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UNIVERSITY OF NORTH BENGAL

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Department of Physics

Print



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Subject specialization: Electronics and Radio Physics.

Areas of Research Interest: Soft Condensed Matter

No. of Ph.D. students: (a) Supervised: 03 (b) Ongoing: 06 .

No. of M.Phil. students: (a) Supervised: Nil (b) Ongoing: Nil.

No. of Publications (Journals/Book/Book Chapter/ Monographs etc.): 68

Achievement & Awards:

- Awarded Post Doctoral Research Fellowship at the Institute of Physical Chemistry, Martin Luther University, Halle (Saale), Germany from 17.04.2001 to 03.04.2003.
- Nominated the National Organizing Committee Member, 15th National Conference on Liquid Crystals, IISc, Bangalore (2008).
- Nominated the National Organizing Committee Member, 16th National Conference on Liquid Crystals, Lucknow University, Lucknow (2009).
- Nominated the National Organizing Committee Member, 17th National Conference on Liquid Crystals, Surat (2010).
- Nominated the National Organizing Committee Member, 18th National Conference on Liquid Crystals, Itanagar (2011).
- Nominated the National Organizing Committee Member, 18th National Conference on Liquid Crystals, Patiala (2012).
- Nominated the National Organizing Committee Member, 21st National Conference on Liquid Crystals, Kanpur (2014).
- Nominated the National Organizing Committee Member, 22nd National Conference on Liquid Crystals, Dehradun (2015).

Professional Experiences:

Sl. No	Position held	Period
1.	Head, Department of Physics, University of North Bengal.	09.02.06-08.02.08
2.	Head, University Science and Instrumentation Centre, University of North Bengal.	22.02.2013 - till date
3.	Head, Department of Physics, University of North Bengal.	09.02.2014 08.02.2016
4.	Chairman of the Undergraduate Board of Studies in Physics, University of North Bengal.	2007-2011
5.	Member of Undergraduate Board of Studies in Physics, Gour Banga University, Malda, West Bengal	2007-2011
6.	Chairman of the Board of Research Studies in Physics, University of North Bengal.	2006-2008 2014-2016

Selective List of Publications:

- Critical behaviour of optical birefringence in the vicinity of nematic-isotropic and smectic A-isotropic phase transitions of the eight members of alkyloxy-cyanobiphenyls, Malay Kumar Das, Purna Chandra Barman and Sudipta Kumar Sarkar, *Liquid Crystals*, 2016, DOI: 10.1080/02678292.2016.1167262
- Order parameter and its critical exponent for some binary mixtures showing induced nematic phase, Sudipta Kumar Sarkar and Malay Kumar Das, *Phase Transitions*, 2016. DOI: 10.1080/ 01411594.2015.1106540

