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JITENDRA C. PARIKH

POSITIONS HELD

Fellow, The Niels Bohr Institute, Copenhagen, Denmark (1962-1964)

Fellow, Tata Institute of Fundamental Research, Bombay, India (1964-1967)

Research Associate & Assistant Professor (part time), University of Rochester, Rochester, New York (1967-1970)

Fellow, Physical Research Laboratory, Ahmedabad, India (1971-1972)

Associate Professor, Physical Research Laboratory, Ahmedabad, India (1972-1974)

Maitre de Recherche, Institut de Physique Nucleaire, Orsay, France (1974-1975 *)

Associate Professor, Physical Research Laboratory, Ahmedabad, India (1975-1982)

Professor, Physical Research Laboratory, Ahmedabad, India (1982-1983)

Visiting Professor, Department of Physics, Texas A&M University, Texas, USA (1983-1985 *)

Professor, Physical Research Laboratory, Ahmedabad, India (1986-1990)

Senior Professor, Physical Research Laboratory, Ahmedabad, India (1990-1996)

Honorary Professor, Physical Research Laboratory, Ahmedabad, India (1997-till date)

HONOURS

Fellow of National Academy of Science (India)

Fellow of Gujarat Science Academy

Awarded in 1997 “Shri Hari Om Ashram Prerit Harivallabhdas Chunilal Shah Research Award Endowment” for the year 1996-97. Given for his research work in Nuclear Physics during 1971-76.

VISITING APPOINTMENTS FOR SHORT DURATION

The Niels Bohr Institute, Copenhagen, Denmark (March 1967-August 1967)

Physics Department, Queen's University, Kingston (Ontario) Canada (August 1969)

Physics Department, Toronto University, Toronto (Ontario) Canada (September 1970-December 1970)

Department of Physics, University of Rochester, Rochester, (N.Y.) U.S.A. (June 1971-July 1971*)

Institut de Physique Nucleaire, Orsay (France)(July 1973-August 1973*)

Centre for Theoretical Physics, Massachusetts Institute of Technology, Cambridge, U.S.A. (September 1975-December 1975*)

Physics Department, Iowa State University, Ames (Iowa), U.S.A. (September 1979 *)

Visiting Professor, University of Tennessee, Oak Ridge (Tenn.), U.S.A. (October 1986-December 1986*)

Visiting Professor, University of Tennessee, Oak Ridge (Tenn.), U.S.A. (September 1987 *)

Visiting Professor, Oregon State University, Corvallis (Oregon), U.S.A. (March 1989-April 1989*)

Visiting Professor, Oregon State University, Corvallis (Oregon), U.S.A. (July 1990)

Visiting Professor, Oregon State University, Corvallis (Oregon), U.S.A. (October 1991-December 1991*)

Visiting Professor, Oregon State University, Corvallis (Oregon), U.S.A. (April 1994-June 1994*)

TEACHING EXPERIENCE

Graduate Level

Quantum Mechanics, Statistical Mechanics, Nuclear Physics, Mathematical Physics, Classical Mechanics, Electromagnetic Theory

I have repeatedly taught these courses to graduate students at the Tata Institute of Fundamental Research, Bombay (India) and Physical Research Laboratory, Ahmedabad (India)

Undergraduate Level

Mechanics, Electricity and Magnetism, Astronomy - taught these courses at Texas A & M University (1983-1985)

Mathematical Methods - taught at Oregon State University, Fall 1991

Classical Electrodynamics - taught at Oregon State University, Spring 1994

BOOKS EDITED OR WRITTEN

"The General Many-Body Problem", Editors R. Pratap and J.C. Parikh, Hindustan Publishing Corporation (Delhi) 1975.

"Group Symmetries in Nuclear Structure", J.C. Parikh, Plenum Publishing Corporation (New York) 1978).

"Theme Issue on Nuclear Structure", Guest Editor: R.K. Varma, J.C. Parikh, S. Krishnaswamy and A.C. Das, Pramana, Vol. 32, No. 4, 1989.

LIST OF PUBLICATIONS

"Decay of an Electric Current in a Superconductor" Phys. Rev. 128, 1530 (1962).

