DR.
BULA DUTTA

PROFILE

EMAIL ID
buladutta1@gmail.com

DATE OF JOINING
23.09.2006

DESIGNATION

ASSOCIATE PROFESSOR, DEPARTMENT OF CHEMISTRY

QUALIFICATION

- Ph.D.: Indian Association for the Cultivation of Science (**I.A.C.S.**), Jadavpur, Kolkata, 2005
- CSIR-UGC NET, 2000
- GATE (MHRD, Govt. of India), 1999
- M.Sc.: University of North Bengal, 1997 (Specialization: **Inorganic Chemistry**)
- B.Sc.: University of North Bengal, 1995

WORK EXPERIENCE

- Associate Professor in Chemistry, 23.09.2018 till date
- Assistant Professor in Chemistry, 23.09.2006 to 22.09.2018
- Research Associate, Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata, 10.05.2005 to 21.09.2006

RESEARCH INTEREST

- Experimental Materials Science
- Polymer Nanocomposites

- Nano-scale Ionic Liquid Materials
- Functional Nanostructures and Ionogels
- Supercapacitors

RESEARCHCOLLABORATION (NATIONAL/INTERNATIONAL):

- Department of Physics, University of Kalyani, Nadia

DETAILS OF RESEARCH PROJECT BEING COMPLETED/ ONGOING/SANCTIONED:

1. **Project Title**: *Synthesis, Characterizations, Optical and Electrical Properties of Functionalized Liquid-Like Nanoscale Hybrid Ionic Materials*
Funding Agency: SERB-DST, India
Project Type: Major Project (Total Cost: Rs. 14,28,000/-
Duration: 2015 to 2018)
Project Status: Completed

2. **Project Title**: *Novel polymer electrolyte nanocomposites with homogeneously dispersed inorganic nanoparticles-synthesis, characterization and electrical study*
Funding Agency: UGC, India
Project Type: Minor Project (Total Cost: Rs. 1,85,000/-
Duration: 2011 to 2013)
Project Status: Completed

LIST OF PUBLICATION

1. Viscosity decoupled charge transport in surface functionalized ZnS nanoparticle dispersed imidazolium ionanofluids. D. Deb, **B. Dutta** and S. Bhattacharya, *Materials Research Bulletin* (Elsevier), Vol 116, 22–31, 2019.

2. Electroactive phase nucleation and isothermal crystallization kinetics in ionic liquid-functionalized ZnS nanoparticle-ingrained P (VDF-HFP) copolymer nanocomposites. **B. Dutta**, D. Deb and S. Bhattacharya, *Journal of Materials Science* (*Springer*), Vol 54, 2990–3008, 2018.

3. Ionic liquid-SnO_2 nanoparticle hybrid electrolytes for secondary charge storage devices: Physicochemical and electrochemical studies. **B. Dutta**, D. Deb and S. Bhattacharya, *International Journal Of Hydrogen Energy* (Elsevier), Vol. 43, 4081-4089, 2018.

4. Decoupling of segmental relaxation from ionic conductivity in [DEMM] [TFSI] room temperature ionic liquid incorporated poly(vinylidenefluoride-co-hexafluoropropylene) membranes. P.

Bose, A. Roy, **B. Dutta** and S. Bhattacharya, *Solid State Ionics* (Elsevier), Vol 311,75-82, 2017.

5. Ion dynamics in $NaBF_4$ salt-complexed PVC–PEO blend polymer electrolytes: correlation between average ion hopping length and network structure. A. Roy, **B. Dutta** and S. Bhattacharya, *Ionics* (Springer),Vol 23, 3389-3399, 2017.

6. Isothermal crystallization kinetics as a probe of the preferential electroactive phase nucleation in silver- poly (vinylidenefluoride) nanocomposites: Dependence on nanoparticle size andconcentration. S. Biswas , **B. Dutta** and S. Bhattacharya, *European Polymer Journal* (Elsevier), Vol.86, 1–16, 2017

7. Correlation of the average hopping length to the ion conductivity and ion diffusivity obtained from the space charge polarization in solid polymerelectrolytes. A. Roy, **B. Dutta** and S. Bhattacharya, *RSC Advances* (*Royal Society of Chemistry*), Vol. 6, 65434–65442, 2016.

8. Electroactive phase nucleation and non-isothermal crystallization kinetics study in [DEMM][TFSI] ionic liquid incorporated P(VDF-HFP) co-polymer membranes. A. Roy, **B. Dutta** and S. Bhattacharya, *Journal of Materials Science* (*Springer*), Vol. 51, 7814–7830, 2016.

9. Correlation between nucleation, phase transition and dynamic melt-crystallization kinetics in PAni/PVDF blends. S. Biswas, **B. Dutta** and S. Bhattacharya, *RSC Advances* (*Royal Society of Chemistry*), Vol.5, 74486-74498, 2015.

10. Effect of silver nanoparticle embedment on the frequency dispersive conductivity and electrical relaxation dynamics in dodecylbenzenesulfonic acid doped polyaniline. S. Biswas, **B. Dutta** and S. Bhattacharya, *Journal of Materials Science* (*Springer*), Vol 49, 5910-5921, 2014.

