

LIST OF PUBLICATIONS

- **1.** $n - \bar{n}$ transition operators and their matrix elements in the MIT bag model (with R. E. Shrock), Phys. Lett. **116B**, (1982) 238.
- **2.** Six fermion $|\Delta(B - L)| = 2$ operators of arbitrary generational structure (with R. E. Shrock), Nucl. Phys. **B232**, (1984) 143.
- **3.** Interaction of monopoles with fermions in higher representations, Phys. Rev. **D29** (1984) 2387.
- **4.** Fermions interacting with spherically symmetric monopoles: beyond the step function approximation, Phys. Rev. **D31** (1985) 2559.
- **5.** Topologically massive chromodynamics in the perturbative regime (with R. Pisarski), Phys. Rev. **D32** (1985) 2081.
- **6.** Low energy manifestations of a new scale: operator analysis (with C. N. Leung and S. T. Love), Zeit. für Phys. **C31** (1986) 433 (*cited 268 times*).
- **7.** Renormalisation group fixed points and the Higgs boson spectrum (with C. T. Hill and C. N. Leung), Nucl. Phys. **B262** (1985) 517 .
- **8.** Parity anomalies in gauge theories in 2+1 dimensions (with R. Yahalom), Phys. Lett. **172B** (1986) 227.
- **9.** Dynamical breakdown of symmetries in QED_3 (with R. Yahalom), Phys. Rev. **D34** (1986) 1196.
- **10.** Topological mass term for gravity induced by matter (with J. J. van der Bij and R. Pisarski), Phys. Lett. **179B** (1986) 87. (*cited 23 times*).
- **11.** On baryogenesis from a Chern-Simons condensate (with K. Enqvist and D. V. Nanopoulos), Phys. Rev. **D38** (1988) 1797.
- **12.** Two point function on a torus for the SU(3) W-Z-W theory (with S. Panda), Phys. Lett. **215B** (1988) 530.

- **13.** Q-ball solutions in local gauge theories with Chern-Simons term (with A. Khare), Phys. Lett. **227B** (1989) 424.
- **14.** Vortices in Higgs models with and without Chern-Simons term (with D. P. Jatkar), Phys. Lett. **229B** (1989), 67.
- **15.** Lattice dynamics and anyon superconductors (with D.M.Gaitonde), Mod. Phys. Lett. **B4** (1990) 1143.
- **16.** Anyons and Gaussian conformal field theories (with D.P.Jatkar), Mod. Phys. Lett. **A6** (1991) 289.
- **17.** Anyon Superconductors at Rational Statistics, (with D. M. Gaitonde), Phys. Rev. **B44** (Rapid Communications) (1991) 929.
- **18.** Charge-Flux Density Waves:Anyons in a periodic potential (with D. M. Gaitonde), Mod. Phys. Lett. **B5** (1991) 1431.
- **19.** Exact Many Body Fermi-Bose Transmutation in 2+1 Dimensions, (with D. M. Gaitonde), Int. Jnl of Mod Phys. **B6** (1992) 3543.
- **20.** Chirality Ordering of Chiral Spin Liquids, (with D. P. Jatkar and D. M. Gaitonde), Phys. Rev. **B46** (1992) 12026.
- **21.** Non-linear Field Theory of a Frustrated Heisenberg Antiferromagnet, (with D. Sen), Nucl. Phys. **B424** (1994) 547.
- **22.** Bosonic Mean Field Theory of the Spiral Phases of Heisenberg Antiferromagnets on a Chain, (with D. Sen) , Phys. Rev.**B48** (Rapid Communications) (1993) 12,763.
- **23.** Quantum Hall Effect of Non-interacting Hard-core Bosons, (with J.K. Jain), Mod. Phys. Lett. **B9** 611 (1995).
- **24.** A Bosonic Mean Field Theory for Frustrated Heisenberg Models in two dimensions, (with R. Chitra, D. Sen and S.Rao), Phys. Rev. **B52** 1061 (1995).
- **25.** Few Anyon Spectra in a Harmonic Oscillator Potential, (with Ranjan K. Ghosh), Mod. Phys. Lett. **B10** 515 (1996).

