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DEPARTMENT OF PHYSICS  
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## Personal Details

- ❖ **Designation** : Assistant Professor
- ❖ **Sex** : Male
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## Education

- ❖ **Ph. D. in Physics (2016)**  
The University of Burdwan, Burdwan, India
  - ✚ **Title of Thesis:** Preparation and characterization of some rare earth doped cerium oxide nanomaterials.
  - ✚ **Supervisor:** Dr. Abhigyan Dutta, Assistant Professor, The University of Burdwan, India
- ❖ **M. Sc. in Physics (2009)**  
The University of Burdwan, Burdwan, India
  - ✚ **Specialization:** X-ray and Crystallography
- ❖ **B. Sc. in Physics (2007)**  
Burdwan Raj College, The University of Burdwan, Burdwan, India

## Teaching

### ❖ July, 2016 to Present:

- ✚ Assistant Professor in Physics, Government General Degree College, Salboni, Paschim Medinipur, India

### ❖ February, 2015 to July, 2016:

- ✚ Assistant Professor at Department of Physics, Government General Degree College, Singur, Hooghly, India

## Ongoing Research Project

- ❖ **Title of the Project:** Synthesis characterization and investigations of different properties of some double perovskites for futuristic applications
- ❖ **Funding Agency:** Department of Science & Technology and Biotechnology, Govt. of West Bengal
- ❖ **Sanction Order No:** 458(Sanc.)/ST/P/S&T/16G-29/2018 Dated : 12/03/2019
- ❖ **Period:** 2019-2022
- ❖ **Amount:** Rs. 627212/-

## Research Interest

- ❖ Synthesis and characterization of different nanomaterials.
- ❖ Rare earth doped metal oxide nanomaterials.
- ❖ Ordered and disorder crystal structure of materials
- ❖ Structural dependence of optical, electrical, thermal and magnetic properties of materials.
- ❖ Relaxation properties of nanomaterials.
- ❖ Double perovskites

## Activity as Reviewer

Regular reviewer of several international journals like:

- ❖ Journal of American Ceramic Society
- ❖ Journal of The Electrochemical Society
- ❖ Journal of Alloys and Compounds
- ❖ Materials Letters
- ❖ Talanta
- ❖ Materials Research Express
- ❖ RSC Advances
- ❖ Materials Chemistry and Physics
- ❖ Ionics

- ❖ International Journal of Hydrogen Energy
- ❖ Dalton Transactions
- ❖ Journal of Materials Sciences

## Publications

### ❖ Publication in Journal

Sl. No.	Title of Paper	Name of the Journal	Volume and Year of Publication	Authorship
1	Impact of dielectric properties on ionic conductivity of $Ce_{0.9}Sm_{0.1}O_{1.95}$ via defect interaction	Materials Letters: X	12 (2021) 100111	First Author + Corresponding Author
2	Structure, ionic transport properties and ion dynamics of $Ce_{0.8}Y_{0.2}O_{1.9}$ oxygen ion conductor: Understanding the impact of sintering temperature	Journal of Solid State Chemistry	303 (2021) 122451	First Author + Corresponding Author
3	Structure, small polaron hopping conduction and relaxor behavior of $Gd_2NiMnO_6$ double perovskite	Journal of Physics and Chemistry of Solids	159 (2021) 110292	First Author + Corresponding Author
4	Structure, conductivity, dielectric properties, and charge-carrier dynamics of lead-free $Dy_2NiMnO_6$ double perovskite	J Mater Sci: Mater Electron	32 (2021) 17822–17836	First Author + Corresponding Author
5	Understanding the structure and charge transport mechanism of $Sm_2NiMnO_6$ double perovskite prepared via low temperature auto-ignition method	Physics Letters A	397 (2021) 127256	First Author + Corresponding Author
6	Synthesis route dependent structure, conductivity and dielectric properties of $Ce_{0.8}Gd_{0.2}O_{1.9}$ oxygen ion conductor: A comparative approach	International Journal of Hydrogen Energy	46 (2021) 8210-8225	First Author + Corresponding Author

