Governing Body, S.N. Bose National Center for Basic Sciences  
1998- Tata Institute of Fundamental Research, Senior Professor (I)

• *Awards*

1964 Powell Prize for best King's College (Cambridge) Student in Natural Sciences: 1964  
1964 Senior Scholar, King's College (Cambridge): 1964  
1965 Honorary Scholar, King's College (Cambridge): 1965  
1987 Shanti Swarup Bhatnagar Prize of the Council of Scientific and Industrial Research,  
presented by Prime Minister Rajiv Gandhi "for significant contribution to Theoretical  
High Energy Physics".  
1994 Indian National Science Academy/Royal Society (U.K.) Exchange Fellowship.  
1997 Meghnad Saha lectureship Award, Indian Association for the Cultivation of Science,  
Kolkata

• *Honours*

1989 Elected Fellow of the Indian Academy of Sciences  
1992 Elected Fellow of the Indian National Science Academy  
1995 Elected Fellow of the American Physical Society  
1996 Elected Vice-President of the Indian Physical Society, Kolkata  
2001 Elected Fellow of the National Academy of Sciences, India  
2002 Elected President of the Indian Physical Society, Kolkata

• *Authorship of books*

1975 "Theory of lepton-hadron processes at high energies" (Clarendon press, Oxford)  
2004 "Theory and phenomenology of sparticles" (with M. Dress and R.M. Godbole, World  
Scientific)

• *Editorial Boards*

1983-1985, 1992-95 - Indian Journal of Pure and Applied Physics

1989-95 - Pramana, Journal of Physics

1993 – - Indian Journal of Physics

• *Academic administration*

1991-97 Chairman, Graduate Studies Committee, School of Physics, TIFR

1997-2002 Chairman, Department of Theoretical Physics, TIFR

• *Visits and Sabbatics*

1978 (Summer) - Visiting Professor, DESY (Hamburg)

1980 (Winter) - Visitor, Oxford University, Rutherford  
Laboratory and DESY Laboratory (Hamburg)

1980 (Nine Months) - Scientific Associate, CERN (Geneva)

1984 (Summer) - Visitor, Brookhaven National Laboratory,  
New York and Lawrence Berkeley Laboratory

1986 (Summer) - Visitor, Lawrence Berkeley Laboratory

1989 (Summer) - Visitor, Niels Bohr Institute, University of  
California, Riverside and Brookhaven  
National Laboratory.

1989-90 (Academic Year)- Visiting Professor, University of Texas  
at Austin

1991 (Summer) - Visitor, University of California, Riverside and  
University of Wisconsin, Madison.

1992 (Summer) - Visiting Professor, Seoul National University,  
Korea

1994 (Summer) - Visitor, Oxford University,  
Rutherford Laboratory and University of Sussex

1995 - Visitor, University of California (Riverside), Thomas Jefferson  
Laboratory (Virginia), CERN and Kavli Institute of Theoretical  
Physics, Santa Barbara.

- 1997 - Visitor, University of California (Riverside).
- 1998 (summer) Visitor, University of Hawaii
- 1999 (summer) - Visitor, DESY Laboratory (Hamburg)
- 2000 (summer) - Visitor, Yukawa Institute of Theoretical Physics (Kyoto).
- 2001 (summer) - Visiting Professor, University of Hawaii and Santa Cruz  
Institute of Particle Physics, University of California,  
Santa Cruz.
- 2002 (summer) - Visitor, Stanford Linear Accelerator Center
- 2003 (summer) - Visiting Professor, University of Texas at Austin.  
Visitor, Stanford Linear Accelerator Center.
- 2004 (summer) - Visitor, Stanford Linear Accelerator Center and  
Helsinki Institute of Physics, University of Helsinki.
- 2005 (summer) - Visiting Professor, University of Texas at Austin.

• *Ph.D. Students (Bombay University) and Thesis Titles*

- 1976: Gautam Bhattacharya — “Exactly Solvable  $U(n)$ -Symmetric Field Theories in Two Dimensions”.
- 1979: Anjan S. Joshipura — “Studies in Melosh-Type Transformations Connecting Two Distinct  $U(6) \times U(6)$  Groups in Null Plane Quantized Theories of Quarks”.
- 1980: Parthasarathi Mitra — “Studies in Two Dimensional Quantum Field Theory of Quarks and Gluons”
- 1981: Amitabha Mukerjee — “Studies in Classical Gauge Theory”
- 1989: Tanmoy Bhattacharya — “Tree Unitarity in Spontaneously Broken  $N = 1$  Supergravity Theories and Phenomenology of a Superlight Gravitino”

- *Present positions of Ph.D. students*

Name	Present position
Gautam Bhattacharya	Professor, Saha Institute of Nuclear Physics, Kolkata
Anjan S. Joshipura	Professor, Physical Research Laboratory, Ahmedabad, FASc, FNASc., FNA
Partha S. Mitra	Professor, Saha Institute of Nuclear Physics, Kolkata, FNASc.
Amitabha Mukherjee	Professor, Delhi University
Tanmoy Bhattacharya	Senior Staff Scientist, Los Alamos National Laboratory, USA

- *Conferences/schools organized, sessions chaired*

1982: International Colloquium on Baryon Nonconservation (ICOBAN 82, TIFR), Organizing Committee Member.