"Note on a Modified Born Approximation for Scattering Amplitudes" with B. Enflo, Arkiv for Fysik Band 28, 4 (1964).

"The Role of Isospin in Pair Correlations for Configurations of the Type (j)N", Nucl. Phys. 63, 214 (1965).

"Treatment of Neutron Proton Pairing Correlation", with B. Banerjee, Phys. Rev. 138, B303 (1965).

"A Method to Treat Configuration Mixing Across Major Shells", with K.K. Gupta and S.B. Khadkikar, Nucl. Phys. 768, 449 (1966).

"Treatment of Hard Core in Shell Model Calculations", with B. Banerjee and Y.S.T. Roa, Nucl. Phys. A94, 481 (1967).

"Intrinsic States in ^{58}Ni , ^{42}Ca , ^{30}Si , ^{18}O ", with K.H. Bhatt, Nucl. Phys. A98, 113 (1967).

"Parity Mixing in Deformed Hartree-Fock Calculations", with N. Ullah, Nucl. Phys. A99, 529 (1967).

"Spin Orbit Interaction and Region of Deformed Nuclei", with K.H. Bhatt, Phys. Lett. 24B, 613 (1967).

"Nature of Self Consistent Solutions for ^{20}Ne and ^{24}Mg ", Phys. Lett. 25B, 181 (1967).

"A Symmetry in the Effective Nuclear Interaction of Kuo-Brown", with K.H. Bhatt, Nucl. Phys. A103, 496 (1967).

"Consequences of a Triaxial Intrinsic State for ^{24}Mg ", Phys. Lett. 26B, 607 (1968).

"Structure of Self Consistent Solutions for Even-even Nuclei in the 2p-1f Shell", with J.P. Svenne, Phys. Rev. 174, 1343 (1968).

"An Investigation of Ground State Correlation for a Model Hamiltonian of the Nucleus", with D.J. Rowe, Phys. Rev. 175, 1293 (1968).

"E2 Transitions and the Intrinsic Structure of the 1f-2p Shell Nuclei", with K.H. Bhatt and J.P. Svenne, Phys. Rev. Lett. 21, 1354 (1968).

"The Structure of Some Simple Shell Model Wave Functions", with K.H. Bhatt and J.P. Svenne, Phys. Rev. 178, 1632 (1969).

"On Y2-Y4 Nuclear Shape Correlations", with B. Castel, Phys. Lett. 29B, 314 (1969).

"The ^{28}Si Nucleus in the Projected Hartree-Fock Approximation", with B. Castel, Phys. Rev. C1, 990 (1970).

"Nature of the Hartree-Fock Energy Gap", with B. Castel, K.W.C. Stewart and A.Lande, Nucl. Phys. A156, 501 (1970).

"Occupancy of Spherical Shells in the Ground State of Even-Even Nuclei in the 2s-1d Shell", with B. Castel, I.P. Johnstone and B.P. Singh, Nucl. Phys. A157, 137 (1970).

"Quadrupole Moments of Excited States in Light Nuclei", with B. Castel and K.W.C. Stewart, Nuovo Climento Letters, Ser. I.3, 23 (1970).

"Investigation of the 1p-1h and Projected Hartree-Fock Approximation in ^{12}C and ^{16}O ", with D.J. Rowe, N. Ullah, S.S.M. Wong and B. Castel, Phys. Rev. C3, 73 (1971).

"Spin-Isospin $\text{SU}(4)$ Symmetry in the (ds) Shell", with J.B. French, Phys. Letts. 35B, 1 (1971).

"Pairing Effects in Projected Hartree-Fock Model", with B. Castel, Phys. Letts. 37B, 7 (1971).

"A Study of Some Measures for Group Symmetry Breaking in Nuclei", with S.S.M. Wong, Nucl. Phys. A182, 593 (1972).

"How Good is the Hartree-Fock Approximation in ^{16}O ", with J.P. Svenne, Phys. Rev. C6, 34 (1972).

"Mixing of $\text{SU}(3)$ Symmetry for Nuclei in the ds-Shell", Phys. Letts. B41, 468

(1972).

