

1. Acoustic Brillouin-Zone Effect in a Cholesteric Liquid Crystal. I. Muscutariu, S. Bhattacharya and J.B. Ketterson, *Physical Review Letters* 35, 1584 (1975)
2. Anisotropic Ultrasound Propagation in a Smectic-C Liquid Crystal. S. Bhattacharya, C.J. Umrigar and J.B. Ketterson, *Molecular Crystals Liquid Crystals* 40, 793 (1977)
3. Anisotropic Ultrasound Propagation in a Cholesteric Liquid Crystal. S. Bhattacharya, I. Muscutariu and J.B. Ketterson, *Molecular Crystals Liquid Crystals* 44, 1 (1978)
4. Observation of a Strong Pretransitional Ultrasonic Anomaly near a Nematic-Smectic-A Phase Transition. S. Bhattacharya, B.K. Sarma and J.B. Ketterson, *Physical Review Letters* 40, 1582 (1978)
5. Observation of Newtonian Capillary Shear Flow in a Cholesteric Liquid Crystal. S. Bhattacharya, C.E. Hong and S.V. Letcher, *Physical Review Letters* 41, 1736 (1978).
6. Ultrasonic Study of a Smectic-B Liquid Crystal. S. Bhattacharya, S.Y. Shen, J.B. Ketterson, *Physical Review A* 19, 1211 (1979).
7. Anisotropic Ultrasound Propagation in a Smectic-A Liquid Crystal. S. Bhattacharya, S.Y. Shen and J.B. Ketterson, *Physical Review A* 19, 1219 (1979).
8. Observation of Pretransitional Divergence of Shear Viscosity near a Smectic-A - Smectic-B Phase Transition. S. Bhattacharya and S.V. Letcher, *Physical Review Letters* 42, 458 (1979).
9. Flow Behavior of an Oriented Reentrant Nematic Liquid Crystal. S. Bhattacharya and S.V. Letcher, *Physical Review Letters* 44, 414 (1980).
10. Ultrasonic Study of the Nematic-Smectic-A and Smectic-A-Smectic-B Phase Transition. S. Bhattacharya, I. Calder, B.Y. Cheng, J.B. Ketterson and B.K. Sarma, *Liquid Crystals* (Edited by S. Chandrasekhar), Heyden and Sons, London, pages 449-461 (1980).
11. Critical Attenuation and Velocity Dispersion of Longitudinal Ultrasound near a Nematic-Smectic-A Phase Transition, S. Bhattacharya, B.K. Sarma and J.B. Ketterson, *Physical Review B* 23, 2397 (1981).
12. Acoustic Detection of the Second Sound in a Smectic-A Liquid Crystal, B.Y. Cheng, B.K. Sarma, I.D. Calder, S. Bhattacharya and J.B. Ketterson, *Physical Review Letters* 46, 828 (1981).
13. Angular Dependence of Shear Wave in a Smectic-B Liquid Crystal. B.Y. Cheng, B.K. Sarma, J.B. Ketterson and S. Bhattacharya, *Physics Letters* 88A, 70 (1982)
14. Dielectric Susceptibility of (KBr)<sub>0.5</sub>(KCN)<sub>0.5</sub>: Is it a Dipole Glass?

S. Bhattacharya, S.R. Nagel, L. Fleishman and S. Susman, Physical Review Letters 48, 1267 (1982)

15. Anomalous Damping of Sound in Smectic-A Liquid Crystals: Breakdown of Conventional Hydrodynamics? S. Bhattacharya and J.B. Ketterson, Physical Review Letters 49, 997 (1982).

16. Observation of Ultrasonic Anomaly near a Smectic-A-Smectic-C Phase Transition. S. Bhattacharya, B.Y. Cheng, B.K. Sarma and J.B. Ketterson, Physical Review Letters 49, 1012 (1982).

17. Distribution of Relaxation Times in (KBr) 0.5(KCN) 0.5. N.O. Birge, Y.H. Jeong, S.R. Nagel, S. Bhattacharya and S. Susman, Physical Review B30 (Rapid Communications), 2306 (1984)

18. Origin of Broadband Noise in Charge Density Wave Conductors. S. Bhattacharya, J.P. Stokes, M.O. Robbins and R.A. Klemm, Physical Review Letters 54, 2453 (1985).

19. Broadband Noise in Orthorhombic TaS<sub>3</sub>. J.P. Stokes, M.O. Robbins, S. Bhattacharya and R.A. Klemm, Charge Density Waves in Solids (Edited by Gy. Hutiray and J. Solyom), Lecture Notes in Physics, Volume 217, Page 301, Springer Verlag, New York (1985).