1984: Winter School on Supersymmetry & Supergravity/Nonperturbative QCD (Mahabaleshwar), Secretary.

1986: XXIII International Conference on High Energy Physics (Berkeley), Chaired the session on Phenomenological Aspects of Unified Theories.

1989: Workshop on High Energy Physics Phenomenology (WHEPP1, TIFR), Joint Convener.

1990: Z-Phenomenology Symposium (Madison), Chaired the opening session on New Experimental Results.

1992: X DAE High Energy Physics Symposium (TIFR), Convener.

1996: SUJAYATA, Golden Jubilee Theoretical Physics Symposium (TIFR), Organizing Committee Member.

1997: Indo-French Workshop on Supersymmetry and Unification (TIFR), Convener.

• *More than a hundred publications in refereed journals as distributed below*

Journal name	number
Physical Review Letters	13
Physical Review D Rapid	6
Physical Review + Phys. Rev. D	26
Nature (News and Views)	1
Physics Letters B	24
Physics Letters A	1
Nuclear Physics B	10
Lettre al Nuovo Cimeno	3
Pramana J. Phys.	8
Pramana J. Phys. Suppl.	3
Annals of Physics	2
Zeitschrift Phys. C	1
J. High Energy Physics	2
European Journal of Physics C	1
Comments on Nuclear and Particle Physics	1
Indian Journal of Physics A (spl.)	1
Int. Jour. Mod. Phys. A	1
Total	104

• *Invited talks in conferences/workshops/schools*

1972: First DAE All-India Symposium in High Energy Physics held at Indian Institute of Technology, Bombay. “Parton-Light Cone Dualism”.

1974: Second DAE All-India Symposium on High Energy Physics held at Visva-Bharati University. “Parton/Light Cone Idea and Theory Confrontation with the Latest Lepton-Hadron Data”.

1977: Workshop on Field Theory and Functional methods organized by and held at the Center for Theoretical Studies, Indian Institute of Science, Bangalore. “Recent Developments in Two Dimensional Field Theory”.

1979: Workshop on Heavy Ion Reactions organized by and held at the Bhabha Atomic Research Center, Bombay. Guest Lecture “The Emergence of a Unified Theory of Weak and Electromagnetic Interactions”.

1979: X International Symposium on Multiparticle Dynamics (Fort Aguada, Goa) organized by the Tata Institute of Fundamental Research. “Parton Transverse Momenta and Polarized Leptonproduction”.

- 1982: International Seminar on Field Theory and High Energy Physics, Protovino, U.S.S.R.. “Naturalness and the Top Quark Mass in GUTs”.
- 1984: International Winter School in Theoretical Particle Physics, Organized by the Tata Institute and held at Mahabaleshwar. “Ultralight Dirac Neutrinos and Supergrand Unification”.
- 1984: Theoretical Workshop on Electroweak Symmetry breaking at the Superconducting Super Collider, Lawrence Berkeley Laboratory. “Upper Bound on Lightest Higgs Mass in Low Energy Supergravity”.
- 1984: VII DAE All-India Symposium on High Energy Physics held in Jammu University. “Some Aspects of Light Elementary Higgs Particles”.
- 1986: International Winter School in Theoretical Particle Physics at Panchgani organized by the Tata Institute of Fundamental Research. “Light Higgs Mass Bounds in Supergravity”
- 1986: XXII International Conference on High Energy Physics, Berkeley. “Top and Higgs Mass Constraints in No-Scale Supergravity”.
- 1986: Workshop on Superstrings at the Saha Institute of Nuclear Physics, Calcutta. “Low Energy Supergravity from Superstrings”.
- 1987: International Symposium on Theoretical Physics Dedicated to P.A.M. Dirac, Calcutta Mathematical Society. “Supergravity and the Unstable Photino”.
- 1987: HEP 87-Europhysics Conference on High Energy Physics, European Physical Society, Uppsala, Sweden. “Consequences of a Superlight Gravitino”.
- 1987: ICTP Summer Workshop on Particle Physics and Cosmology, Trieste. “Implications of a Superlight Gravitino”.
- 1988: International Winter School of Superstrings and Grand Unification, Puri, organized by Institute of Physics, Bhubaneswar. “Unitarity Limit on the Gaugino-Gravitino Mass Ratio”.
- 1988: VIII DAE All-India Symposium on High Energy Physics held at Indian Institute of Technology, Madras. “Collider Signatures of New Physics: A Theorist’s Perspective”.
- 1989: International Workshop on High Energy Physics Phenomenology 1 held at Tata Institute. “Supergravity Models of Supersymmetry Breaking”.
- 1990: Z Phenomenology Symposium, Madison. “Inclusive Forward-Backward Asymmetry for Light Quarks”.

