

PROF. RANENDU KUMAR NATH

Name:	Prof. Ranendu Kumar Nath
Date of Birth :	04/11/1959
Phone number's :	+919436508446
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Academic Qualifications :	M.Sc., Ph.D.
Present Designation/position :	Professor
Topics Taught :	Kinetic and transport properties of gas, Chemical Kinetics, Surface Chemistry, Polymer Chemistry, Spectroscopy and Photochemistry.

All Education Research Publication Award Seminar

PUBLICATIONS (YEAR WISE) :

- The aggregate of 1,3,4-thiazole based Hockey stick shaped Mesogen in Langmuir-Blodgett thin film in comparison to that of 1,3,4-oxadiazole. A. Baidya, B. Das, S. Majumder, S. K. Saha, R.K.Nath, M.K.Paul, J. Surface. Sci.Technol., (ISSST), 37:1(2021),43-66.
- Dynamic behavior of methylene blue on E.coli K30 capsular polysaccharide using layer by layer self-assembly technique, B. Das, A. Baidya, S. Majumder, R.K.Nath, Surface Review letter (World Scientific Publications), 28(2021)2050027(12 pages).
- The unique asymmetric nano-cluster formation by the uneven hockey-stick-shaped mesogen based on 1,3,4-oxadiazole in Langmuir-Blodgett thin film, A. Baidya, B. Das, S. Majumder, S. K. Saha, R.K. Nath, Manoj K. Paul, Journal of Dispersion Science and Technology (Taylor & Francis), 2020 <https://doi.org/10.1080/01932691.2020.1848584>
- Role of PEG 2000 in the surface modification and physicochemical characteristics of pyrazinamide loaded nanostructured lipid carriers, G. Karmakar, P. Nahak, P. Guha, B. Roy, R. K. Nath, A. K. Panda, Journal of Chemical Sciences, (Indian Academy of Sciences) 130:42 (2018) 1-9.
- Use of ion pair amphiphile as an alternative of natural phospholipids in enhancing the stability and anticancer activity of oleanolic acid loaded nanostructured lipid carriers., G. Karmakar, P. Nahak, B. Roy, P. Guha, K. Tsuchiya, K. Torigoe, R. K. Nath, A. K. Panda, Colloids and Surfaces A: Physicochemical and Engineering Aspects, (Elsevier). 545, 20 (2018), 147-156
- Physicochemical Characterization of Chrysin Derivative Loaded Nanostructured Lipid Carriers with Special Reference to Anticancer Activity". G. Karmakar, P. Guha, B. Roy, P. Nahak, P. Chettri, K. Tsuchiya, K. Torigoe, A. Kumar, R. K. Nath, U. De, K. Nag, A. K. Panda, Journal of Surfactants and Detergents, (Springer) 21 (3), (2018) 421-432
- Non-ionic fluorinated amphiphilic block copolymer via RAFT polymerization and their application as surfactant in emulsion polymerization, B.P.Koiry, A. Chakraborty. R.K.Nath, Materials Today: Proceedings (Elsevier) 5 (1), (2018), 2040-2048.
- Photophysical Characteristics of Brilliant Blue Dye with Polycation using Layer by Layer Technique. Banti Ganguly, Bandana Das, Indra Ghosh, Ranendu Kumar Nath. National Conference on Recent Trends in Engineering and Technology (NCRTE-2017) allied publisher, 2017, 281-284.