20. 1/f - Noise in the Charge Density Wave Conductor O-TaS<sub>3</sub>. M.O. Robbins, J.P. Stokes, S. Bhattacharya and R.A. Klemm, Molecular Crystals Liquid Crystals 121, 63 (1985).

21. Percolation in an Oil-Continuous Microemulsion, S. Bhattacharya, J.P. Stokes, M.W. Kim and J.S. Huang, Physical Review Letters 55, 1884 (1985)

22. A.C. Response of Pinned Charge Density Wave Conductors, J.P. Stokes, M.O. Robbins and S. Bhattacharya, Physical Review B32 (Rapid Communications), 6939 (1985).

23. Charge Density Wave Depinning: A Dynamical Critical Phenomenon? M.O. Robbins, J.P. Stokes and S. Bhattacharya, Physical Review Letters 55, 2822 (1985).

24. Ultrasonic Investigation of the Glass Transition, Y.H. Jeong, S.R. Nagel and S. Bhattacharya, Physical Review A34, 602 (1986).

25. Frequency Modulation of Narrow-Band-Noise in Sliding Charge density Wave Conductors, J.P. Stokes, S. Bhattacharya and A.N. Bloch, Physical Review B34, 8944 (1986)

26. Percolation in Oil-Continuous Microemulsions, S. Bhattacharya, J.P. Stokes, M.J. Higgins, M.W. Kim and J.S. Huang, Physics and Chemistry of Porous Media II, American Institute of Physics Conference Proceedings, 154, 299, (1987)

27. Temporal Coherence in the Sliding Charge Density Wave Condensate, S. Bhattacharya, J.P. Stokes, M.J. Higgins and R.A. Klemm, Physical Review Letters 59, 1849 (1987)

28. Synthesis, Structural Chemistry and Properties of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub>, A.J. Jacobson, J.M. Newsam, D.C. Johnston, J.P. Stokes, S. Bhattacharya, J.T. Lewandowski, D.P. Goshorn, M.J.

Higgins and M.S. Alvarez, Chemistry of Oxide Superconductors (Edited by C.N.R.Rao), Pages 43-61, IUPAC, Blackwell, Oxford (1988).

29. Anomalous Ultrasound Propagation in High-Tc Superconductors:  $\text{La}_{1.8}\text{Sr}_{0.2}\text{CuO}_{4-y}$  and  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ , S. Bhattacharya, M.J. Higgins, D.C. Johnston, A.J. Jacobson, J.P. Stokes, J.T. Lewandowski and D.P. Goshorn, Physical Review B37 (Rapid Communications), 5901 (1988).

30. Lubrication by Smectic Liquid Crystals, T.E. Fischer, S. Bhattacharya, R. Salher, J. Lauer and Y.J. Ahn, STLE Tribology Transactions 31, 442 (1988).

31. Elastic Anomalies and Phase Transitions in High-Tc Superconductors, S. Bhattacharya, M.J. Higgins, D.C. Johnston, A.J. Jacobson, J.P. Stokes, D.P. Goshorn and J.T. Lewandowski, Physical Review Letters 60, 1181 (1988).

32. Modelocking Phase Diagram in Sliding Charge Density Wave Conductors, S. Bhattacharya, M.J. Higgins and J.P. Stokes, Physical Review B38 (Rapid Communications), 7177 (1988).

33. Noise, Intermittency and Mode Locking in Sliding Charge Density Wave Conductors, S. Bhattacharya, M.J. Higgins, J.P. Stokes and R.A. Klemm, Physical Review, B38 (Rapid Communications), 10093 (1988).

34. Resonance of a Liquid-Liquid Interface, J.P. Stokes, E.F. Charlaix, A.P. Kushnick and S. Bhattacharya, Materials Research Society Bulletin, E17, 91 (1988)

35. Dynamic Rigidity Percolation in Inverted Micelles, L. Ye, D.A. Weitz, P. Sheng, S. Bhattacharya, J.S. Huang and M.J. Higgins. Physical Review Letters, 63, 263 (1989)

36. Broadband Noise Spectrum in Charge Density Wave Conductors, S. Bhattacharya, J.P. Stokes, M.J. Higgins and M.O. Robbins, Physical Review B40, (Rapid Communications), 5826 (1989).

37. Magnetic Field Dependence of Ultrasound Velocity in High-Tc Superconductors, M.J. Higgins, D.P. Goshorn, S. Bhattacharya and D.C. Johnston, Physical Review B 40 (Rapid Communications), 9393 (1989).

