DR. ABHIGYAN DUTTA

CONTACT INFORMATION

PROFESSOR
DEPARTMENT OF PHYSICS
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Vidwan ID: 194328; Scopus Author ID: 36767033100
Researcher Id: AAD-3370-2019

EDUCATION

- **Ph. D.** in Materials Science, 2006 from Jadavpur University, Kolkata.
- Title of Thesis: ***Ion dynamics in some heavy metal glasses containing alkaline earth ions***.

Thesis supervisor: **Professor Aswini Ghosh**, ***FNA***; ***FASc***; **J. C. Bose National Fellow,**

School of Physical Sciences, Indian Association for the Cultivation of Science, Jadavpur, INDIA.

- **M. Sc** in **Physics**, 1999, The University of Burdwan, Burdwan, INDIA.
- **B. Sc** in **Physics (H)**, 1997**,** The University of Burdwan, Burdwan, INDIA.

TEACHING

AUGUST, 2021 - present, *Professor* at Department of Physics, The University of Burdwan

AUGUST 2018 - AUGUST 2021, *Associate Professor* at Department of Physics, The University of Burdwan

AUGUST 2006 - AUGUST 2018 *Assistant Professor* at Department of Physics, The University of Burdwan

APRIL 2003 - MARCH 2004, *Lecturer* at Department of Physics, Nabagram Hiralal Paul College, Hooghly

Courses taught:

Theory

(i) Nuclear and Particle Physics (General) in M. Sc Semester II

(ii) Nuclear and Particle Physics (Major Elective) in M. Sc Semester III and IV

(iii) Research methodology in Ph. D course work.

Laboratory:

(i) G.M. counter-based experiment in Semesters I and II.

(ii) Beta ray absorption and determination of mass absorption co-efficient in Semesters III and IV

(iii) Determination of speed of the ultrasonic wave in liquid medium in Semesters III and IV.

RESEARCH INTEREST

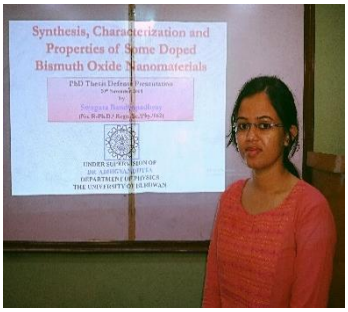
- Synthesis of different doped Rare earth, Ferrite, and heavy metal-based nanomaterials by various chemical and mechanical routes.
- Microstructural investigation of nanomaterials using XRD and Rietveld method, HR-TEM, FE-SEM; Proposition of different cationic models
- Study of optical properties using UV-Vis, FT-IR, PL, Raman Spectroscopy.
- Study of Dielectric and electrical properties of nanomaterials using Impedance spectroscopy.
- Development of solid electrolyte and electrode materials for futuristic IT-SOFC.

RESEARCH GROUP

Dr Sk. Anirban

Dr Sabyasachi Chakrabarty

Dr Ankurava Sinha



Dr Swagata Bandopadhyay

Dr Rajdip Roy

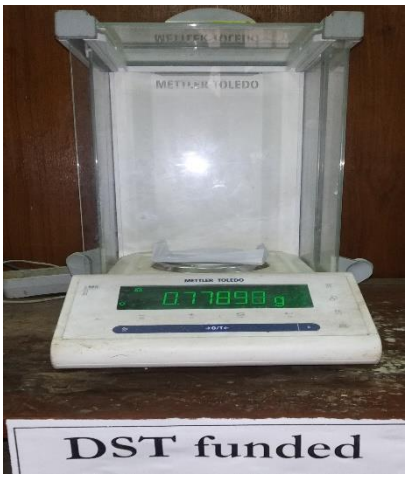
Mr. Arunmay Baidya

Mr Sujan Malik

SPONSORED RESEARCH PROJECTS

Sl no.	Name of the Project	Sanctioning authority	Duration	Value
1	DEVELOPMENT OF RARE EARTH DOPED NANOCRYSTALLINE CERIA MATERIALS FOR ELECTRONIC AND OPTICAL APPLICATIONS	Department of Science and Technology (Govt. of India)	December 2011-November 2014	21.96 Lakhs
2	STRUCTURAL AND CHARGE CARRIER DYNAMICS STUDY OF HEAVY METAL OXIDE BASED NANOSTRUCTURES FOR FUTURISTIC ELECTROLYTE APPLICATION IN SOFC	Science and Engineering Research Board (SERB) (Govt. of India)	October 2017-September 2020	21.73 Lakhs

