

Dr. DIBAKAR DUTTA

Assistant Professor

Department of Physics

Mathabhanga College

P. O.- Mathabhanga, District- Cooch behar, Pin-736146, India

Email: dutta_dibakar@yahoo.com

Tel: +913324990039

Alternate email: dibakar.dutta@gmail.com

Mobile: +919547316602

Website: www.mtbcollege.ac.in



Personal Details:

Date of Birth: September 18, 1976; **Nationality:** Indian; **Sex:** Male; **Marital Status:** Married

Current Position and Working area:

2015- till date Working as an Assistant Professor in the Department of Physics, Mathabhanga College, Coochbehar, West Bengal Pin-736146 (www.mtbcollege.ac.in).

2013-2015 Worked as an Assistant Professor in the Department of Physics, St. Xavier's College (Autonomous), 30 Park Street, Kolkata-700016 (www.sxccal.edu).

2011- 2012 Worked on FCT (EU) grant as a postdoctoral fellow in the Departamento de Fisica, Universidade de Aveiro, 3810-193 Aveiro on the project "Study of relaxor ferroelectricity and colossal magnetocapacitive coupling of the multiferroics $\text{Bi}_x\text{A}_{1-x}\text{FeO}_3$ (A= **La, Nd, Sm, Pb**)".

2010- 2011 Worked as post doctoral research faculty in "Industrial Source Technology Development Programs funded by the Ministry of Knowledge Economy (MKE, Korea)" in the Department of Advanced Materials Engineering for Information & Electronics, College of Engineering, Kyung Hee University, Gyeonggi-do-446-701, South Korea.

2007- 2010 Worked as an Assistant Professor in the Department of Physics, St. Xavier's College (Autonomous), 30 Park Street, Kolkata-700016 (www.sxccal.edu).

Other responsibilities:

- **Member** of the board of studies of **Undergraduate Council** for study in Physics in **Coochbehar Panchanan Barma University**, West Bengal, India.
- **Member** of the **Board of Examiners** in Physics **Honours** Practical for the **B.Sc. Part-III** (1+1+1) system (Three Years) Examination, 2016 of **University of North Bengal**, West Bengal India.

Education

2007 Received **Ph.D** from Jadavpur University for the thesis entitled "**Study of conduction mechanism in some fast ion conducting glasses and nanocomposites**" in experimental condensed matter physics.

2000 Received **M. Sc.** (Master of Science) in **Physics (Specialization-Electronics and Radio Physics)** from University of North Bengal, West Bengal, India.

1997 Received **B.Sc.** (Honors) in **Physics** from University of North Bengal, West Bengal, India.

Published work in refereed academic journals

1. pH-Switchable Unusual Electrical Conductance of a New Tripeptide-Gold-Nanoconjugate, Sudipta Ray, Dibakar Dutta, D. K. Maiti, NanoMatChem BioDev 1 16 (2018).

2. Synthesis and different optical properties of GdO doped sodium zinc tellurite glasses, B. Samanta, **D. Dutta**, S. Ghosh, Physica B: Condensed Matter 515 82 (2017).

3. The Dielectric Breakdown Model applied to explain various morphologies of deposited metallic structures in thin gap metal electro-deposition, A. Chowdhury, **D Dutta*** AIP Advances 5, 067120 (2015). (I.F. 1.59)

4. Electrical properties of Ag-doped ZnO nano-plates synthesized via wet chemical precipitation method, Reza Zamiri, B. K. Singh, Dibakar Dutta, Avito Reblo, J. M F. Ferreira, Ceramics International 40, 4471 (2014). (I.F. 2.086)

5. Structural characteristics and dielectric response of some zinc tellurite glasses and glass ceramics, **D. Dutta***, M.P.F. Graca, M.A. Valente, S.K. Mendiratta, Solid State Ionics 230, 66 (2013). (I.F. 3.097)