"Space Symmetry in Light Nuclei : I", Ann. Phys. 76, 202 (1973)

"Minimization of Energy Variance for Determinantal States as a Useful Variation on the Hartree-Fock Theme", with K.H. Bhatt, Phys. Letts. 44B, 338 (1973).

"Space Symmetry in Light Nuclei : II", with R.U. Haq, Nucl. Phys. A220, 349 (1974).

"The Quadrupole Collectivity and Possible Existence of Macroscopic SU (3) Symmetry in Some Collective Shell Model States", with K.H. Bhatt and J.B. Mc Grory, Nucl. Phys. A209, 178 (1974).

"Calculation of the Giant Dipole Resonance for sd-Shell Nuclei in the Open Shell Random Phase Approximation", with S.S.M. Wong and D.J. Rowe, Phys. Letts. 48B, 403 (1974).

"Minimization of Energy and of Energy Variance for Slater Determinants in Nuclei", with V. Satyan, Phys. Rev. C14, 1198 (1976).

"Statistical Spectroscopy for Nuclei in the fp-Shell", with R.U. Haq, Nuc. Phys. A273, 410 (1976).

"Statistical Properties of Atomic Energy Levels I", Journal of Physics B - Atomic and Molecular Physics, 11, 1881 (1978)

"Unitary Group Decomposition of Hamiltonian Operators", with V. Satyan, Ann. Phys. 119, 285 (1978).

"Independent Particle Model Approach to Nuclear Mass Formula and Mass Relationships", Pramana 10, 47 (1978).

"Unitary Group Decomposition of Hamiltonian Operators II : SU (4) Irreducible Tensors, Norms and Their Energy Variation and Symmetry Breaking", with M. Chakraborty and V.K.B. Kota, Ann. Phys. 127, 413(1980).

"Statistical Properties of Atomic Energy Levels II : Effect of Range", with R. Venkataraman, Journal of Physics B - Atomic and Molecular Physics 13, 1295 (1980).

"Study of Effective Interactions and Models in Nuclei Using the Moment Method" in "Theory and Applications of Moment Method in Many Fermion Systems", Ed. B.J. Dalton, Plenum Press (N.Y) 1980.

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"IBA, Macroscopic SU (3) and Microscopic Description of Ground State Bands

in Rotational Nuclei", with M. Chakraborty and V.K.B. Kota, Phys. Letts. 100B, 201 (1981).

"Mass Formulae for A-Hypernuclei", with K. Kar, Pramana 19, 555 (1982).

"Effect of Symmetry on Ensemble Averaged Level Density", with R. Venkataraman, Phys. Rev. A27, 548 (1983).

"Random Matrix Theory and the Statistical Mechanics of Disordered System", Pramana 20, 467 (1983).

"An Evolutionary Model of a Neural Network", with R. Pratap, Journal of Theoretical Biology 108, 31 (1984).

"Testing QCD Plasma Formation by Poin Correlations in Relativistic Nuclear Collisions", with J.A. Lopez and P.J. Siemens, Phys. Rev. Lett. 53, 1216 (1984).

"Quantum Chaos and Fluctuation Properties of Regular and Irregular Spectra", with V. B. Sheorey, Pramana 24, 39 (1985).

"Statistical Nuclear Spectroscopy" in "Proceeding of the Winter College on Fundamental Nuclear Physics", with editors, K. Dietrich, M. DiToro and H.J. Mang, World Scientific (Singapore) 1958.

"Instability of QCD Plasma", with J.A. Lopez and P.J. Siemens, Texas A & M University Preprint (1985).

"Colour Correlations in QCD Plasma", with P.J. Siemens, Phys. Rev. D37, 3246 (1988).

"Collective Modes in Neural Network", with V. Satyan and R. Pratap, International Journal of Neuroscience, 44, 327 (1988).

"Longitudinal Modes in Classical Yang Mills Plasma", with J.A. Bhatt and P.K. Kaw, Phys. Rev. D39, 646 (1989).