38. Harmonic Generation and Scaling Behavior in Charge Density Wave Conductors, S. Bhattacharya, M.J. Higgins and J.P. Stokes, Physical Review Letters, 63, 1503 (1989).

39. Inductive Anomaly and Noise Spectrum of a Charge Density Wave Conductor, S. Bhattacharya, J.P. Stokes, M.J. Higgins and M.O. Robbins, Physical Review B 43 (Rapid Communications), 1835 (1989)

40. Dynamic Rigidity Percolation in inverted AOT micellar solutions, J.S. Huang, L.Ye, D.A. Weitz, P. Sheng, S. Bhattacharya and M.J. Higgins, Progress in Colloid and Polymer Science 81, 70 (1990)

41. Anomalous Dielectric Relaxation in Inverted Micelles. S. Bhattacharya, J. Sowa and J.S. Huang, *Physical Review Letters*, 65, 131 (1990).
42. Harmonic Generation as a Probe of Dissipation at a Moving Contact Line. J.P. Stokes, M.J. Higgins, A.P. Kushnick, S. Bhattacharya and M.O. Robbins, *Physical Review Letters* 65, 1885 (1990).
43. A Study of Dielectric Relaxation in micellar solutions. J.S. Huang, J. Sowa and S. Bhattacharya, *Journal of Noncrystalline Solids* 131-133, 335 (1991)
44. Sound velocity studies of ceramic high-temperature superconductors, S. Bhattacharya. *Physical Acoustics*, Volume XX, (Academic press), pp. 303-348 (1992).
45. Dynamics of a disordered flux line lattice, S. Bhattacharya and M.J. Higgins, *Physical Review Letters* 70, 2617 (1993)
46. Scaling near Modelocking in a Charge Density Wave Conductor, M.J. Higgins, A.A. Middleton and S. Bhattacharya, *Physical Review Letters* 70, 3784 (1993)
47. Peak effect and anomalous flow behavior of a flux line lattice, S. Bhattacharya and M.J. Higgins, *Physical Review B* 49, 10005 (1994)
48. Anomalies in free flux-flow Hall effect, S. Bhattacharya, M.J. Higgins and T.V. Ramakrishnan, *Physical Review Letters*, 73, 1699 (1994)
49. Flux Flow Noise and Dynamical Transitions in a Flux Line Lattice, A.C. Marley, M.J. Higgins and S. Bhattacharya, *Physical Review Letters*, 74, 3029 (1995).
50. Flux flow fingerprint of disorder: Melting versus Tearing of a flux line lattice. S. Bhattacharya and M.J. Higgins, *Physical Review B* 52, 64 (1995).
51. On the Magnetic Study of Peak Effect in the anisotropic superconductor 2H-NbSe<sub>2</sub> : Evidence for Reentrant Behavior. S. Ramakrishnan, K. Ghosh, A.K. Grover, G.I. Menon, G. Chandra, T.V. Chandrasekhar Rao, G. Ravikumar, P.K. Mishra, V.C. Sahni, C.V. Tomy, G. Balakrishnan, D. Mck Paul and S. Bhattacharya, *Physica C* 256, 119 (1996).
52. Varieties of Dynamics in a Disordered Flux Line Lattice, M.J. Higgins and S. Bhattacharya, *Physica C* 257, 232 (1996).
53. Nature of Phase Transitions in Superconducting Wire Networks in a Magnetic Field, X.S. Ling, H.J. Lezec, M.J. Higgins, J.S. Tsai, J. Fujita, H. Numata, Y. Nakamura, Y. Ochiai, Chao Tang, P.M. Chaikin and S. Bhattacharya, *Physical Review Letters* 76, 2989 (1996)
54. Reentrant Peak Effect and Melting of a Flux Line Lattice in 2H-NbSe<sub>2</sub>, K. Ghosh, S. Ramakrishnan, A.K. Grover, G.I. Menon, G. Chandra, T.V. Chandrasekhar Rao, G. Ravikumar, P.K. Mishra, V.C. Sahni, C.V. Tomy, G. Balakrishnan, D. Mck Paul and S. Bhattacharya, *Physical Review Letters* 76, 4600 (1996).