FACILITIES AVAILABLE IN SOLID STATE IONICS LABORATORY



Digital Micro Balance

Centrifuge for synthesis

Fume hood for chemical synthesis

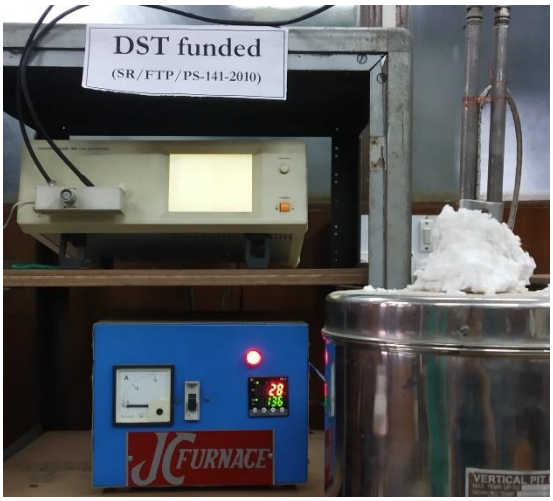
Planetary Ball Mill (Fritsch, P-7)

High temperature muffle furnace

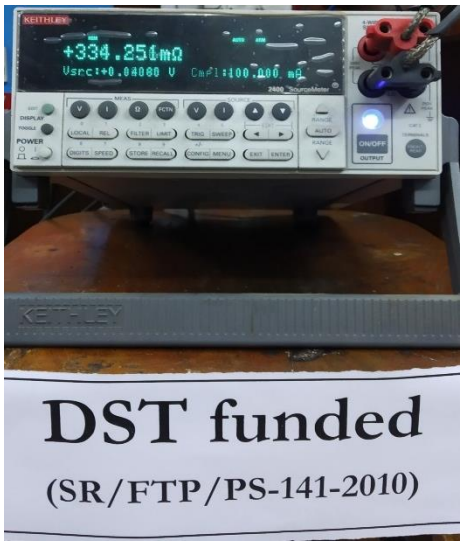
Intermediate temperature tube furnace

Vacuum tube furnace

Tube furnace for high temperature measurement



Impedance Spectroscopy Measurement system (Hioki LCR meter)



Source meter for electronic conductivity measurement (Keithley 2400)

RESEARCH PUBLICATIONS IN SCI JOURNALS

1. Structural Interpretation of Sintering Temperature Effect on Optical and Electrical Properties of Pr3+ substituted Nickel ferrites; Chaitali Mondal, **Abhigyan Dutta** and Ankurava Sinha; ***Physica Status Solidi A;*** (**2023**) 2300263 https://doi.org/10.1002/pssa.202300263 **(I.F: 2.0)**.

2. Structural, Optical, Electrical, and Dielectric Relaxation Properties of Rare Earth Containing Sodium Bismuth Titanate ($Na_{0.5}Bi_{0.5}TiO_3$) Perovskite: Effect of Ionic Radius; Rajdip Roy and **Abhigyan Dutta;** ***Journal of Rare Earths*** **(2023) (Accepted)** https://doi.org/10.1016/j.jre.2023.04.011 **(I.F: 4.9)**

3. Structural, electrical and leakage current behavior of double perovskite Gd_2NiTiO_6; Sujan Malik and **Abhigyan Dutta**; ***International Journal of Hydrogen Energy,*** **48** (37)**(2023)** 14012, https://doi.org/10.1016/j.ijhydene.2022.12.320 (**I.F: 7.2)**