3. Critical behaviour of a polar-polar binary system from optical birefringence measurements, Sudipta Kumar Sarkar, Anish Chakraborty, Malay Kumar Das, *Liquid Crystals*, **43**(1), 22-31(2016).
4. Critical behavior at the isotropic to nematic, nematic to smectic-A and smectic-A to smectic-C phase transitions in a pyrimidine liquid crystal compound, Anish Chakraborty, Susanta Chakraborty and Malay Kumar Das, *Physica B: Physics of Condensed Matter*, **479**, 90-95, 2015.
5. Preparation and study of the electro-optical properties of binary mixtures of orthoconic anti-ferroelectric esters and achiral phenyl pyrimidine liquid crystal, Anamika Pramanik, Malay Kumar Das, Banani Das and Roman Dąbrowski, *Soft Materials*, **13**, 201 (2015).
6. High-resolution birefringence study at the nematic-smectic A phase transition of ZnS nano particle dispersed octyloxy cyanobiphenyl, Malay Kumar Das, Purna Chandra Barman and Sudipta Kumar Sarkar, *Eur. Phys. J. B*, **88**, 175 (2015).
7. Fast switching negative dielectric anisotropic multicomponent mixtures for vertically aligned liquid crystal displays, Prajnamita Dasgupta, Malay Kumar Das and Banani Das, *Materials Research Express*, **2**, 045015 (2015).
8. Self-assembling properties of lactic acid derivative with several ester linkages in the molecular core, Anamika Pramanik, Malay Kumar Das, Banani Das, Věra Hamplová, Miroslav Kašpar and Alexej Bubnov, *Phase Transitions*, **88**, 745 (2015).
9. Comparative study of the mesomorphic properties of several laterally fluorinated liquid crystalline materials, Prajnamita Dasgupta, Anamika Pramanik, Malay Kumar Das and Banani Das, *Liquid Crystals*, **42**, 1083 (2015).
10. Mesomorphic and structural properties of some liquid crystals possessing a bicyclohexane core, Malay Kumar Das, Prajnamita Dasgupta, Banani Das and Sudipta Kumar Sarkar *International Journal of Advanced Research*, **3**, 967(2015).
11. Effect of hockey stick-shaped molecule on the critical behavior at the Nematic to Isotropic and Smectic-A to Nematic phase transitions in octyloxy cyanobiphenyl, Anish Chakraborty, Susanta Chakraborty and Malay Kumar Das, *Phy. Rev. E*, **91**, 032503 (2015).
12. Electro-optical properties of a new series of fluorinated antiferroelectric orthoconic liquid crystalline esters, Anamika Pramanik, Malay Kumar Das, Banani Das, Magdalena Żurowska and Roman Dąbrowski, *Liquid Crystals*, **42**, 412(2015).
13. Critical behavior of optical birefringence at the nematic-smectic A phase transition in a binary liquid crystal system, *Journal of Molecular Liquids*, **199**, 415 (2014).
14. Multifunctional additive performance of liquid crystal blended polydecylacrylate in lubricating oil, Petroleum Science and Technology, Pranab Ghosh, Mahua Upadhyay, Malay Kumar Das, *Petroleum Science and Technology*, **32**, 2312 (2014).
15. Determination of elastic constants of a binary system (7CPB+9.CN) showing nematic, induced smectic Ad and re-entrant nematic phases, Akhileshwar Prasad and Malay Kumar Das, *Liquid Crystals*, **41**, 1261 (2014).
16. Optical birefringence and its critical behavior in the Vicinity of nematic-smectic A phase transition in A binary mixture, Sudipta Kumar Sarkar, Purna Chandra Barman, Malay Kumar Das, *Physica B*, **446**, 80 (2014).
17. Dielectric studies and critical behaviour in the vicinity of nematic-isotropic phase transition of a smectogenic binary mixture showing induced nematic phase, Sudipta Kumar Sarkar and Malay Kumar Das, *Liquid Crystals*, **41**, 1410 (2014).
18. Critical behaviour at the nematic-smectic A phase transition in a binary mixture showing induced nematic phase, Sudipta Kumar Sarkar and Malay Kumar Das, *RSC Adv.*, **4**, 19861 (2014).
19. Critical behavior of dielectric permittivity in the vicinity of nematic-isotropic and smectic-nematic phase transitions in smectogenic binary mixtures, Sudipta Kumar Sarkar and Malay Kumar Das, *Fluid Phase Equilibria*, **365**, 41 (2014).
20. Studies on the additive performance of liquid crystal blended polyacrylate in lubricating oil, Pranab Ghosh, Mahua Upadhyay & Malay Kumar Das, *Liquid Crystals*, **41**, 30(2014).
21. Mesomorphic, optical, dielectric, elastic and viscous properties of multi-component isothiocyanato mixtures, A. Pramanik, B. Das, M. Das, K. Garbat, S. Urban and R. Dabrowski, *Liquid Crystals*, **40**, 149 (2013).
