

Selected Publications of B. Basu

Condensed Matter Physics

1. Spin accumulation in asymmetric topological insulator thin films in out of plane magnetic fields: Z. B. Siu, D. Chowdhury, *B. Basu*, and M.B. A. Jalil, **Journal of Physics D: Applied Physics**, **50**, 325306 (2017)
2. Quantum Capacitance of a Topological Insulator-Ferromagnet Interface: Z. B. Siu, D. Chowdhury, M.B.A. Jalil, *B. Basu*, **Scientific Reports**, **7**, 45016 (1-8) (2017)
3. The Geometric phase and fractional orbital angular momentum states in electron vortex beams: P. Bandyopadhyay, *B. Basu* and D. Chowdhury, **Physical Review A** **95**, 013821(1-6) (2017)
4. Unified approach towards the dynamics of optical and electron vortex beams: P. Bandyopadhyay, *B. Basu* and D. Chowdhury, **Physical Review Letters** **116**, 144801 (2016)
5. Effect of perturbative hexagonal warping on quantum capacitance in ultra-thin topological insulators: A. Menon, D. Chowdhury and *B. Basu*, **Journal of Physics D: Applied Physics** **49**, 135003 (2016)
6. Relativistic electron vortex beams in a laser : P. Bandyopadhyay, *B. Basu* and D. Chowdhury, **Physical Review Letters** **115**, 194801 (2015)
7. Evolution of entanglement towards criticality in the XY model in a quantum phase transition induced by a quench: *B. Basu*, P. Bandyopadhyay and P. Majumdar: , **Physical Review**, **A 92**, 0322343 (1-7) (2015)
8. Electron vortex beams in a magnetic field and spin filter: D. Chowdhury, *B. Basu*, and P. Bandyopadhyay, **Physical Review A** **91**, 033812 (1-6) (2015)
9. Effect of non-uniform exchange field in ferromagnetic graphene: D. Chowdhury and *B. Basu*, **Annals of Physics** **355**, 338-347 (2015)
10. Effect of cosmic string on spin dynamics: D. Chowdhury and B. Basu, **Physical Review D** **90**, 125014 (1-9), (2014)

11. The geometric phase and the geometrodynamics of relativistic electron vortex beams: P. Bandyopadhyay, *B. Basu*, and D. Chowdhury, **Proceedings of the Royal Society (London)** **A 470**, 20130525 (2014)
12. Spin transport in non-inertial frame: D. Chowdhury and *B. Basu*, **Physica B: Condensed Matter** **448**, 155 (2014)
13. Inertial effect on spin orbit coupling and spin transport: *B. Basu* and D. Chowdhury, **Annals of Physics** **355**, 47-60 (2013)
14. Inertial spin Hall effect in noncommutative space: *B. Basu*, D. Chowdhury and S. Ghosh, **Physics Letters A** **377**, 1661 (2013)
15. Magnetic field dependence of the entanglement entropy of one dimensional spin systems in quantum phase transitions induced by a quench: *B. Basu*, P. Bandyopadhyay and P. Majumdar, **Physical Review** **A86**, 0223030 (2012)
16. Quantum phases and dynamics of geometric phase in a quantum spin chain under linear quench: S. Sarkar and *B. Basu*, **The Europhysical Journal of Physics B** **85**, 403 (2012)
17. Density of defects and the scaling law of the entanglement entropy in quantum phase transitions of one dimensional spin systems induced by a quench: *B. Basu*, P. Bandyopadhyay and P. Majumdar, **Physical Review** **A83**, 032312 (2011)
18. Berry phase and fidelity susceptibility of three qubit Lipkin-Meshkov-Glick ground state: E. Sjoqvist, R. Rahaman, U. Basu and *B. Basu*, **Journal of Physics A: Math and Theor.** **43**, 354026 (15pp) (2010)
19. Dynamics of the geometric phase in the adiabatic limit of a quench induced quantum phase transition: *B. Basu*, **Physics Letters A** **374**, 1205 (2010)
20. Relation between concurrence and Berry phase of an entangled state of two spin $\frac{1}{2}$ particles: *B. Basu*, **Europhysics Letters** **73**, 833 (2006)
21. Noncommutative geometry and Geometric Phases: *B. Basu*, S. Ghosh and S. Dhar, **Europhysics Letters** **76**, 833 (2006)

22. Quantum Hall effect in bilayer systems and the noncommutative plane: A toy model approach: *B. Basu* and *S. Ghosh*, **Physics Letters A** **346**, 133 (2005)
23. High T_c Superconductivity, Skyrmions and the Berry phase: *B. Basu*, *S. Dhar* and *P. Bandyopadhyay*, **Physical Review** **B69**, 094505 (2004)
24. Pairing in high temperature superconductors and Berry phase: *D. Pal* and *B. Basu* **Europhysics Letters** **56**, 99 (2001)

Cosmology

1. Quantum gravity effect in torsion driven inflation and CP violation: *S. Choudhury*, *B. K. Pal*, *B. Basu* and *P. Bandyopadhyay*, **Journal of High Energy Physics** **10**, 194 (2015)
2. The Berry phase in inflationary Cosmology: *B. K. Pal*, *S. Pal* and *B. Basu*, **Classical and Quantum Gravity**, **30** 125002 (2013)

Econophysics

1. Quantum Cournot equilibrium for the Hotelling–Smithies model of product choice, *R. Rahaman*, *P. Majumdar* and *B. Basu*, **Journal of Physics A: Math and Theor.****45**, 455301 (2013)
2. Consumer expenditure distribution in India, 1983-2007: Evidence of a long Pareto tail: *A. Ghosh*, *K. Gangopadhyay* and *B. Basu*, **Physica** **A390**, 83 (2011)
3. City Size Distributions for India and China: *K. Gangopadhyay* and *B. Basu*, **Physica** **A388**, 2682 (2009)