4. Microstructure, Charge Carrier Conduction Mechanism Model, Dielectric Properties and Leakage Current Analysis of Dy_2FeMnO_6 Nanomaterial, Sk. Anirban, Rajdip Roy and **Abhigyan Dutta;** ***Ceramics International*****; 49 (2023)** 12334.
https://dx.doi.org/10.1016/j.ceramint.2022.12.091 (**I.F: 5.2**)

5. Structural and Charge Carrier Dynamics Study of Dy stabilized La_6MoO_{12} Ionic Conductors; Arunmay Baidya and **Abhigyan Dutta; *Materials Research Bulletin*; 160 (2023)** 112114, https://doi.org/10.1016/j.materresbull.2022.112114 (**I.F: 5.4**)

6. Structural Phase Transition and Charge Carrier Dynamics in Dy Containing La_6MoO_{12} Ionic Conductor; Arunmay Baidya and **Abhigyan Dutta; *Solid State Sciences;* 134** (2022) 107061, https://doi.org/10.1016/j.solidstatesciences.2022.107061 (**I.F: 3.5**).

7. Structure, Charge Carrier Conduction, Dielectric Properties and Leakage Current Density of Dy_2CoMnO_6 Double Perovskite; Sk. Anirban, Rajdip Roy and **Abhigyan Dutta; *Journal of Alloys and Compounds*; 928** (2022) 167184, https://doi.org/10.1016/j.jallcom.2022.167184 **(I.F: 6.2)**

8. Synthesis Structural and Anti-microbial Characterization of Nanostructured Doped Tin Oxide; A.M. Roychaudhury, Utsa Debnath, Sujay Munshi, Goutam Kumar Basak, **Abhigyan Dutta**, S. Masanta, Achintya Singha, Aritra Banerjee, Debtanu Ghosh, Partha Chatterjee, and Apurba Kanti Deb; ***Journal of Theoretical and Applied Physics;* 16 (1)** (2022) 162202 (1-8), http://dx.doi.org/10.30495/jtap.162202 **(I.F: XXXX)**

9. Impact of dielectric properties on ionic conductivity of $Ce_{0.9}Sm_{0.1}O_{1.95}$ via defect interaction; Sk. Anirban and **Abhigyan Dutta; *Materials Letters X*; 12** (2021) 100111, https://doi.org/10.1016/j.mlblux.2021.100111 **(I.F: XXXX)**

10. Structure, Small Polaron Hopping Conduction and Relaxor Behavior of Gd_2NiMnO_6 Double Perovskite; Sk. Anirban and **Abhigyan Dutta; *Journal of Physics and Chemistry of Solids*; 159** (2021) 110292, https://doi.org/10.1016/j.jpcs.2021.110292 **(I.F: 4.0)**

11. 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; Sk. Anirban and **Abhigyan Dutta; *Journal of Solid State Chemistry*; 303** (2021) 122451, https://doi.org/10.1016/j.jssc.2021.122451 **(I.F: 3.3)**

12. Structural, Electrical, and Dielectric Properties of Chemically Derived Sm Doped Cubic Lanthanum Molybdate Nanomaterials; Arunmay Baidya and **Abhigyan Dutta; *Journal of Physics and Chemistry of Solids*; 159** (2021) 110272, https://doi.org/10.1016/j.jpcs.2021.110272 **(I.F: 4.0)**

13. Structure, Conductivity, Dielectric Properties and Charge Carrier Dynamics of Lead Free Dy_2NiMnO_6 Double Perovskite; Sk. Anirban and **Abhigyan Dutta; *Journal of Materials Science:***

***Materials in Electronics*, 32** (2021) 17822-17836, https://doi.org/10.1007/s10854-021-06318-2 (**I.F: 2.8**)

14. Understanding the Structure and Charge transport Mechanism of Sm_2NiMnO_6 Double Perovskite Prepared Via Low Temperature Auto-ignition Method; Sk. Anirban and **Abhigyan Dutta**; ***Physics Letters A* 397** (2021) 127256, https://doi.org/10.1016/j.physleta.2021.127256 (**I.F: 2.6**)