"Can Charge Correlations be Used to Signal Formation of a Quark-Gluon Plasma?", with S.Gupta, Phys. Rev. D39, 646 (1989).

"Instability of Longitudinal Modes in finite temperature perturbative QCD", with Parikh, P.J. Siemens and J.A. Lopez, Pramana 555 (1989).

"Shell Model in Nuclei", with S.P. Pandya, Pramana 32, 309 (1989).

"Finite Temperature Perturbative QCD", Invited Talk at the DAE Symposium on Nuclear Physics, Bombay, Dec. 1988, Proc. of the Symposium on Nuclear Physics, 31A, 52 (1989).

"Truncation of Schwinger-Dyson Equations and the $1/N$ Expansion in the O(N) Model", with C Korpa and P.J. Siemens, Phys. Rev. D41, 1276 (1990).

"Quantum Chaos and Sensitivity to System Parameters", with G.V. Bhanot, V.B. Sheorey and A. Pandey, Int. Jour. Mod Phys. C1, 279 (1990).

"Physics of the Quark Gluon Plasma", in "Quark-Gluon Plasma", B. Sinha, S. Pal and S. Raha (editors), Springer-Verlag (Berlin) 1990.

"Vaporization of Plasma Singlets", with A.P. Vischer and P.J. Siemens, Phys. Rev. D43, 271 (1991).

"A Map Describing EEC Activity in Human Brain", with R. Pratap, Pramana 36, L347 (1991).

"Shear Instability and Entropy Generation in Heavy Ion Collisions", with V.M. Bannur and P.K. Kaw, Phys. Rev. C44, 859 (1991).

"Group Theoretical Approach to Nuclear Collective Motion", with V.K.B. Kota, PRL Technical Report TN-91-73 and to be published by Wiley Eastern.

"Transverse Colour Correlation in QCD Plasma", with R. Babu, Phys. Rev. D44, 3964 (1991).

"Neural Nets", in Lectures in Neurobiology, cd. P.N. Tandon, V. Bijlani and S. Wadhwa, Wiley Eastern.

"Quark Gluon Plasma – Collective Dynamics", in Medium and High Energy Nuclear Physics, M.K Pal et. al. (editors), World Scientific (Singapore)1992.

"Dynamic Microscopic basis for IBM-2 : A New Approach", with S. Sarangi Pramana-J. Phys. 40,43(1993)

"Equation of State for Quark-Gluon Plasma in a Relativistic Harmonic Confinement Model", S.B. Khadkikar, Mod. Phys. Lett. A8, 749(1993).

"qq Pair Production in Non-Abelian Gauge Fields", with A.K. Ganguly & P.K. Kaw, Phys. Rev. D48,R 2983(1993) .

"Gravitational Energy of the Stringy Charged Black Hole", with K.S Virbhadra Phys, Lett. B317,312(1993).

"A Conformal Scaler Dyon Black Hole Solution", with K.S Virbhadra, Phys. Lett. B331,302(1994).

"Collective Mechanism for Nuclear Stopping and Transverse Flow in Heavy – Ion Collisions", with J.R Bhatt & P.K. Kaw, Pramana – J. Phys. 43,307(1994).

"Dynamic Color Screening in a classical Quark Plasma", with J.R Bhatt & P.K. Kaw, Pramana – J. Phys. 43,467 (1994).

"Thermal Tunneling of qq Pairs in A_A Collisions",with A.K. Ganguly & P.K. Kaw, Phys. Rev. C51,2091(1995).

“Shape Transitions in Even Mo and Sm Isotopes: Study in a New Microscopic Interacting Boson Model Scheme”, with S. Sarangi, *Pramana - J. Phys.* 44,375(1995).

“Longitudinal Expansion of matter Formed by Partial Stopping in Relativistic Heavy Ion Collisions”, with V.M. Bannur & P.K. Kaw, *Nuclear Physics A*591,738(1995).

“Hadronic Correlators and Condensate Fluctuations in QCD Vacuum”, with V. Sheel & H. Mishra, *Phys. Lett.* B382,173-177(1996).

“Low Energy Leptogenesis in Left-Right Symmetric Models”, with Ganguly and U. Sarkar, *Phys. Lett.* B385,175-180(1996).