55. Peak Effect in Superconductors: Melting of Larkin Domains, C. Tang, X. S. Ling, S. Bhattacharya and P.M. Chaikin, *Europhysics Letters* 35, 597 (1996).
56. Metastability and Glassy Behavior of a Driven Flux Line Lattice, W. Henderson, E.Y. Andrei, M.J. Higgins and S. Bhattacharya, *Physical Review Letters* 77, 2077 (1996).
57. Persistent Metastable States in Vortex Flow at the Peak Effect in NbSe<sub>2</sub>, R.D. Merithew, M.W. Rabin, M.B. Weissman, M. J. Higgins and S. Bhattacharya, *Physical Review Letters*, 77, 3197 (1996).
58. Effect of field inhomogeneity on the magnetic measurements in the peak effect region of CeRu<sub>2</sub> superconductor. G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, S.S. Banerjee, N.G. Patil, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, E. Yamamoto, Y. Haga, M. Hedo, Y. Inada and Y. Onuki, *Physica C* 276, 9 (1997)
59. Magnetic phase diagram of anisotropic superconductor 2H-NbSe<sub>2</sub>. S.S. Banerjee, N.G. Patil, Subir Saha, S. Ramakrishnan, A.K. Grover, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, C.V. Tomy, G. Balakrishnan, D. MckPaul and S. Bhattacharya, *Physica B* 237-238, 315 (1997)
59. Anomalous Peak Effect in CeRu<sub>2</sub> and NbSe<sub>2</sub>: Fracturing of a flux line lattice. S.S. Banerjee, N.G. Patil, Subir Saha, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, E. Yamamoto, Y. Haga, M. Hedo, Y. Inada, Y. Onuki and M. J. Higgins, *Physical Review B*, 58, 995 (1998).
60. AC dynamics of a pinned flux line lattice. W. Henderson, E.Y. Andrei, M.J. Higgins and S. Bhattacharya, *Physical Review Letters*, 80, 381 (1998)
61. X-ray scattering study of the charge density wave structure in high magnetic fields. V. Kiryukhin, D. Casa, B. Keimer, J.Hill, S. Bhattacharya and M.J. Higgins, *Physical Review B* 57, 1332 (1998).
62. Noise probes of underlying static coherence lengths in the superconducting peak effect. M.W. Rabin, R.D. Merithew, M.B. Weissman, M. J. Higgins and S. Bhattacharya, *Physical Review B (Rapid Communications)* R720, (1998).
63. A novel technique to measure magnetization hysteresis curves in the peak effect regime of superconductors, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, S.S. Banerjee, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, M.J. Higgins, E. Yamamoto, Y. Haga, M. Hedo, Y. Inada and Y. Onuki, *Physica C* 298, 122 (1998)
64. Muon Spin Rotation evidence for loss of order in the peak effect region in 2H-NbSe<sub>2</sub>. T.V.C. Rao, S.S. Banerjee, N.G. Patil, Subir Saha, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, G. Ravikumar, P. Mishra, V.C. Sahni and M. J. Higgins. *Physica C* 299, 267 (1998).

65. Manifestation of history-dependent critical currents via dc and ac magnetization measurements in single crystals of CeRu<sub>2</sub> and 2H-NbSe<sub>2</sub>, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, S.S. Banerjee, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, M.J. Higgins, E. Yamamoto, Y. Haga, M. Hedo, Y. Inada and Y. Onuki, *Physical Review B* 57, (Rapid Communications), R11069 (1998)
66. Generic phase diagram for vortex matter via study of peak effect phenomenon in crystals of 2H-NbSe<sub>2</sub>, S.S. Banerjee, N.G. Patil, Subir Saha, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, C.V. Tomy, G. Balakrishnan, D. Mck Paul and M. J. Higgins. *Physica C*, 308, 25 (1998)
67. Reentrant Peak Effect in an anisotropic superconductor 2H-NbSe<sub>2</sub>: Role of Disorder, S.S. Banerjee, N.G. Patil, Subir Saha, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, C.V. Tomy, G. Balakrishnan, D. Mck Paul and M. J. Higgins. *Europhysics Letters*, 44, 91 (1998)
68. Theory of size driven transition in displacive and order-disorder ferroelectrics, K. Sheshadri, R. Lahiri, P. Ayyub and S. Bhattacharya. *Journal of Physics. Condensed Matter*, 11, 2459 (1999).
69. Disorder, Metastability and History Dependence in transformations of a vortex lattice. S.S. Banerjee, N.G. Patil, Subir Saha, S. Ramakrishnan, A.K. Grover, S. Bhattacharya, G. Ravikumar, T.V. Chandrasekhar Rao, P.K. Mishra, V.C. Sahni, C.V. Tomy, G. Balakrishnan, D. Mck Paul and M. J. Higgins, *Physical Review B* 59, 6043 (1999)
70. Metastability and Switching in the vortex state of the type II superconductor 2H-NbSe<sub>2</sub>, S. S. Banerjee, N. G. Patil, S. Ramakrishnan, S. Bhattacharya, A. K. Grover, G. Ravikumar, P. K. Mishra, T. V. Chandrasekhar Rao, V. C. Sahni, M. J. Higgins, *Applied Physics Letters* 74, 126 (1999).
71. Step Change in Equilibrium Magnetization across the Peak Effect in 2H-NbSe<sub>2</sub>, G. Ravikumar, P.K. Mishra, V.C. Sahni, S.S. Banerjee, S. Ramakrishnan, A.K. Grover, P.L. Gammel, D.J. Bishop, E. Bucher, M.J. Higgins, S. Bhattacharya. *Physica C* 322, 145 (1999)
72. Plasticity in moving and pinned vortex matter. S. S. Banerjee, N. G. Patil, S. Ramakrishnan, A. K. Grover, G. Ravikumar, P. K. Mishra, T. V. Chandrasekhar Rao, V. C. Sahni, C.V. Thomy, D. MckPaul, G. Balakrishnan, M. J. Higgins, S. Bhattacharya. *Journal de Physique IV*, 9, Pr10-105 (1999)
73. Stability and metastability of disordered vortex phases. S. S. Banerjee, S. Ramakrishnan, A. K. Grover, G. Ravikumar, P. K. Mishra, T. V. Chandrasekhar Rao, V. C. Sahni, C.V. Thomy, D. MckPaul, G. Balakrishnan, M. J. Higgins, S. Bhattacharya. *Physica C* 332, 135 (2000)
74. Superconducting phase transition in a Kagome wire network. M.J. Higgins, Yi Xiao, S. Bhattacharya, P.M. Chaikin, S. Sethuraman, R. Bojko and D. Spencer, *Physical Review B* 61, Rapid Communications, R 894 (2000)