- Impact of detergents on the physicochemical behavior of itraconazole loaded nanostructured lipid carriers. A Bhadra, G Karmakar, P Nahak, P Chettri, B Roy R.K.Nath, A.K.Panda, J. Colloids and Surfaces A: Physicochemical and Engineering Aspects (Elsevier) 516 (2017) 63-71
- Synthesis of MnFe₂O₄ and Mn₃O₄ magnetic nano-composites with enhanced properties for adsorption of Cr (VI): artificial neural network modeling, K. L. Bhowmik, A. Debnath, R. K. Nath, B. Saha, J. Water Science and Technology, (IWA Publishing) 76 (12) (2017) 3368-3378.
- Study of Layer-by-Layer Assembly of a Xanthene Dye by Spectroscopy and Atomic Force Microscopy, B. Das, B. Ganguli, I. Ghosh, R.K.Nath, B.K.Mishra A.Pal, Journal of Advanced Microscopy Research, (American Scientific Publications) 12(1) (2017) 22-28.
- Spectroscopic Characterizations of Nonamphiphilic 5-(2-([3-(Tert-Butylamino)-2-Hydroxypropyl]Sulfanyl)-1,3-Thiazol-4-yl)Thiophene-2-Carboxamide Molecules At The Air-Water Interface And In Langmuir-Blodgett Films. Surajit Biswas, Bandana Das, Ranendu Kumar Nath. Journal of Applied Chemistry (IOSR-JAC), 2016, 9, 36-44.
- Protein Interaction with Xanthene Dye using Layer by Layer Self Assembled Technique, B. Ganguli, B. Das, R.K.Nath, Rasayan J. Chem 9(2) (2016) 121 – 124.
- Spectroscopic Characterization of Niagara Blue dye in the restricted geometry of layer-by-layer self-assembled films, I. Ghosh, B. Das, R. K. Nath, B. Ganguly, B. K. Mishra, A. Pal, Surface Review and Letters (World scientific Publications) 23 (06) (2016) 1650056-61.
- Synthesis and characterization of mixed phase manganese ferrite and hausmannite magnetic nanoparticle as potential adsorbent for methyl orange from aqueous media: Artificial neural network modeling, K. L. Bhowmik, A. Debnath, R. K. Nath, S. Das. K. K. Chottopadhyaya, B. Saha, J. Molecular liquid, Letters (World Scientific Publications). 219(2016) 1010-1022.
- Charge Transport through Polyaniline Incorporated Electrically Conducting Functional Paper, K. L. Bhowmik, K. Deb, A. Bera, R. K. Nath, and B. Saha, J. Phys. Chem. C (ACS) 120 (11) (2016) 5855–5860.
- Spectroscopic and Microscopic study of aggregate formation in the Nano-dimensional Langmuir-Blodgett Films of Perylene with a fatty acid/polymer, I. Ghosh, A. Pal, B. K. Mishra, R. K. Nath, Molecular Crystals & Liquid Crystals (Taylor & Francis) 625 (2016) 276-287.
- General solvent-free ionic liquid catalyzed C-N/C-C coupled cyclization to diverse dihydropyrimidinones and new organic materials: Langmuir-Blodgett film study, S. Majumdar, J. De, A. Pal, I. Ghosh, R. K. Nath, S. Chowdhury, D. Roy and D. K. Maiti, RSC Advances, 5(2015) 24681-24686.
- Identification of novel HDA C8 Inhibitors using pharmacophore based virtual screening, 3D QSAR and molecular docking approach, P. Nath, S. Debnath, R.K.Nath, Am. J. Pharmtech Res., 4(6) (2014) 253-267.
- Physico-Chemical Studies on the Interaction of Bacterial Polysaccharide-Surfactant Aggregates with Special reference to their Hydrodynamic Behaviour,, S. Dasgupta, K. Manna A. Mitra, A.K.Panda, R.K.Nath, J. Oleo Science (Japan Oil Chemists' Society), 63(10) (2014) 1063-1075.
- Spectroscopic studies on the interaction of Toluidine Blue dye with Sodium Alginate polyelectrolyte, B. Ganguly, R.K.Nath, , International Journal of Science and Research (IJSR) , 3 (7) (2014) 569-573.
- Monolayer Characteristics of Chitosan assembled in Langmuir films mixed with Arachidic acid. J. Nath, R.K.Nath, A. Chakraborty, S.A. Hussain Surface Review and Letters (World Scientific Publications) 21(4) (2014) 1450049 (8 pages).