11. Correlation of carrier localization with relaxation time distribution and electrical Conductivity relaxation in silver-nanoparticle-embedded moderately doped polypyrrole nanostructures. S. Biswas, **B. Dutta** and S. Bhattacharya, *Euro Physics Letters* (IOP Publishing), Vol 105,37003 P1-P6, 2014.

12. Consequence of silver nanoparticles embedment on the carrier mobility and space charge limited conduction in doped polyaniline.
S. Biswas, **B. Dutta** and S. Bhattacharya, *Applied Surface Science*

(Elsevier) Vol 292, 420-431, 2013.

13. Dependence of the carrier mobility and trapped charge limited conduction on silvernanoparticles embedment in doped polypyrrole nanostructures. S. Biswas, **B. Dutta** and S. Bhattacharya, *Journal of Applied Physics* (AIP), Vol 114, 143701-11, 2013.

14. Controlled Synthesis of 3d–4d Heterobimetallic Complexes of a Symmetrical Tetraiminodiphenolate Macrocycle–Structural, Spectroscopic, and Redox Properties. **B. Dutta**, B. Adhikary, U. Flörke, and K. Nag, *European Journal of Inorganic Chemistry* (WILEY-VCH Verlag), Vol 20, 4111–4122, 2006.

15. Mononuclear Al^{III}, $Ga^{III}$and In^{III}, and heterodinuclear Ga(M= Zn, Cu, Ni, Co) complexes of a tetraiminodiphenol macrocyclic ligand. **B. Dutta**, P. Bag and K. Nag, *New Journal of Chemistry* (Royal Society of Chemistry),Vol 29, 1182-1188, 2005.

16. Dinuclear Zinc(II) Complexes of Tetraiminodiphenol Macrocycles and Their Interactions with Carboxylate Anions and Amino Acids. Photoluminescence, Equilibria, and Structure. **B. Dutta**, P. Bag, U. Flörke and K. Nag, *Inorganic Chemistry* (American Chemical Society),Vol 44, 147-157, 2005.

17. Efficient Proton-Templated Synthesis of 18- to 38-Membered Tetraimino(amino)diphenol Macrocyclic Ligands: Structural Features and Spectroscopic Properties **B. Dutta**, P. Bag, B. Adhikary, Ulrich U. Flörke and K. Nag, *Journal of Organic Chemistry* (American Chemical Society), Vol 69, 5419-5427, 2004.

18. Spectroscopic and redox properties of $Rh^{III}Ru^{II}$ and $Ru^{II}Ru^{II}$ complexes derived from 2,2'-bipyridine, pyrazole-3,5-bis(benzimidazole) and 1,2,4-triazole-3,5-dicarboxylic acid as bridging ligands. S. Baitalik, **B. Dutta** and K. Nag, *Polyhedron* (Elsevier), Vol 23, 913-919, 2004.

19. Organized assemblies of lead(II) complexes of a tetraiminodiphenol macrocyclic ligand: manifestation of weak metal–anion interactions and the directional influence of anions. **B. Dutta**, B. Adhikary, P. Bag, U. Flörke and K. Nag, *Journal of the Chemical Society, Dalton Transactions* (Royal Society of Chemistry), Vol 13, 2760-2767, 2002.

Book Chapters:

1. Ionic liquid functionalized nanoparticles: Synthetic strategies and electrochemical Applications. S. Bhattacharya, D. Deb, **B. Dutta**, and P. Bose, *Functionalized Nanomaterials Based Devices for Environmental Applications* (Elsevier), Chapter 7, 147-173, 2021

SEMINARS AND CONFERENCE ATTENDED

1. "*Imidazolium based ZrO_2 nanoparticle grafted hybrid electrolyte for secondary charge Storage devices*", International Seminar on Contemporary Developments in Social and Basic Sciences in times of Global Crisis at Suryasen Mahavidyalaya, Siliguri (28-29th March, 2017).

2. "*Strong Excitation Wavelength Dependent Fluorescence of SnO_2 Nanoparticle grafted Ionanogel*", 2nd International Conference on Emerging Materials: Characterization & Application (EMCA-2017) at National Institute of Technology, Durgapur (15-17th March, 2017).

3. "*Nanoscale hybrid ionic fluid with improved Viscoelastic properties*", National Conference on Emerging Trends in Condensed Matter Physics and Materials Science-2016 at Department of Physics, University of Kalyani (18-19th March, 2016).

4. "*Facile and Controlled Synthesis of Silver Polyaniline Nanocomposites with Tunable Electrical Properties*", National Conference on Modern Trends in Materials Science-2015 at Department of Physics, University of North Bengal (5-6th February, 2015).

EXTERNAL RESPONSIBILITY (ADMINISTRATIVE RESPONSIBILITIES)

- Member, Board of Under-Graduate Studies in Chemistry, NBU. (2017 to 2023)
- Life Member, Indian Association for the Cultivation of Science, Jadavpur, Kolkata
- HOD, Department of Chemistry, P. D. Women's College (2021 to 2022)
- HOD, Department of Chemistry, P. D. Women's College (2015 to 2016)
- NSS Programme Officer (2017 to 2019)