- **26.** Field Theories of Frustrated Heisenberg Antiferromagnets, (with Diptiman Sen), Journal of Condensed Matter **C9** 1881 (1997).
- **27** Exactly Solvable Models in Arbitrary Dimensions, (with Ranjan K. Ghosh), Phys. Lett. **A238**, 213 (1998).
- **28.** Fractional quantum Hall effect states as Exact ground states, (with Ranjan K. Ghosh), Int. Jnl. of Modern Physics, **B12**, 1125 (1998).
- **29.** Exact Analytic results for Composite Fermions in a Rajaraman-Sondhi like formulation, Mod. Phys. Lett. **B12**, 1203 (1998).
- **30.** Exactly Solvable Fermionic N -band Models, (with P. K. Mohanty and R. K. Ghosh), Jnl. of Physics **A32**, 4343 (1999).
- **31.** Transport in Double-Crossed Luttinger Liquids, (with P. Durganandini), Phys. Rev. **B59**, 13122 (1999).
- **32.** Resonant Tunneling through a Quantum Dot in an Aharonov-Bohm Ring : Results from bosonization, (with P. Durganandini), Phys. Rev. **B61**, 4739 (2000).
- **33.** Transport in multi-chain models of interacting fermions (with P. K. Mohanty), Jnl. of Physics **A 33**, 7363 (2000).
- **34.** Transport through quasi-ballistic quantum wires : the role of contacts (with Siddhartha Lal and Diptiman Sen), Phys. Rev. Lett. **87**, 26801 (2001).
- **35.** Conductance through contact barriers of a finite length quantum wire (with Siddhartha Lal and Diptiman Sen), Phys. Rev. **B 65**, 195304 (2002).
- **36.** Junction of several weakly interacting quantum wires: a renormalization group study. (with Siddharth Lal and Diptiman Sen), Phys. Rev. **B66** (2002), 165327.
- **37.** Effective action and interaction energy of coupled quantum dots (with Sourin Das), Phys. Rev. **B68**, (2003), 073301.

- **38.** Quantised charge pumping through multiple quantum dots (with Argha Bannerjee and Sourin Das), cond-mat/0307324.
- **39.** Transport through multiply connected quantum wires, (with Sourin Das), cond-mat/0310713, Phys. Rev. **B70**, 155420 (2004), Nov 15, 2004 issue of Virtual Journal of Nanoscience.
- **40.** Renormalisation group study of the conductances of interacting quantum wire systems with different geometries (with Sourin Das and Diptiman Sen), Phys. Rev. **B70**, 085318 (2004), Virtual Journal of Nanoscience, Vol. **10**, issue 11, Sept 13, 2004. Rev. **B66** (2002), 165327.
- **41.** Tunneling through two resonant levels: fixed points and conductances, (with Diptiman Sen), cond-mat/0404010, Phys. Rev. **B70**, 195115 (2004).
- **42.** Effect of interactions on an adiabatic quantum electron pump, (with Sourin Das), Phys. Rev. **B71**, 165333 (2005).
- **43.** A multi-channel fixed point for Kondo spin coupled to a junction of Luttinger liquids, (with Ravi Chandra and Diptiman Sen), Europhys. Lett. **75** (2006) 797.
- **44.** Inter-edge interactions and fixed points at a junction of quantum Hall line junctions, (with Sourin Das and Diptiman Sen), Phys. Rev. **B74**, 045322 (2006).
- **45.** Renormalisation group study of the Kondo problem at a junction of several quantum wires, (with Ravi Chandra and Diptiman Sen), Phys. Rev. **B75**, 045435 (2007).
- **46.** Adiabatic charge pumping through a dot at the junction of N quantum wires (with Shamik Banerjee, Anamitra Mukherji and Arijit Saha), cond-mat/0608267, Phys. Rev. **B75** 153407(2007).
- **47.** Spintronics with NSN Junction of one-dimensional quantum wires : A study of Pure Spin Current and Magnetoresistance (with Sourin Das and Arijit Saha), cond-mat/0710.5240, Europhys. Lett. **81**, 67001 (2008).