22. Optical, dielectric and visco-elastic properties of a few hockey stick-shaped liquid crystals with a lateral methyl group, Anish Chakraborty, Malay Kumar Das, Banani Das, Ute Baumeister, Wolfgang Weissflog, *Journal of Materials Chemistry C*, **1**, 7418(2013).
23. Determination Of Optical Birefringence And Orientational Order Parameter Of Four Members Of Alkyl Cyanobiphenyls Using A High Resolution Temperature Scanning Technique, Sudipta Kumar Sarkar, Purna Chandra Barman, Malay Kumar Das, *IMPACT: International Journal of Research in Applied, Natural and Social Sciences*, **1**, 1 (2013).
24. Dielectric Permittivity and Viscoelastic Measurements of Two Tricomponent Mixtures Consisting of Laterally Fluorinated Terphenyl Derivatives, S. Basak, P. Dasgupta, B. Das, M.K. Das and R. Dabrowski, *Acta Physica Polonica A*, **123**, 714 (2013).
25. Rotational viscosity measurements of bent-core nematogens, Anish Chakraborty, Malay Kumar Das, Banani Das, Anne Lehmann and Carsten Tschierske, *Soft Matter*, **9**, 4273(2013).
26. Dielectric and visco-elastic properties of laterally fluorinated liquid crystal single compounds and their mixture, P. Dasgupta, B. Das and M. K. Das, *Liquid Crystals*, **39**, 1297(2012).
27. A comparative study of the mesomorphic properties of fluoro-isothiocyanated and fluorinated terphenyl liquid crystals from birefringence, static dielectric permittivity, splay elastic constant and rotational viscosity measurements, M. K. Das, A. Pramanik, B. Das, Ł. Szczuciński and R. Dabrowski, *J. Phys. D: Appl. Phys.*, **45**, 415304 (2012).
28. Induced Smectic Phase in a Binary Mixture of Nematogens, Suchismita Datta Sarkar, TH. Kiranmala Devi, Basana Choudhury and Malay Kumar Das, *Mol. Cryst. Liq. Cryst.*, **557**, 134 (2012).
29. Mesomorphic and structural properties of liquid crystal possessing a chiral lactate unit, Banani Das, Anamika Pramanik, Malay Kumar Das, Alexej Bubnov, Věra Hamplova, Miroslav Kašpar, *Journal of Molecular Structure*, **1013**, 119(2012).
30. Determination of the orientational order parameter of the homologous series of 4-cyanophenyl 4-alkylbenzoate (n.CN) by different methods, Malay Kumar Das, Gautam Sarkar, Banani Das, Ratan Rai and Neeraj Sinha, *J. Phys.: Condens. Matter*, **24**, 115101 (2012).
31. Phase transition and some physical properties of binary mixtures of two nematogenic compounds showing induced smectic phase, Suchismita Datta Sarkara, Basana Choudhury and Malay Kumar Das, *Phase Transitions*, **85**, 85(2012).
32. New hockey stick compounds with a lateral methyl group showing nematic, synclinic and anticlinic smectic C phases, A. Chakraborty, B. Das, M.K. Das, S. Findeisen-Tandel, M.-G. Tamb, U. Baumeister, H. Kresse and W. Weissflog, *Liquid Crystals*, **38**, 1085(2011).
33. Structural investigations of a non calamitic shaped liquid crystalline compound showing unusual phases, Gautam Sarkar, Banani Das, Malay Kumar Das, Ute Baumeister and Wolfgang Weissflog. *Mol. Cryst. Liq. Cryst.*, **540**, 188(2011).
34. Static dielectric properties of two nematogenic compounds and their binary mixtures showing induced smectic Ad and re-entrant nematic phases, Akhileshwar Prasad and Malay Kumar Das, *Phys. Scripta*, **84**, 015603(2011).
35. Rotational viscosity measurement of a binary mixture showing both induced smectic and re-entrant nematic phases, Malay Kumar Das and Akhileshwar Prasad, *Mol. Cryst. Liq. Cryst.*, **540**, 162(2011).
36. Physical properties of three liquid crystals with negative dielectric anisotropy from x-ray diffraction and optical birefringence measurements, P. Dasgupta, M.K. Das and B. Das, *Mol. Cryst. Liq. Cryst.*, **540**, 154(2011).
37. Determination of Orientational Order Parameters of Two Tri-Component Mixtures from Optical Birefringence and X-Ray Diffraction Measurements S. Basak, P. Dasgupta, B. Das, M. K. Das and R. Dabrowski, *Acta Physica Polonica A*, **120**, 1037 (2011).
38. Refractive index and orientational order parameter of a polar-polar binary system showing induced smectic Ad and re-entrant nematic phases, Akhileshwar Prasad and Malay Kumar Das, *Phase Transitions*, **83**, 1072 (2010).
39. Optical Birefringence Studies of a Binary Mixture with the nematic-smectic Ad- re-entrant nematic phase sequence, Akhileshwar Prasad and Malay Kumar Das, *Journal of Physics: Condensed Matter*, **22**, 195106 (2010).

