Mankar College

ESTD. - 1987

(Affiliated to The University of Burdwan)

Dr. ARUNMAY BAIDYA
M.Sc., Ph. D.

Assistant Professor
Department of Physics
Mankar College, Mankar-713144

Date of Joining: 02.03.2015

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Education & Research

- Ph. D. in Materials Science, The University of Burdwan (2024).
  - Title of Thesis: Studies on Synthesis, Characterization and Different Properties of Some Rare-Earth Based Molybdenum Oxide Nanomaterials.
  - Thesis supervisor: Dr. Abhigyan Dutta, Professor, Department of Physics, The University of Burdwan.

- JRF at UGC-DAE CSR Indore, 2013-2015.

- M. Sc. in Physics, 2012, IIT Bombay.
  - Special Paper: Theoretical condensed matter physics.

- B. Sc. in Physics (H), 2010, Burdwan Raj College, Burdwan.

Additional Qualification

- CSIR-UGC NET (2012)
- JOINT ENTRANCE SCREENING TEST (JEST- 2012)
- GATE (2012)
- JAM (2010)

Experience in NCC

- **NCC Pre Commission Course (PRCN)**
  - **Course Serial No:** PRCN/SD-163
  - **Period:** 27th Nov 2017 to 24th Feb 2018.
  - **Place:** NCC Officers Training Academy, Kamptee, Nagpur.

- Commissioned as "**Lieutenant**" in 2018 after PRCN.

- **Served as**
  - Associate NCC Officer (ANO) at Mankar College NCC, under the 10 Ben. BN. Asansol, 2018-2024.
  - Caretaker Officer (CTO) at Mankar College NCC, under the 10 Ben. BN. Asansol, 2016-2018.

Academic Experience

- 2015 - till date Assistant Professor, Department of Physics, Mankar College, Mankar, Purba Barddhaman, West Bengal-713144.

Courses Taught:

Theory : B.Sc. Physics NEP-2020 and CBCS Syllabus, Prepared by The University of Burdwan.

Laboratory: B.Sc. Physics NEP-2020 and CBCS Practical, Prepared by The University of Burdwan.

Administrative Experience

- Acted as the **Head of the Department**, Department of Physics, Mankar College from March 2015-till date.
- **ANO in NCC** at Mankar College from 2016-2024.
- **Coordinator** of **Netaji Subhas Open University (NSOU)** at Mankar College study center from 2021 to till date.
- **IQAC member** since 2021.
- **RUSA Coordinator** from 2023.

About Research & Skills

My research area mainly focuses on ionic conductors, dielectrics, and nanomaterials. Most of the studies, I have made, are on structural, electrical, optical, and dielectric properties. The research work also delves into the dynamics of charge carriers and phase transitions in ion-conducting nanomaterials, aiming to understand and improve their performance for potential applications in solid oxide fuel cells (SOFCs) and other advanced technologies.

In my early research period, I also did some magnetic studies at very low temperatures (~ 2K) to detect the magnetic properties and phase transitions of different compositions.

During my research, I learn to handle many instruments and Software

- LCR Meter
- UV-Vis
- Planetary Ball Mill
- Sol-gel/ Ignition method by chemical process
- Solid-state reaction
- Arc melting

- PPMS for Hall and ac electrical measurement with 7 tesla magnet
- PPMS-VSM with 9 tesla magnet
- Origin Software
- FULLPROF Software
- VESTA Software
- LabVIEW Software
- Fortran-95 and C++ Software

Research Publications in Scopus Indexed Journals

1. **Baidya, A.**, & Dutta, A. (2024). Exploring phase transition and charge carrier dynamics in La_6MoO_{12} ionic conductors: Impact of metal-substitution. Materials Research Bulletin, 179, 112968. https://doi.org/10.1016/j.materresbull.2024.112968
2. **Baidya, A.**, & Dutta, A. (2024). Structural, optical, and charge carrier dynamics study of metal-doped La_6MoO_{12} based ionic conductors. Physica B: Condensed Matter, 681, 415853. https://doi.org/10.1016/j.physb.2024.415853
3. **Baidya, A.**, & Dutta, A. (2023). Structural and charge carrier dynamics study of Dy stabilized La_6MoO_{12} ionic conductors. Materials Research Bulletin, 160, 112114. https://doi.org/10.1016/j.materresbull.2022.112114
4. **Baidya, A.**, & Dutta, A. (2022). Structural phase transition and charge carrier dynamics in Dy containing La_6MoO_{12} ionic conductor. Solid State Sciences, 134, 107061. https://doi.org/10.1016/j.solidstatesciences.2022.107061
5. **Baidya, A**., & Dutta, A. (2021). Structural, electrical, and dielectric properties of chemically derived Sm-Doped cubic lanthanum molybdate nanomaterials. Journal of Physics and Chemistry of Solids, 159, 110272. https://doi.org/10.1016/j.jpcs.2021.110272
6. Jena, R. P., **Baidya, A.**, & Lakhani, A. (2016). Effect of Yttrium doping on structural and magnetic properties of Dysprosium. Journal of Magnetism and Magnetic Materials, 418, 306-310. https://doi.org/10.1016/j.jmmm.2016.02.045

Research Publications in Conference Proceedings

1. **A. Baidya** & A. Dutta, Synthesis, optical and electrical properties of cubic La containing Mo based oxide ion conductors, AIP Conf. Proc. 2220, 040012 (2020), https://doi.org/10.1063/5.0001117
2. A. Lakhani, **A. Baidya**, & R. P. Jena, Study of dysprosium in different magnetic states, AIP Conf. Proc. 1731, 030023 (2016), https://doi.org/10.1063/1.4947628

List of Conferences

1. **Arunmay Baidya** and Abhigyan Dutta, *Structural, Optical, Electrical, and Dielectric Properties of Sm Doped La_6MoO_{12} Ionic Conductors*, ***5th Regional Science & Technology Congress (Region 7)***, January 06-07, 2023, The University of Burdwan, Burdwan.
2. **Arunmay Baidya** and Abhigyan Dutta, Synthesis, *Structural, Electrical and Dielectric Properties of Sm Doped Molybdate Ionic Conductors*, ***1st International Conference on Supercapacitors & Batteries –India, (SuperBats-2022)***, March 28-30, 2022, Department of Physics, Indian Institute of Technology Kharagpur, Kharagpur, India.
3. **Arunmay Baidya** and Abhigyan Dutta, *Synthesis and Electrical Properties on Lanthanum Concentration in Molybdenum Based Oxide Ion Conductors*, ***National Seminar on Condensed Matter Physics including Laser Applications (NSCMPLA-2020),*** February 13-14, 2020, Department of Physics, The University of Burdwan, Burdwan.
4. **Arunmay Baidya** and Abhigyan Dutta, *Synthesis, optical and electrical properties of cubic La containing Mo based oxide ion conductors*. ***3rd International Conference on Condensed Matter & Applied Physics (ICC-2019)***, 14th-15th Oct. 2019, Govt. Engineering College Bikaner, Bikaner, India.
5. Rajdip Roy, **Arunmay Baidya** and Abhigyan Duta, *Effect of sintering temperature on structural and electrical properties of $Na_{0.5}Bi_{0.5}TiO_3$ prepared through citrate auto-ignition method*. ***Condense Matter Physics Days 2018***, August 2018, The University of Burdwan, Burdwan.

***Updated till- 23.07.2024**