- **48.** Renormalization group study of transport through a superconducting junction of multiple one-dimensional quantum wires, (with Sourin Das and Arijit Saha), cond-mat/0711.1324, Phys. Rev. **B77** 155418 (2008).
- **49.** Duality between normal and superconducting junctions of multiple quantum wires (with Sourin Das), cond-mat/0807.0804, Phys. Rev. **B78**, 205421 (2008).
- **50.** A systematic stability analysis of the renormalisation group flow for the normal-superconductor-normal junction of Luttinger liquid wires (with Arijit Saha and Sourin Das), cond-mat/0901.0126, Phys. Rev. **B 79**, 155416 (2009)
- **51.** Effect of inter-edge Coulomb interactions on transport through a point contact in a $\nu = 5/2$ quantum Hall state (with Sourin Das and Diptiman Sen), cond-mat/0808.2249, Europhys. Lett. **81**, 37010 (2009).
- **52.** Enhancement of tunneling density of states at a junction of three Luttinger liquid wires (with Amit Agarwal, Sourin Das and Diptiman Sen), cond-mat/0810.3513, Phys. Rev. Lett. **B72**, 139 (2009),
- **53.** Resonant transmission of pure spin current through a t-stub coupled to a superconductor (with Arijit Saha and Sourin Das), cond-mat/0811.0660, Eur. Phys. J. **B 72**, 139 (2009).
- **54.** Resonant spin transport through a superconducting double barrier structure, (with Arijit Kundu and Arijit Saha), cond-mat/0906.3679, Europhys. Lett. **88**, 57003 (2009).
- **55.** Resonant tunneling through superconducting double barrier structures in graphene, (with Arijit Kundu and Arijit Saha), cond-mat/1007.3716, Phys. Rev. **B82**, 155441 (2010).
- **56.** Spin polarised scanning tunneling probe for helical Luttinger liquids (with Sourin Das), cond-mat/1006.2239, Phys. Rev. Lett. **106**, 236403 (2011)

- **57.** Quantum charge pumping through a superconducting double barrier structure in graphene, (with Arijit Kundu and Arijit Saha), cond-mat/1102.1447, Phys. Rev. **B83**, 165451 (2011).
- **58.** Magnetic field induced Fabry-Perot resonances in helical edge states, (with Abhiram Soori and Sourin Das), cond-mat/1112.5400, Phys. Rev.**B 86**, 125312(2012)
- **59.** Transport and STM studies of hyperbolic surface states of topological insulators (with Udit Khanna and Saurabh Pradhan), Phys. Rev. **B87**, 245411 (2013).
- **60.** Proximity induced superconductivity in Weyl semi-metals (with Udit Khanna, Arijit Kundu and Saurabh Pradhan), Phys. Rev. **B B90**, 195430 (2014).

Work in progress

- **1.** Electron transport through normal, ferromagnetic and superconducting junctions in silicene (work in progress with Ruchi Saxena and Arijit Saha).
- **2.** Andreev bound states in Weyl semi-metals (work in progress with Dibyakanti Mukherjee, Udit Khanna and Arijit Kundu).
- **3.** Majorana fermions in junctions of helical Luttinger liquids and superconductors with a magnetic field (work in progress with Krishnamohan Tripathy and Sourin Das)
- **4.** Spin liquid phase in a one-dimensional Kitaev-like chain (work in progress with Priyanka Mohan)

CONFERENCE PROCEEDINGS

- **C1.** ‘Anyons in Chern-Simons theories,’ published in the proceedings of ‘Colloquium on Modern Quantum Field Theory’, January 1990, World Scientific Publications.
- **C2.** ‘Do Hard-core Bosons exhibit Quantum Hall Effect?’, published in the proceedings of ‘Colloquium on Modern Quantum Field Theory II,’ January 1994, World Scientific Publications.
- **C3.** ‘The Fractional Quantum Hall effect’, K.S. Krishnan Birth Centenary Conference on Condensed Matter physics, Allahabad University, published in Condensed Matter Physics, edited by B. K. Agarwal and H. Prakash, Narosa Publications, 2000.
- **C4.** ‘Transport in Luttinger liquids’, at the Conference on Quantum Many Body physics, Jawaharlal Nehru University, March 1999, published in Int. Jnl. of Modern Physics **B14**, 2157 (2000).
- **C5.** ‘Transport in Quantum wires’, presented at the ‘International Conference on Mesoscopic and Disordered Systems’, Indian Institute of Science, Bangalore, India, December, 2000, published in Pramana **58**, 205(2002).
- **C6.** ‘Electron transport through ballistic quantum channels,’ (presented by Siddhartha Lal) at the ‘International Conference on Nanomaterials’, Saha Institute, Calcutta, India, January 2001, published in Applied Surface Science **182**, 377 (2001).
- **C7.** ‘Transport through quantum dots’, presented at National Seminar on ‘Recent Advances in Physics’, 19-20 September 2003, Gopalpur-on-sea, to be published.
- **C8.** ‘Effects of interactions and junctions on conductances of quantum wires’, (with S. Das and D. Sen), proceedings of the International Conference on Nanoscience and Technology, Kolkatta, December 2003, Int. Jnl of Nanoscience, **4**, 951 (2005).