- Behavior of methylene blue with arachidic acid in the restricted geometry of Langmuir-Blodgett film, I. Ghosh,, A. Pal, J. Nath,B. K. Mishra, R. K. Nath, Surface Review and Letters (World Scientific Publications) 21(2) (2014)1450030(8 pages).
- Phase Separation in the Langmuir-Blodgett (LB) films of p-Quaterphenyl mixed with two different matrices, J. Nath, A. Pal, I. Ghosh, S. Deb, B. K. Mishra, R. K. Nath International Journal of Modern Physics B (World Scientific Publications) 28 (11) (2014)1450073(11 pages).
- Comparative study of the behavior of Bathophenanthroline in the restricted geometry of Langmuir-Blodgett film with two different fatty acids, J. Nath, S. Deb,, A. Chakrabarti,, A. Pal, R.K.Nath, International Journal of Modern Physics B (World Scientific Publications) 28(6)(2014)1450020 (15 pages).
- Behavior of Coronene in the mixed Langmuir-Blodgett (LB) films of two different matrixes on water and solid surfaces, I. Ghosh, A. Pal, J. Nath, B. K. Mishra, R.K.Nath, Journal of Macromolecular Science, Part A: Pure and Applied Chemistry (Taylor & Francis) 51(1) (2014) 49-54.
- Relating Interactions of Water Soluble Xanthene Dye Molecules with Surfactant to Adsorption Kinetic data: A Spectroscopic Study J. Nath, S.A.Hussian, A. Pal, S. Deb, R. K. Nath, I. Ghosh., American International Journal of Research in Formal, Applied & Natural Sciences, 3(1), June-August,(2013) 70-77.
- In vitro free radical scavenging activity of Ichnocarpus frutescens roots, N. Das, P. Rudrapaul, I. Ghosh, R. K. Nath, B. Dinda, Indo American Journal of Pharmaceutical Research 3(3) (2013) 2600-2606.
- Spectrometric studies on the interaction of Toluidine Blue O with Bovine Serum Albumin, B. Ganguly, R.K.Nath, J. Surface Sci. Technol (ISSST), 29(3-4)(2013)1-16.
- Dynamic Light Scattering and Viscometric Studies on the Interaction of Bacterial Capsular Polysaccharide, Klebsiella K40, with Pure and Mixed Surfactant Systems in Aqueous Media, Th. C. Singh, R. K. Nath,K. Manna,A. K. Panda, J. Surface Sci. Technol (ISSST),29(1-2) (2013) 101-112.
- Search of Truncation of (N21) Electron Basis Containing Full Connected Triple Excitations in computing Main and Satellite Ionization Potentials via Fock Space Coupled Cluster Approach, K. Adhikari, S. Chattopadhyay,B.K. De, A. Sharma,R.K. Nath, D. Sinha, Journal of Computational Chemistry (Chemistry Views) 34(15)(2013)1291–1310.
- Photophysical Properties of Eosin Y in Aqueous Glycol Oligomer Mixtures, Banti Ganguly, R.K.Nath , American Journal of Materials Science and Technology (Columbia International Publishing), 2 (2013) 29-39.
- Incorporation of Erythrosin B within the Restricted Geometry of Langmuir Monolayer and Langmuir-Blodgett Films of Octadecylamine, A. Pal , B.K. Mishra,, S. Panigrahi , R. K. Nath ,S.Deb, Soft Materials (Taylor & Francis) 11(2013) 85–89
- Solvatochromic behavior on the absorption spectra of Pinacyanol Chloride dye in various solvents, B.Ganguly, R.K. Nath, Asian J. Research Chem. (iiste.org) 5(9)(2012) 1113-1117.
- Spectral studies of Pinacyanol Chloride in Sodium Alkyl Sulfate, B. Ganguly, R.K. Nath Chemistry and Materials Research ,2,(3), (2012) 13-23.
- Study of the Interaction Between Eosin Y and Alkyltrimethylammonium Bromide Surfactants, B.Ganguly, R.K. Nath , Journal of Surfaces and Inter faces of Materials(American Scientific Publisher,1(2012)1–6.