75. Dynamic instabilities and memory effects in vortex matter. Y. Paltiel, E. Zeldov, Y. Myasoedev, H. Shtrikman, S. Bhattacharya, M.J. Higgins, Z.L. Xiao, E.Y. Andrei, P. Gammel and D.J. Bishop. *Nature* 403, 398 (2000).
76. Negative dynamic creep in the peak effect regime in type-II superconductors, A.A.Zhukov, S.Kokkaliaris and P.A.J.de Groot, M.J.Higgins, S.Bhattacharya, R.Gagnon and L.Taillefer. *Physical Review B* 61, Rapid Communications, R886 (2000)
77. Phenomenological model for history effects and metastability in weakly pinned superconductors, G. Ravikumar, K.V. Bhagwat, V.C. Sahni, A.K. Grover, S. Ramakrishnan and S. Bhattacharya, *Physical Review B* 61, Rapid Communications, R6479 (2000)
78. Stepwise amorphization of the flux line lattice in  $\text{Ca}_3\text{Rh}_4\text{Sn}_{13}$  : A peak effect study. S. Sarkar, D. Pal, S.S. Banerjee, S. Ramakrishnan, C.V. Tomy, G. Ravikumar, P.K. Mishra, V.C. Sahni, G. Balakrishnan, D. MckPaul, S. Bhattacharya, *Physical Review B* 61, 12394 (2000)
79. Supercooling of the disordered vortex phase via minor hysteresis loop in  $2\text{H-NbSe}_2$ . G. Ravikumar, P.K. Mishra, V.C. Sahni, S.S. Banerjee, A.K Grover, S. Ramakrishnan, P.L. Gammel, D.J. Bishop, E. Bucher, M.J. Higgins and S. Bhattacharya, *Physical Review B* 61, 12490 (2000)
80. Amorphization of vortex matter and indication of a reentrant peak effect in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-d}$ . D. Pal, D. Dasgupta and Bimal K. Sarma, S. Bhattacharya, S. Ramakrishnan and A. K. Grover. *Physical Review B* 62, 6699 (2000)
81. Peak effect, plateau effect, and fishtail anomaly: The reentrant amorphization of vortex matter in  $2\text{H-NbSe}_2$ . S. S. Banerjee, S. Ramakrishnan, A. K. Grover, G. Ravikumar, P. K. Mishra, V. C. Sahni, C. V. Tomy, G. Balakrishnan, D. Mck. Paul, P. L. Gammel, D. J. Bishop, E. Bucher, M. J. Higgins, and S. Bhattacharya. *Physical Review B* 62, 11838 (2000)
82. Instabilities and disorder-driven first-order phase transition of the vortex lattice. Y. Paltiel, E. Zeldov, Y. Myasoedev, M.L Rappaport, G. Jung, S. Bhattacharya, M.J. Higgins, Z.L. Xiao, E.Y. Andrei, P. Gammel and D.J. Bishop, *Physical Review Letters*, 85, 3712 (2000)
83. Local Studies of Vortex Instabilities and Memory Effects in  $\text{NbSe}_2$ , Y. Paltiel, E. Zeldov, Y. N. Myasoedov, S. Bhattacharya, M. J. Higgins, E. Y. Andrei, Z. L. Xiao, H. Shtrikman, P. L. Gammel, and D. J. Bishop, *Physica C* 341-348, 1221 (2000).
84. Stable and Metastable vortex phases in the peak effect regime in  $2\text{H-NbSe}_2$ . G. Ravikumar, V.C. Sahni, A.K Grover, S. Ramakrishnan, P.L. Gammel, D.J. Bishop, E. Bucher, M.J. Higgins and S. Bhattacharya, *Physical Review B* 63, 024505 (2001)
85. Two coexisting vortex phases in the peak effect regime in a superconductor. M. Marchevsky, M.J. Higgins and S. Bhattacharya, *Nature* 409, 591 (2001)
86. Critical depinning force and vortex lattice order in disordered superconductors. C. J. Olson, C. Reichhardt and S. Bhattacharya. *Physical Review B* 64, 024518 (2001)