6. Correlation of ion dynamics and structure in superionic glasses and nanocomposites, **D. Dutta** and A. Ghosh, *J. Non. Cryst. Solids* 355, 1930 (2009). (I.F. 1.537)
7. Metallic silver nanowires of high aspect ratio: Formation and Mechanism, **D. Dutta** and A. Ghosh, *Advanced Science Letters* 2, 381 (2009). (I.F. 1.253)
8. Role of Ag₂S nanoparticles on the dynamics of silver ions in silver-ultraphosphate glass nanocomposites, **D. Dutta** and A. Ghosh, *Journal of Phys. Chem. C* 113, 9040 (2009). (I.F. 4.805)
9. Electrical relaxation in CdI₂ doped silver vanadate superionic glasses, A. Ghosh, **D. Dutta**, S. Kabi and A. Ghosh, *Jour. App. Physics* 105, 064107 (2009). (I.F. 2.168)
10. Electrical properties of nanostructured magnetite near Verwey transition, P. Brahma, S. Dutta, **D. Dutta**, A. Ghosh, S. Banerjee and D. Chakravorty, *Journal of Magnetism and Magnetic Materials* 321, 1045 (2009). (I.F. 2.168)
11. Correlation of ion dynamics and structure of superionic tellurite glasses, **D. Dutta** and A. Ghosh, *J. Chem. Phys* 128, 044511 (2008). (I.F. 3.230)
12. Relaxation dynamics of Ag₄Te₃O₈ glass nanocomposites embedded with Ag₂S nanoparticles, **D. Dutta** and A. Ghosh, *J. Chem. Phys* 127, 044708 (2007). (I.F. 3.230)
13. Giant Dielectric Permittivity in Aligned Silver Nanowires Grown within (AgI) (AgPO₃) glasses, P.K. Mukherjee, **D. Dutta**, S. Bhattacharyya, A. Ghosh and D. Chakravorty, *Jour. Phys. Chem. C* 111, 3914 (2007). (I.F. 4.805)
14. Dynamics of Ag⁺ ions in Ag₂S doped superionic AgPO₃ glasses, S. Bhattacharyya, **D. Dutta**, and A. Ghosh, *Phys. Rev. B* 73, 104201 (2006). (I.F. 3.691)
15. Dynamics of Ag⁺ ions in binary tellurite glasses, **D. Dutta** and A. Ghosh, *Phys. Rev. B* 72, 024201 (2005). (I.F. 3.691)
16. Ionic relaxation in AgI–Ag₂O–TeO₂ glasses, **D. Dutta** and A. Ghosh, *J. Phys.: Condens. Matter* 16, 2617 (2004). (I.F. 2.546)

Published contributions and presentations to academic conferences

17. Diffusion limited aggregation and some natural patterns, **D. Dutta**, “UGC (University Grant Commission) sponsored refresher course in Physics conducted by Academic Staff College, University of Calcutta” during July 07-26, 2014.

18. Continuous metallic silver nanowires grown in glass-nanocomposite templates **D. Dutta**, "International Conference and Humboldt-Kolleg On Structural Characterization of Materials Relevant to Nanotechnology, Biomedical and Geobiology" being organized by the Department of Physics, Banaras Hindu University during November 7-9, 2008.

19. Relaxation dynamics in superionic glasses, **D. Dutta**, S. Bhattacharya and A. Ghosh, 16th Annual General Meeting of MRSI and Theme symposium on "Materials for Automotive Industries", NCL, Pune during February 10-12, 2005.

20. Ionic conductivity and relaxation dynamics of some fast ion conducting glasses, S. Bhattacharya, **D. Dutta** and A. Ghosh, 6th National Conference on Solid State Ionics. Physics Department, Jadavpur University, Kolkata –700032 during October 5 – 7, 2004.

21. Conductivity relaxation in some fast ion-conducting AgI – Ag₂O – TeO₂ glasses, **D. Dutta** and A. Ghosh, 46th Annual D.A.E Solid State Physics Symposium. School of Studies in Physics, Jiwaji University, Gwalior-74011 (MP), India during December 26-30, 2003.