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41. Determination of orientational order parameter of a binary mixture showing induced smectic Ad phase from magnetic susceptibility measurements. Prithwi Dev Roy, Banani Das and Malay Kumar Das, *Journal of Physics: Condensed Matter*, **21**, 335108 (2009).
42. Comparison of the Orientational Order Parameters Determined From X-Ray Diffraction and ¹³C NMR Studies of a Hockey Stick Shaped Compound, Gautam Sarkar, Malay Kumar Das, Ranjit Paul, Banani Das and Wolfgang Weissflog, *Phase Transitions*, **82**, 433(2009).
43. Study of the physical properties of a mesogenic mixture showing induced smectic Ad phase by refractive index, density and x-ray diffraction measurements, P.D. Roy, A. Prasad and M. K. Das, *Journal of Physics: Condensed Matter*, **21**, 075106(2009).
44. The Trapezoid Cylinder Phase: A New Mode of Self-Assembly in Liquid-Crystalline Soft Matter, Feng Liu, Bin Chen, Benjamin Glettner, Marko Prehm, Malay Kumar Das, Ute Baumeister, Xiangbing Zeng, Goran Ungar and Carsten Tschierske, *J. Am. Chem. Soc.*, **130**, 9666(2008).
45. Dielectric permittivity studies of nematogenic compounds and their binary mixtures showing induced smectic Ad phase, Prithwi Dev Roy, Sukla Paul and Malay Kumar Das, *Phase Transitions*, **79**, 323(2006).
46. Phase transition and physical properties of a binary mixture of bicyclohexane compounds, II: X-ray Diffraction Measurements, Malay Kumar Das, Prithwi Dev Roy, Sukla Paul, Ranjit Paul and Banani Das, *Mol. Cryst. Liq. Cryst.*, **457**, 55 (2006).
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48. Carbohydrate Rod Conjugates: Ternary Rod-Coil Molecules forming complex Liquid Crystal Structures, Bin Chen, Ute Baumeister, Gerhard Pelzl, Malay Kumar Das, Xiangbing Zeng, Goran Ungar, and Carsten Tschierske, *J. Am. Chem. Soc.*, **127**, 16578 (2005).
49. Liquid Crystalline Bolaamphiphiles with Semiperfluorinated Lateral Chains: Competition between Layerlike and Honeycomb-Like Organization, Xiaohong Cheng, Malay Kumar Das, Ute Baumeister, Siegmard Diele, and Carsten Tschierske, *J. Am. Chem. Soc.*, **126**, 12930(2004).
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51. Calamitic bolaamphiphiles with (semi)perfluorinated lateral chain: Polyphilic block molecules with new liquid crystalline phase structures. Xiaohong Cheng, Marko Prehm, Malay Kumar Das, Jens Kain, Siegmard Diele, Dag Leine, Alfred Blume and Carsten Tschierske. *J. Am. Chem. Soc.*, **125**, 10977 (2003).
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55. The influence of semiperfluorinated chains on the liquid crystalline properties of amphiphilic polyols: Novel materials with thermotropic lamellar, columnar, bicontinuous cubic and micellar cubic mesophases. Xiaohong Cheng, Malay Kumar Das, Siegmard Diele and Carsten Tschierske, *Langmuir*, **18**, 6521 (2002).
56. A thermotropic mesophase comprised of closed micellar aggregates of the normal type. Petra Fuchs, Carsten Tschierske, Klaus Raith, Malay Kumar Das and Siegmard Diele, *Angew. Chem. Int. Ed.* 2002, **41**, 628 (2002).
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58. Phase diagram, density and optical studies on binary mixture of a cyanobiphenyl (11OCB) and a benzoate ester (ME 6.05) showing enhanced smectic phase, P. D. Roy, M. K. Das and R. Paul, *Mol. Cryst. and Liq. Cryst.*, **365**, 607(2001).
59. Temperature variation of transverse co-relation length in SmC and N phases of a liquid crystal from X-ray and Neutron diffraction studies. M. K. Das, B. Adhikari, R. Paul, S. Paul, K. Usha Deniz and S. K. Paranjpe, *Mol. Cryst. Liq. Cryst.*, **330**, 1 (1999).
60. Analysis of x-ray diffraction intensities of a mesogenic mixture exhibiting induced smectic phase. M. K. Das and R. Paul, *Mol. Cryst. Liq. Cryst.*, **299**, 477 (1997).
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62. Phase transition and physical properties of a binary mixture showing enhanced smectic phase. M. K. Das, B. Jha and R. Paul, *Mol. Cryst. Liq. Cryst.*, **261**, 95 (1995).
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65. Small angle x-ray diffraction studies of an ester/biphenyl mixture (5CB/ME50.5) showing an injected smectic phase. M. K. Das, R. Paul and D. A. Dunmur, *Mol. Cryst. Liq. Cryst.*, **258**, 239 (1995).
66. Study of the physical properties of an ester/biphenyl mixture exhibiting injected smectic phase by small angle x-ray diffraction. M. K. Das and R. Paul, *Phase Transitions*, **48**, 255 (1994).
67. Optical birefringence, density and order parameter of an ester-biphenyl mixture exhibiting an induced smectic phase. M. K. Das and R. Paul, *Phase Transitions*, **46**, 185 (1994).
68. Orientational order parameters of binary mixtures of 8OCB + 6OCB showing re-entrant nematic phase. Malay Kumar Das and Ranjit Paul, *Mol. Cryst. Liq. Cryst.*, **239**, 107 (1994).