87. Order-disorder transitions in a vortex lattice. E.Y. Andrei, Z.L Xiao, W. Henderson, Y. Paltiel, E. Zeldov, M. Higgins, S. Bhattacharya, P. Shuk and M. Greenblatt. *Condensed Matter Theories*, 16, 241 (2001)
88. Driven dynamics of the vortex-phase mixture near the peak effect: the "vortex capacitor". M. Marchevsky, M.J. Higgins and S. Bhattacharya, *Physical Review Letters* 88, 087002 (2002)
89. Dynamic Creation and Annihilation of Metastable Vortex Phase as a Source of Excess Noise, Y. Paltiel, G. Jung, Y. Myasoedov, M. L. Rappaport, E. Zeldov, M. J. Higgins, and S. Bhattacharya, *Europhysics Letters* 58, 112 (2002).
90. Depoling a ferroelectric capacitor. M.J. Higgins, A. Krishnan, M.M.J. Treacy and S. Bhattacharya, *Applied Physics Letters* 80, 3373 (2002)
91. Comparison of Phase Boundaries between Kagome- and Honeycomb- Superconducting Wire Networks. Yi Xiao, David A. Huse, Paul M. Chaikin, Mark J. Higgins, S. Bhattacharya, David Spencer, *Physical Review B* 65, 214503 (2002)
92. V-I characteristics in the vicinity of the order-disorder transition in vortex matter. Y. Paltiel, Y. Myasoedov, E. Zeldov, G. Jung, M.L. Rappaport, D.E. Feldman, M.J. Higgins and S. Bhattacharya, *Physical Review B, Rapid Communications*, 66, 060503R, (2002)
93. Order-Disorder phase boundary in NbSe<sub>2</sub>: Absence of amorphous vortex matter. Y. Fasano, M. Menghini, F. de la Cruz, Y. Paltiel, Y. Myasoedov, E. Zeldov, M.J. Higgins and S. Bhattacharya, *Physical Review B, Rapid Communications*, 66, 020512R (2002)
94. Flux-Flow noise in the vicinity of the Peak Effect. Y. Paltiel, G. Jung, Y. Myasoedov, M.L. Rappaport, E. Zeldov, M.J. Higgins and S. Bhattacharya, *Fluctuation and Noise Letters*, 2, L31 (2002)
95. Noise in vortex matter. Grzegorz Jung, Y. Paltiel, E. Zeldov, Y. Myasoedov, M. L. Rappaport, Miguel Ocio, Shobo Bhattacharya, and M. J. Higgins, *Proc. SPIE Int. Soc. Opt. Eng.* 5112, 222 (2003)
96. Velocity fluctuations dominated flux flow noise in the peak effect. Y. Paltiel, G. Jung, Y. Myasoedov, M.L. Rappaport, E. Zeldov, M. Ocio, M.J. Higgins and S. Bhattacharya, *Europhysics Letters*, 66, 412 (2004)
97. Magnetoelectricity at room temperature in the Bi<sub>0.9-x</sub>Tb<sub>x</sub>La<sub>0.1</sub>FeO<sub>3</sub> system. V. R. Palkar, D. C. Kundaliya, S. K. Malik, and S. Bhattacharya, *Physical Review B* 69, 212102 (2004)
98. Dynamics of nanotubulation and DNA self-assembly. T. Roopa, N. Kumar, S. Bhattacharya and G.V. Shivashankar. *Biophysical Journal* 87, 974 (2004)