“Collective Thermalization of Quark Gluon Plasma”, with S. Sengupta, J.R. Bhatt and P.K. Kaw, *Pramana – Journal of Physics*,48,655(1997).

“Statistical Mechanics of Quartic Oscillators”, with V.M Bannur and P.K. Kaw, *Phys. Rev.* E55,2525(1997).

“Quark Propagator and Meson Correlators in the QCD Vacuum”, with V. Sheel and H. Mishra, *Int. Jour. Mod. Phys.* E6,275(1997).

“Simulation of Characteristics and ANN of EEG Time Series”, with D.R Kulkarni, A.S Pandya and R. Pratap, *Phys. Rev.* E55,4508(1997).

“Dynamic Predictions from Time Series Data – An Artificial Neural Network Approach”, with D.R Kulkarni and A.S Pandya, *Int. Journ. Mod. Phys.* C8,1345(1997).

“Modeling and Predicting Sunspot activity-State Space Reconstruction + Artificial Neural Network Methods”, with D.R Kulkarni and A.S Pandya, *Geophysical Research Letters* 25,457(1998).

“Dynamics of Inflation In India: A neural Network Approach”, with D.R Kulkarni, B.K Bhoi and C.K Krishnadas. DRG Study Report #16, Reserve Bank of India(1998)

“Relativistic Particle Simulation of Collective Thermalization in a Coloured Parton Plasma”, with Sudip Sengupta and Prethiman K. Kaw, *Phys. Lett.* B446,104(1999).

“Mesonic Correlators at Finite Temperatures”, with V. Sheel and H. Mishra, *Phys. Rev.* D59,034501(1999).

“Characterization, Simulation and Modelling of Electroencephalograph Signal”, with D.R Kulkarni and R. Pratap, *Int. Jour. Mod. Phys.* 10,759(1999).

“Multivariate Modelling of Time Series Data in a Connectionist Approach”, with D.R Kulkarni, *Int. Jour. Mod. Phys.* 11,159(2000).

PAPERS ACCEPTED FOR PUBLICATION

H. Mishra and J.C Parikh,"Chiral Symmetry Breaking,Color Superconductivity and Equation of State at High Density : a variational Approach".

S. Sengupta,P.K. kaw nad J.C Parikh,"Transverse Modes and Chaos in Classical SU(2) Yang-Mills Plasma".

Manuscripts Under Preparation

J.C. Parikh,"Stochastic Processes and Financial Markets".

ARTICLES PUBLISHED IN SCHOOLS, SEMINARS, SYMPOSIA, CONFERENCE & VOLUMES

J.C Parikh, "Study of Effective Interactions and Models in Nuclei Using the Moment Method" in "Theory and Applications of Moment Methods in Many Fermion Systems" Ed. B.J Dalton,Plenum Press(N.Y.)1980.

J.C Parikh,"Statistical Nuclear Spectroscopy", in " Proceedings of the Winter college on Fundamental Nuclear Physics" K. Dietrich, M. Ditoro nad H.J. Mang,editors,World Scientific (Singaore)1985.

J.C Parikh," Finite Temperature Perturbative QCD",Invited Talk at the DAE Symposium on Nuclear Physics,Bombay,Decembere 1988,Proc. Of the Symposium on Nuclear Physics,31A,52(1989)

J.C Parikh,"Physics of the Quark Gluon Plasma",in Quark- Gluon Plasma" B.Sinha,S. Pal and S. Raha(editors),Springer – Verlag (Berlin)1990.

V.K.B Kota and J.C Parikh,"Group Theoretical approach to Nuclear collective Motion",PRL Technical Report TN-91-73 and to be published by Wiley Eastern.

J.C Parikh," Neural Nets", in Lectures in Neurobiology, ed. P.N. Tandon, V. Bijlani and S. Wadhwa,Wiley Eastern.

J.C Parikh,"Quark Gluon Plasma – Collective Dynamics",in Medium and High School Energy Nuclear Physics,M.k. Pal et. al. (editors),World Scientific (Singapore) 1992.