- Behavior of 1-Pyrene-Carboxaldehyde Mixed with a Polymer Matrix within the Nano-Dimensional Langmuir-Blodgett Films, A. Pal , B.K. Mishra,, S. Panigrahi , R. K. Nath , International Journal of Green Nanotechnology , (Taylor & Francis), 4(2012)155–162.
- Formation of Complex Langmuir and Langmuir-Blodgett Films of DNA with a Dichain Cationic Surfactant, A. Pal , B.K. Mishra,, S. Panigrahi , R. K. Nath ,S.Deb, Journal of Macromolecular Science, Part A: Pure and Applied Chemistry (Taylor & Francis) 49 (2012) 160–163
- An investigation of the Behavior of Binary Mixed Langmuir Monolayer of 2, 2'-p-Phenylenebis(5-phenyloxazol) and Arachidic Acid, A.Pal, B. K. Mishra, R. K. Nath,S. Panigrahi, S. Deb,T. P. Sinha, Journal of Dispersion Science & Technology, (Taylor & Francis),33 (2012), 325–3 31.
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- Photophysical studies of Erythrosin B dye in aqueous micellar dispersions of different surfactants and in different solvents, B. Ganguly, R.K.Nath,A.K.Panda, Journal of Dispersion Science & Technology,(Taylor & Francis),3(2012) 307–3 15.
- Investigation of Miscibility and Aggregate Formation in the Mixed Langmuir–Blodgett Films of 2-Aminoanthracene by Surface Pressure and Spectroscopic Methods, A.Pal,B.K.Mishra, S.Panigrahi, R.K.Nath, Molecular Crystals & Liquid Crystals (Taylor & Francis) 557(2012) 253–261.
- Aggregation of non-amphiphilic bathophenanthroline in the restricted geometry of Langmuir – Blodgett films with two different matrices, A.Pal , S. Panigrahi , R.K.Nath, S. Deb,T.P.Sinha, B.K.Mishra, Thin Solid Films(Elsevier)520(1) (2011) 537–542.
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- Studies on the interaction of Klebsiella K34 capsular polysaccharide with oppositely charged dyes and surfactants, Th. C. Singh, R.K.Nath, S. Biswas, S.Dasgupta, A. Mitra , A.K. Panda, J. Surf. Sci. and Technol, (ISST) 24 (2008) 21-38.
- Preparation and characterization of an anionic dye-polycation molecular films by electrostatic layer-by-layer adsorption process., D.Dey, S.A.Hussain, R.K.Nath, D.Bhattacharjee, Spectrochimica Acta PartA (Elsevier).70 (2008) 307-312.
- Studies on the interaction of cationic surfactants with capsular polysaccharide of Klebsiella K28 by dye incorporation techniques, S. Dasgupta, R.K.Nath, S.Biswas, J. Hussain, A. Mitra, A.K. Panda, Colloids and Surfaces A: Physicochem. Eng. Aspects, (Elsevier), 302 (2007) 17-23.
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- Chromotropic charter of bacterial acidic polysaccharides: PartIII-Induction of metachrosia in dye pinacyanol chloride with Klebsiella K15, A. Mitra, A.Chakrabarti, R.K.Nath and A.K.Chakraborty, Ind. J. Bioche. Biophys., 27(1990) 291.
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- Chromotropic charter of bacterial acidic polysaccharides Part I-Induction of metachrosia in dye neutral red, A. Chakrabarti, R.K.Nath and A.K. Chakraborty, Ind. J. Biochem. Biophys.,24(1987)229.
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SEMINAR/CONFERENCE/WORKSHOP/REFRESHER/ORIENTATIONS ETC. PARTICIPATED:

1. XII, Biennial National Conference of Physics Academy of North East (PANE 2021) 15-17 December, 2021.
2. Third International Conference on Material Science (ICMS-2020) Department of Physics, Tripura University, Suryamaninagar, March, 04-06, 2020.
3. Recent Trends of Microscopy: Light to Electron and Digital Image Analysis organized by Tripura University, Agartala and Carl Zeiss India (Bangalore) Pvt. Ltd., September, 19-20, 2019.
4. Thin films and Nanomaterials: Principles and Applications organized by Department of Physics, Tripura University, March, 26-28,2018.
5. Second International conference on Material Science (ICMS-2017) , Department of Physics, Tripura University, Suryamaninagar, February, 16-18, 2017.
6. Recent Trends on Material Science (RTMS-2016), Organized by Dasaratha Deb Memorial College, Khowai, March, 01, 2016.
7. Recent Advances in Natural Products Chemistry for Drug Delivery (RANPDD-2015), organized by Netaji Subhas Mahavidyalaya, Udaipur, November, 28-29, 2015.
8. Recent Trends of Research in Chemistry-A New Horizon of Hopes” ,Department of Chemistry, Womens’ College, Agartala, August, 8-9, 2015
9. North east Regional Seminar on Trends in Colloid and Interface Science (NERSTCIS-2014)” Department of Chemistry, North-Eastern Hill University, Shillong, November 27-28, 2014.
- 10.Fifteenth National conference on surfactants, emulsions and biocolloids (NATCOSEB XV). Dept. of Chemistry, Tripura University, December, 27-29, 2011.
- 11.International Conference on Emerging Areas of Chemistry (ICEAC-11), Department of Chemistry, Tripura University, January-12-14, 2011
- 12.National Seminar on Membranes, Microemulsions and Self-Assembled Systems (MMSAS-2010) September,28-30,2010,SMIT, Sikkim.
- 13.National Seminar on “Scope and Recent Development of Natural Products” Iswar Chandra Vidyasagar College, Belonia, 12-13th November,2010.
- 14.National Conference on Frontiers of Colloids, Surfaces and Nanostructured Systems,Manipur University, Imphal,February,18-20,2009,
- 15.Regional Seminar on Recent Trends in Chemistry, Govt. Degree College, Dharmanagar, September,12-13 ,2009.
- 16.VIth National Conference on Physics Academy of North East (PANE) on Physics Research in North East, Tripura University, April, 2-4, 2019.
- 17.International Conference on Soft Systems (ICSS-2008) Jadavpur University, Kolkata, February,13-15,2008.
- 18.13th National Conference on Surfactants, Emulsions and Biocolloids with Special Focus on Biomimetic Systems (NATCOSEB XIII-BIMS), BITS, Pilani, February,22-24,2007.

19.44th annual Convention of Chemists, Mahatma Gandhi Institute of Applied Sciences, Jaipur, December,23-27,2007.

20.42nd Annual Convention of Chemists, Visva-Bharati, Shantiniketon, West Bengal, February, 9-13, 2006.

21.40th Annual Convention of Chemists, Bundelkhand University, Jhansi, Uttar Pradesh, December 23-27,2003.

MEMBERSHIP/POSITIONS IN LEARNED ACADEMIC BODIES/ORGANIZATIONS:

1. Life Member Indian Science Congress Association, Kolkata
2. Life Member Tripura Chemical Society, Agartala
3. Life Member Indian Society for Surface Science and Technology, Jadavpur, Kolkata

RESEARCH PROJECTS:

LIST OF PROJECTS IMPLEMENTED:

CSIR: COMPLETED

1. TITLE OF THE PROJECT:

“Spectroscopic studies of stable Langmuir- Blodgett and Layer-by-Layer Self Assembled film of organic, polymeric and water soluble materials.”