External research funding

1. Principle investigator in the minor research project "Study of some superionic silver phosphate glasses and nanocomposites." Sanctioned by UGC, India. (PSW065/10-11) project tenure completed in 2012. (Granted amount: INR 1,53,500).

2. Co-PI in UGC, India, sponsored major research project entitled "Study of electro-optical properties of some ZnO doped TeO₂ transparent glass ceramics (tgc)" funded by the University Grants Commission (UGC), India. (F 39-532/2010) (SR) project tenure completed in 2014. (Granted amount: INR 4,39,800).

3. Co-PI in the major research project entitled, "Electro-Optical Studies on Transparent Conducting Telluride and Phosphate Glass Ceramics doped with different oxides like ZnO, Ag₂O etc for various applications", sponsored by the Department Of Science and Technology (DST), India. (SR/S2/CMP-0040/2010) project tenure completed. (Granted amount: INR 25,42,871).

Awards and Honors:

- Fellow of the **Fundacao para a ciencia e a tecnologia** (FCT)-2010, Portugal.

- Qualified in State Level Eligibility Test (**SLET 2001**) for selection of Lecturers, conducted by West Bengal College Service Commission, West Bengal, India.

Research experience and instrumental skills:

- Characterization of **transparent glasses and glass ceramics** in Tellurite systems.
- Diffused reflectance in UV-Vis spectroscopy.
- **Fractal** growth in **electro-deposition** of copper and zinc system.
- Study of relaxor ferroelectricity and colossal magnetocapacitive coupling of the multiferroics $\text{Bi}_x\text{A}_{1-x}\text{FeO}_3$.
- **Material Characterization** by **XRD** (Rich-Seifert, model 3000P), **DSC** (Perkin Elmer, DSC 7), **FTIR** (Shimadzu, FTIR-8400S). **Morphological** study by High-Resolution Transmission Electron Microscopy (**HR-TEM**) (JOEL, JEM2010) and Field Emission Scanning Electron Microscopy (**FE-SEM**) (JOEL, JSM-6700F).
- **Preparations of ionic and fast ion conducting glasses and glass nanocomposites** and study of **ion dynamics and relaxation** by **broad band dielectric spectroscopy (10Hz-2MHz,100kHz-1.82G.Hz)**. Experience in **operating liquid nitrogen cryostat, closed cycle He gas cryostats** and well accustomed with the cryogenic ($\geq 10\text{K}$) techniques for electrical measurements.
- **Electrical characterization of nanoparticles and quantum effects** in semiconductors in **low temperature**.
- **Correlation between micro and nano-structure and ion dynamics. Growth of silver nanowires** in glass matrix, dynamics of electronic conduction in nanowires.

Teaching Experience

A. Lectures delivered to **undergraduate** and **post-graduate** students so far on the following topics;

Thermal radiation and **Emergence of Quantum Physics**, **Preparation and characterization methods** for **nano-materials**, **basic VLSI techniques**, **digital and analog electronics** and **communications**, **mechanics** and **instrumentation**.

B. Supervising students in Laboratory;

Main area of expertise –**Electronics and Programming in FORTRAN 90** to solve **physics problems**.

Experience in Examination process

- **Been examiner of B.Sc examinations (both theory and practical) of NBU for the year 2015.**
- **Been Internal Examiner of B.Sc general students for their 1st year practical exam in the autonomous system of St. Xavier's College (Autonomous) on 2008 and 2009, 2013, 2014.**
- **Been Internal examiner for C.U. candidates of B.Sc. general students for their Part-III and Part-II exams in 2009.**

Communication Skill:

- Qualified in the **IELTS** exam (2005) for testing English language proficiency test, conducted by **Cambridge ESOL** in the general training module with an overall band score of **6.5**.
- Basic reading and writing skill in **Hiragana** and **Katakana** and some **Kanji**.