99. Metastable states of a flux lattice studied by transport and small angle neutron scattering. A. Pautrat, J. Scola, Ch. Simon, P. Mathieu, A. Brulet, C. Goupil, M.J. Higgins and S. Bhattacharya. *Physical Review B* 71, 064517 (2005)
100. Percolation transition in heterogeneous vortex state in NbSe<sub>2</sub>. G. Dogru, E.Y Andrei, M.J. Higgins and S. Bhattacharya. *Physical Review Letters* 95, 057004 (2005)
101. Why pinning by surface irregularities can explain the peak effect in transport properties and neutron diffraction results in NbSe<sub>2</sub> and Bi-2212 crystals? C. Simon, A. Pautrat, C. Goupil, J. Scola, P. Mathieu, A. Brulet, A. Ruyter, M.J. Higgins, S. Bhattacharya, D. Plessis, *Pramana* 66, 83 (2006)
102. Edge contamination effects in the dynamics of vortex matter in superconductors, memory effects and excess flux flow noise. G. Jung, Y. Paltiel, E. Zeldov, Y. Myasoedov, M. L. Rappaport, M. J. Higgins and S. Bhattacharya. *Springer Lecture Notes in Physics*, 688, 109 (2006)
103. Scanning probe imaging of coexistent ferromagnetism and ferroelectricity at room temperature, V. Palkar, S.C. Purandare, J. John, S. Govil and S. Bhattacharya, *Applied Physics Letters* 90, 172901 (2007).
104. Multiferroic properties of Dy-modified BiFeO<sub>3</sub> thin films in comparison with Tb-modified BiFeO<sub>3</sub> thin films. V. R. Palkar, S. Bhattacharya. *Journal of Materials Research*, 22, 2068 (2007)
105. Dielectric properties characterization of La- and Dy-doped BiFeO<sub>3</sub> thin film. Peter Kr. Petrov, Vaijayanti R. Palkar, Alexander K Tagantsev, Hsin-I Chien, K. Prashanthi, Anna-Karin Axelsson, S. Bhattacharya, Neil McN Alford. *Journal of Materials Research*, 22, 2179 (2007)
106. Surface modes of a sessile water drop: an optical tweezer-based study. Shankar Ghosh, Prerna Sharma and S. Bhattacharya, *Review of Scientific Instruments*, 78, 115110 (2007)
107. Microrheology of a sticking transition, Prerna Sharma, Shankar Ghosh and S. Bhattacharya, *Nature Physics* 4, 960 (2008)
108. Structure of the flux line lattice in NbSe<sub>2</sub>: Equilibrium state and the influence of the magnetic history, A. Pautrat, M. Aburas, Ch. Simon, P. Mathieu, A. Brulet, C.D. Dewhurst, M.J. Higgins and S. Bhattacharya, *Physical Review B* 79, 184511(2009)
109. Sticking dynamics of deformable colloids, Prerna Sharma, Shankar Ghosh and S. Bhattacharya, *Cond-mat*, arXiv: 0908.3730v1 (2009)
110. Imaging ferroelectric hysteresis and domain wall pinning, S. Bhattacharya and M.J. Higgins, *Cond-mat*, arXiv: 1001.0099 (2010)
111. A high precision study of hindered diffusion of a colloidal sphere near a flat wall. Prerna Sharma, Shankar Ghosh and S. Bhattacharya. *Applied Physics Letters* 97, 104101 (2010).