- **C9.** ‘Non-linear sigma model approach to quantum spin chains’ Proceedings of CMDAYS05, Indian Journal of Physics, Vol **80**, No. 6, (June 2006).

BOOKS

- **B1.** ‘An Anyon Primer’, hep-th/9209066 based on Lectures delivered at the VIII SERC School in High Energy Physics, 30 Dec. ’91 - 18 Jan ’92, held at Physical Research Laboratory, Ahmedabad, and at the I SERC School in Statistical Mechanics, Feb ’94, held at Puri, published in ‘Models and Techniques of Statistical Physics’, edited by S. M. Bhattacharjee (Narosa Publications). ’
- **B2.** ‘An Introduction to Bosonisation and Some of its Applications’ (with Diptiman Sen), cond-mat/0005492, based on Lectures delivered at the SERC school on ‘Field Theories in Condensed Matter systems’ held at Harish-Chandra Research Institute, Allahabad, February, 2001, published in ‘Field Theories in Condensed Matter systems’ edited by me, (Hindustan Book Agency, 2001 and Institute of Physics publications, series in condensed matter physics, 2002).

General scientific articles and conference proceedings

- **G1.** ‘Women scientists: A contradiction in terms?’, Current science, **76**, 24 (1999), based on talk presented at a Symposium on ‘Science and Technology education: Concerns and perspectives, National Academy of Sciences, Allahabad, in Lucknow, 23-25 October 1998.
- **G2.** ‘Report on first IUPAP meeting on women in physics, Paris, 2002’, (with N. Gupte and R. M. Godbole), Current science, **83**, 359 (2002).
- **G3.** ‘Attracting girls into physics’, presented by me at the International Conference on Women in Physics, (ICWIP), Paris 2002, (with J. Adams, A. Andam, A. Frederiksen, N. Gupte, J. Gyanchandani, C. Hooijer, J. O’Brien and P. Saeta), AIP conference proceedings, **628**, 9 (2002).
- **G4.** ‘Women in Physics : An Indian perspective’, poster at the International Conference on Women in Physics, (ICWIP), Paris 2002, (with N. Gupte, J. Gyanchandani and S. Rao), AIP conference proceedings, **628**, 171 (2002).
- **G5.** ‘Launching a succesful physics career’, presented at the International Conference on Women in Physics, (ICWIP2), Rio de Janeiro, 2005, (with J. Corbett, R. Heyrovská, L. Meza-Montes), AIP conference proceedings, **795**, 11 (2005).
- **G6.** ‘Women in physics in India, 2005’, poster at the International Conference on Women in Physics, (ICWIP2), Rio de Janeiro, 2005, (with N. Gupte, R. M. Godbole, P. Jolly, S. Narasimhan), AIP conference proceedings, **795**, 129 (2005).
- **G7.** ‘Science : A journey into new frontiers’, presented at Jamshedpur Womens’ college, 10-11 October 2006, published in proceedings on the National Conference on ‘Convergence with Physics’.
- **G8.** ‘Women in Physics in India’, presented at Jamshedpur Women’s college, 10-11 October 2006, published in proceedings on the National Conference on ‘Convergence with Physics’.

- **G9.** ‘Personal professional development’, (presented by me at the International Conference on Women in Physics, (ICWIP3), Seoul, 2008) (with I. Gledhill, B. Hartline, Z. Ben Lakhdar, A. J. MacLachlan, K. Mack, A. Mehta, L. Wu and H. Zhang), AIP conference proceedings, **1119**, 7 (2008).
- **G10.** ‘Women in Physics in India : 2008’, poster at the International Conference on Women in Physics, (ICWIP3), Seoul, 2008, (with N. Chandra, R. M. Godbole, N. Gupte, P. Jolly, A. Mehta, S. Narasimhan, V. Sharma and S. Surya), AIP conference proceedings, **1119**, 120 (2008).
- **G11.** ‘Overcoming fear and forging ahead’, biographical essay in Lilavati’s daughters : Women scientists in India, edited by Rohini Godbole and Ram Ramaswamy, Indian Academy of Sciences, 2008
- **G12.** ‘Gender diversity in physics in India: Interventions so far and recommendations for the future’, (with P. Shastry, R. Ramaswamy, S. Narasimhan, S. Ubale and S. Kulkarni), Proceedings of the 4th International IUPAP Conference on Women in Physics, April 5-8, 2011.