Scheme Number:01(2289)/08/EMR-II dt. 20-11-2008.

Sectioned amount:9,50,000/- .

Date of Start:15.01.2009.

2. TITLE OF THE PROJECT:

“Photo-physical investigation of Langmuir Blodgett films of organic, polymeric and water soluble material.”

Scheme Number:03(180)/06/EMR-II dt. 02.11.2006.

Sectioned amount:Rs.7,50,000/-.

Date of Commencement:01.11.2006.

Date of completion: 31.10.2009.

DST GOVT. OF INDIA: COMPLETED

3. TITLE OF THE PROJECT:

“Physico-chemical studies on the interaction of surfactant with oppositely charged bacterial polysaccharides.

Scheme Number:SR/S1/PC-20/2004,Dt.13.04.2005.

Sectioned amount:Rs.9,97,920/- .

Date of Commencement:01.08.2005.

Date of completion:31.10.2008.

RESEARCH SUPERVISIONS (SCHOLAR'S NAME, TOPIC AND STATUS):

1. Sri Surajit Biswas
“SPECTROSCOPIC CHARACTERIZATION OF SOME ORGANIC MOLECULES IN SOLUTION PHASE AND IN THE RESTRICTED GEOMETRY OF LANGMUIR-BLODGETT FILMS.” 2009.
Ph.D. Awarded 2010.
2. Smt Satwati Das Gupta:
“Investigation on the physico-chemical properties of Capsular Polysaccharides from some serotypes of Klebsiella”
Ph.D. Awarded 2012
3. Smt.Banti Ganguli:
“ Studies on the photo-physical properties of dyes in aqueous micellar media.”
Ph.D. Awarded 2014
4. Th. Charanjeet Singh:
“Interaction of bacterial polysaccharides with oppositely charged dyes and surfactants: Physico-chemical studies.”
Ph.D. Awarded 2015
5. Smt Jayasree Nath
“Spectroscopic characterizations of stable Langmuir-Blodgett and layer-by-layer self assembled films of organic, polymeric and water soluble materials” .
Ph.D. Awarded 2015
6. Indra Ghosh
Spectroscopic Characterization of Some Organized molecular assemblies in the restricted geometry of ultra thin film
Ph.D. Awarded 2016
7. Bandana Das
Adsorption of Dye and Bio-molecules on to Polyelectrolyte/Surfactant Complex Fabricated by Layer by Layer Sequential Technique
Ph.D. Awarded 2020
8. Kartick Lal Bhowmik
Synthesis, Characterization and Application of Conducting Polymer Based Films and Metal Oxide Nano-composite.
Ph.D. Awarded 2020
9. Smt Alpana Baidya:
“Photo-physical characteristics of different liquid crystals and other organic compounds in the restricted geometry of thin film”
Thesis submitted 2022
10. Smt.Susmita Ghosh:
“Physico-chemical studies on the interaction of water soluble polymers with dyes and surfactants in aqueous medium. Registered ,2007
11. Sri Dipak Banik- Joined as RET Scholar (2010)

12. Aditi Bhowmik:
"Physicochemical Behavior of Some Organic Molecules Organized in Ultrathin Films"
Registered 2016
13. Smt Payel Nath:
"Fabrication and photo physical characterizations of some organic molecules in ultrathin films by Langmuir-Blodgett (LB) and Layer by Layer sequential techniques"
Registered 2017
14. Smt Tania Mondal:
"Synthesis and Structure-Activity assessment of some amphiphilic molecules and dyes by fabrication of ultra thin films"
Registered 2018
15. Smt Sutapa Deb
An Investigation on the Physico-chemical properties of some Dyes and other organic molecules assembled in ultra thin films
Joined RET as Scholar-2019. Ph.D. Registered 2021
16. Norottam Karmakar Joined as RET Scholar-2022

SCHOLARSHIP/AWARD/RECOGNITIONS:

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OTHER INFORMATION (IF ANY):

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