<b>Sl. No.</b>	<b>Title of Paper</b>	<b>Name of the Journal</b>	<b>Volume and Year of Publication</b>	<b>Authorship</b>
7	Revisiting ionic conductivity of rare earth doped ceria: Dependency on different factors	International Journal of Hydrogen Energy	45 (2020) 25139 - 25166	First Author + Corresponding Author
8	Effect of divalent cation addition on structure, conductivity and grain boundary properties in La doped ceria oxygen ion conductors	Ceramics International	45 (2019) 5751–5760	First Author
9	Structure, Ionic Transport Properties and Scaling Behavior of Eu, Pr, and Sm Co-Doped Ceria Oxygen Ion Conductors	Physica Status Solidi A	216 (2019) 1800352	First Author + Corresponding Author
10	Structure and defect interaction mediated transport mechanism of mixed di-tri valent cation containing ceria-based Ionic conductors	International Journal of Hydrogen Energy	43 (2018) 23418-23429	First Author
11	An insight into the structure, conductivity and ion dynamics of Sr-Sm codoped ceria oxygen ion conductors: Effect of defect interaction	Solid State Sciences	86 (2018) 69–76	First Author
12	Structural and ionic transport mechanism of rare earth doped cerium oxide nanomaterials: Effect of ionic radius of dopant cations	Solid State Ionics	309 (2017) 137-145	First Author
13	Structural interpretation of optical properties and ion transport mechanism in mixed valent Pr containing nanoceria	Materials Research Bulletin	86 (2017) 119-130	First Author
14	Microstructural interpretation of conductivity and dielectric response of $\text{Ce}_{0.9}\text{Eu}_{0.1}\text{O}_{1.95}$ oxygen ion conductors	Ionics	23 (2017) 2579-2587	First Author

Sl. No.	Title of Paper	Name of the Journal	Volume and Year of Publication	Authorship
15	Microstructure correlated impedance spectroscopy studies of $Ce_{0.8}Y_{0.2}O_{2-\delta}$ : Effect of grain growth	AIP Conference Proceedings	1832 (2017) 110032	First Author
16	Effect of sintering temperature on structural, optical and electrical relaxation properties of Gd-doped nickel-ferrites	AIP Conference Proceedings	1832 (2017) 110021	Co-Author
17	Ionic conductivity of rare earth doped phase stabilized $Bi_2O_3$ : Effect of ionic radius	AIP Conference Proceedings	1832 (2017) 110020	Co-Author
18	Dielectric relaxation and charge carrier mechanism in nanocrystalline Ce–Dy ionic conductors	RSC Advances	6 (2016) 49852-49861	First Author
19	Microstructure and charge carrier dynamics in Pr-Sm-Eu triple-doped nanoceria	Solid State Ionics	295 (2016) 48-56	First Author
20	Conductivity enhancement in mechanosynthesized $Bi_2O_3$	AIP Conference Proceedings	1731 (2016) 110022	Co-Author
21	Defect association mediated ionic conductivity of rare earth doped nanoceria: Dependency on ionic radius	AIP Conference Proceedings	1731 (2016) 110008	First Author
22	Charge Carrier Dynamics in Nanocrystalline Dy Substituted Ceria Based Oxygen Ion Conductors	AIP Conference Proceedings	1728 (2016) 020070	First Author
23	Charge carrier dynamics in Gd-Y co-doped nanocrystalline ceria corroborated with defect interactions	RSC Advances	5 (2015) 95736-95743	First Author
24	Vacancy mediated ionic conduction in Dy substituted nano ceria: A structure-property correlation study	RSC Advances	5 (2015) 50186-50195	First Author
25	Microstructure and electrical relaxation studies of chemically derived Gd-Nd co-doped nanocrystalline ceria electrolytes	Solid State Ionics	270 (2015) 73-83	First Author

Sl. No.	Title of Paper	Name of the Journal	Volume and Year of Publication	Authorship
26	Structural, Optical and Dielectric Properties of $Ce_{0.9}Nd_{0.1}O_{1.95}$ nanocrystalline oxygen ion conductors: Effect of Sintering Temperature	Journal Physics and Chemistry of Solids	76 (2015) 178-183	First Author
27	Synthesis and electrical transport properties of Gd doped nanocrystalline ceria	AIP Conference Proceedings	1536 (2013) 157-158	First Author

❖ **Publication in Book**

**Title of the Book:** Energy storage and conversion: Materials and Devices

**Title of the Chapter:** Defect interaction mediated charge carrier dynamics in Gd-Y co-doped nanocrystalline ceria (Chapter: 9, Pages: 101-112)

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