112. Fluctuations-induced softening of the elastic properties of Fe-As based pnictide superconductors, Rafael M. Fernandes, Lindsay H. VanBebber, Shobo Bhattacharya, Premala Chandra, Veerle Keppens, David Mandrus, Michael A. McGuire, Brian C. Sales, Athena S. Sefat, Joerg Schmalian, *Physical Review Letters*, 105, 157003 (2010)
113. Desorption to delamination: dynamics of detachment in a colloidal film. Atul Varshney, Prerna Sharma, Anit Sane, Shankar Ghosh and S. Bhattacharya. *Physical Review Letters*, 105, 154301 (2010)
115. A Nyquist analysis of glassy dynamics, aging and discrete basins of attraction in a small system. Prerna Sharma, Shankar Ghosh and S. Bhattacharya. *Journal of Chemical Physics*, 133, 144909 (2010).
116. Imaging of topological magnetic pinning in superconductor-ferromagnet bilayer with scanning hall microscopy. M. Marchevsky, M.J. Higgins, S. Bhattacharya. Special Issue. *Superconducting Science and Technology* 24, 024006 (2011)
117. Three-dimensional video imaging of viscous fingering in a model porous medium. Prerna Sharma, P. Aswathi, Anit Sane, Shankar Ghosh and S. Bhattacharya. *Review of Scientific Instruments*. 82, 113704 (2011)
118. Suppression of the melting line in a weakly disordered flux line-system. G.I. Menon, G. Ravikumar, M.J. Higgins and S. Bhattacharya. *Physical Review B* 85, 064515 (2012)
119. Fragmentation of viscous fingers in porous media. Prerna Sharma, P. Aswathi, Anit Sane, Shankar Ghosh and Sabyasachi Bhattacharya, *Soft Matter* 8, 5791 (2012).
120. Amorphous to amorphous transition in athermal particle rafts. Atul Varshney, Shankar Ghosh and S. Bhattacharya. *Physical Review E* 86, 031402 (2012).
121. Exotic oil-in-oil phases driven by tunable electrohydrodynamics. Atul Varshney, Shankar Ghosh, S. Bhattacharya and Anand Yethiraj. *Scientific Reports. Nature* 2, 738 (2012).
122. Dynamical Instabilities of a Brownian Particle in Weak Adhesion. Deepak Kumar, Shankar Ghosh and S. Bhattacharya. *Journal of Chemical Physics* 137, 224901 (2012).
123. Transition of a particle between adjacent optical traps: A study using catastrophe theory. Deepak Kumar, Shankar Ghosh and S. Bhattacharya. *Physical Review E* 87, 013202 (2013)
124. Weak adhesion in the Mesoscale: Particles at an interface. Deepak Kumar, S. Bhattacharya and Shankar Ghosh. Special Issue: Emergent areas. *Soft Matter* 9, 6618 (2013)
125. Stochastic Resonance in Superconducting Nb Film with Periodic Array of Holes. M. Marchevsky, M. P. DeFeo, V. Metlushko, M. J. Higgins and S. Bhattacharya. *Journal of Superconductivity and Novel Magnetism*. DOI. 10.1007/s10948-012-2085-0 (2013)

126. Frequency controlled tunable microlens array. Atul Varshney, Smita Gohil, Anand Yethiraj, Shankar Ghosh and S. Bhattacharya. *Lab on a Chip*, DOI:10.1039/C3LC51170G.. (2014)

127. Granular Self-organization by autotuning of friction. Deepak Kumar, Nitin Nitsure, S. Bhattacharya and Shankar Ghosh. *Proceedings of the National Academy of Sciences, PNAS*, 112, 11443 (2015)

128. Multiscale flow in an electro-hydrodynamically driven oil-in-oil emulsion  
Atul Varshney, Smita Gohil, Mayur Sathe, Seshagiri Rao R V, J. B. Joshi, S. Bhattacharya, Anand Yethiraj and Shankar Ghosh *Soft Matter*, 12, 1759-1764 (2016)

129. Drainage-Imbibition crossover, hysteresis and memory effects in percolative flow in random porous media. Prerna Sharma, Anit Sane, P. Aswathi, P.M. Chaikin, Shankar Ghosh and S. Bhattacharya, Under review.

130. Mechanics of a Granular Skin. S. Karmakar, A. Sane, S. Bhattacharya and S. Ghosh. Under review.

131. Curvilinear polyhedra as dynamical arenas, illustrated by an example of self-organized locomotion. S. Ghosh, A.P. Merin, S. Bhattacharya and N. Nitsure. Under review.

#### **Other publications: book chapters, reviews etc. (partial):**

1. Vortex phases. T. Giamarchi and S. Bhattacharya, Lecture Notes from Cargese Summer School 2001 on *Trends in Science at High Magnetic Fields*. Springer (2002).
2. Book review: "How nature works" by Per Bak. *Physics Today*, December 1997
3. Book chapter: Sound velocity studies of ceramic high-temperature superconductors, *Physical Acoustics*, Volume XX, (Academic press), pp. 303-348 (1992)

#### **Science Policy Related Work**

Indian Science Today – An Indigenously Crafted Crisis. *India's World*. Arjun Appadurai and Ariel Mack, Editors. *Social Research*, Vol 78, 255-280 (2011)

#### **Patents:**

Frequency modulator and demodulator using sliding charge density wave materials.

US Patent number 4,636,737 and US Patent number 4,580,110

Superconducting switch. US Patent number 6,184,765

Reduction of Imprint in Ferroelectrics by a depoling technique. US Patent number 6,294,393, and US patent number 6,392,919

Scanning AC Hall Microscope. US Patent number 6,396,261

Piezonoise microscope and methods for use thereof. US patent application 20030234358