- 1991: International Workshop on High Energy Physics Phenomenology 2 held by S.N. Bose National Center for Basic Sciences, Calcutta. “The  $ggZ^*$  Vertex and Heavy Neutrino Signatures And Correlations at Supercolliders”.
- 1992: Miniworkshop on Beyond Standard Model and Supercollider Physics organized by Bombay University, Bombay. “Oblique Radiative Electroweak Corrections”.
- 1992: Summer School at Sorak-san, Korea, organized by Seoul National University, a course of lectures on “Neutrino Physics at Accelerators”.
- 1992: Miniworkshop on Higher Order Effects in the Standard Model and Beyond, organized by the S.N. Bose National Center for Basic Sciences, Calcutta. “Electroweak Vacuum Polarization and Oblique Parameters”.
- 1993: X DAE All-India Symposium on High Energy Physics held at Tata Institute, “Radiative Electroweak Parameters”.
- 1993: Puri International Winter School on Particle Physics, organized by ICTP, Trieste, a course of Lectures on “Electroweak Processes and Precision Tests”.
- 1994: International Conference on Non-accelerator Particle Physics (Indian Institute of Astrophysics, Bangalore), “Signals and Scenarios of Very Heavy Neutrinos”
- 1994: International Workshop on High Energy Particle Physics 3 held at the Institute of Mathematical Sciences, Madras, “Beyond Standard Model: Group Report”.
- 1995: XI DAE All-India Symposium on High Energy Physics held at Visva Bharati University, Santiniketan, “Theory/Phenomenology summary”.
- 1995: WIN 95: International Conference on Weak Interactions and Neutrinos, Talloires, France, “Model of Four Light Neutrinos in the Light of LSND Data”.
- 1995: International Workshop on High Energy Physics Phenomenology 4 held at the S.N. Bose National Center for Basic Sciences, Calcutta, “Search for Supersymmetry at LEP”.
- 1996: Golden Jubilee Theoretical Physics Symposium SUJYATA at Tata Institute, “Supersymmetry: A New Paradigm in Particle Physics”.
- 1996: Workshop on Computation and Particle Physics held at Delhi University, Keynote Address, “Unification and Supersymmetry”.
- 1996: XII DAE All-India Symposium on High Energy Physics held at Gauhati University, Guwahati, “Supersymmetry at the Weak Scale”.
- 1997: BCSPIN International Winter School on Particle Physics and Cosmology (Kathmandu), Nepal, “Constraints on  $R$ -parity Violating Couplings”.

- 1997: Pacific Particle Physics Phenomenology Conference (Seoul, Korea), “Supersymmetric Theories with  $R$ -parity Violation”.
- 1998: XXIX International Conference on High Energy Physics, Vancouver, Canada, “Radiative Neutrino Mass-matrix for Three Sterile and One Active Species”.
- 1998: Symposium on Quantum Many Body Physics, Jawaharlal Nehru University, Delhi, “Supersymmetry, R-parity and their Breaking”.
- 2000: International Workshop “CMS Week” held at the Tata Institute of Fundamental Research, “Signals of Anomaly Mediated Supersymmetry Breaking”.
- 2002: International Workshop on High Energy Physics Phenomenology 7 held at the Harish Chandra Research Institute, Allahabad, “Mechanisms of Supersymmetry Breaking in the MSSM”.
- 2004: International Workshop organized by the American Linear Collider Physics Working Group at Victoria, Canada, “Linear Collider Signals of Anomaly Mediated Supersymmetry Breaking”.
- 2004: Indian Linear Collider Workshop, IISc, Bangalore, “Minimal split SUSY phenomenology”.
- 2005: Theoretical High Energy Physics Workshop, IIT, Roorkee, “Aspects of split supersymmetry”.
- 2005: International Workshop on Physics with atmospheric neutrinos and neutrinos from storage rings, IIT Powai, “Measuring the flavour mixing of atmospheric neutrinos”.
- 2005: Particles and Nuclei International Conference (PANIC 05), Santa Fe, U.S.A., “Measuring the deviation from maximal atmospheric neutrino mixing at INO”.
- 2006: Workshop on Symmetries and Extra Dimensions (SYXD), IIT, Powai, “Quark-lepton Complementarity and Quasidegenerate Majorana Neutrinos”.
- 2006: Linear Collider Workshop 2006 (LCW06), Indian Institute of Science, Bangalore, “Event shape of dileptons plus missing energy at a linear collider as a SUSY/ADD discriminant”.