15. Effect of Vanadium Doping on the Electrical Charge Transport and Dielectric Relaxation Properties of Sodium Bismuth Titanate Perovskite; Rajdip Roy and **Abhigyan Dutta; *Ceramics International*; 47** (2021) 15732-15742, https://doi.org/10.1016/j.ceramint.2021.02.145 (**I.F: 5.2**)

16. Sol-Gel Derived Cobalt Containing Ni-Zn Ferrite Nanoparticles: Dielectric Relaxation and Enhanced Magnetic Property Study; S. Chakrabarty, Swagata Bandyopadhyay, M. Pal and **Abhigyan Dutta**; ***Materials Chemistry and Physics*; 259** (2021) 124193, https://doi.org/10.1016/j.matchemphys.2020.124193 **(I.F: 4.6)**

17. Synthesis Route Dependent Structure, Conductivity and Dielectric Properties of $Ce_{0.8}Gd_{0.2}O_{1.9}$ Oxygen Ion Conductor: A Comparative Approach; Sk. Anirban, Anindita Banerjee and **Abhigyan Dutta**; ***International Journal of Hydrogen Energy,* 46** (2021) 8210-8225, https://doi.org/10.1016/j.ijhydene.2020.12.010 (**I.F: 7.2**)

18. Electrical and photocatalytic properties of composites of manganese and titanium oxides; Bharati Debi Biswas, Joydeep Datta, Moushumi Dutta Purkayastha, Dhananjoy Das, Partha Pratim Ray, **Abhigyan Dutta**, Tapas Pal Majumder; ***Surfaces and Interfaces;* 20** (2020) 100606, https://doi.org/10.1016/j.surfin.2020.100606 (**I.F: 6.2**)

19. Revisiting Ionic Conductivity of Rare Earth Doped Ceria: Dependency on Different Factors; Sk. Anirban and **Abhigyan Dutta**; ***International Journal of Hydrogen Energy*; 45** (2020) 25139-25166, https://doi.org/10.1016/j.ijhydene.2020.06.119 (**I.F: 7.2**) (Review article)

20. Structural, Optical and Enhanced Electrical Properties of Vanadium Alloyed Sodium Bismuth Titanate Solid Solution Synthesized by a Chemical-Mechanical Hybrid Method; Rajdip Roy and **Abhigyan Dutta; *Journal of Alloys and Compounds*; 843** (2020) 155999, https://doi.org/10.1016/j.jallcom.2020.155999 **(I.F: 6.2)**

21. Structural, Optical and Electrical Transport Properties of Some Rare-Earth-Doped Nickel Ferrites: A Study on Effect of Ionic Radii of Dopants; Ankurava Sinha and **Abhigyan Dutta**;

***Journal of Physics and Chemistry of Solids*; 145** (2020) 109534, https://doi.org/10.1016/j.jpcs.2020.109534 **(I.F: 4.0)**

22. Study of microstructure and electrical conduction mechanisms of quaternary semiconducting glassy systems: Effect of mixed modifiers; Dipankar Biswas, Anindya Sundar Das, Rittwick Mondal, Anindita Banerjee, Debalina Deb, **Abhigyan Dutta**, Subhratanu Bhattacharya, Soumyajyoti Kabi, Loitongbam Surajkumar Singh; ***Journal of Non-Crystalline Solids***; **542** (2020) 120104, https://doi.org/10.1016/j.jnoncrysol.2020.120104 **(I.F: 3.5)**

23. Structural properties and electrical conductivity mechanisms of semiconducting quaternary nanocomposites: Effect of two transition metal oxides; Dipankar Biswas, Anindya Sundar Das, Rittwick Mondal, Anindita Banerjee, **Abhigyan Dutta**, Soumyajyoti Kabi, Debasish Roy, Loitongbam Singh; ***Journal of Physics and Chemistry of Solids***; **144** (2020) 109505, https://doi.org/10.1016/j.jpcs.2020.109505 **(I.F: 4.0)**.

24. Microstructure Correlated Ion Transport Mechanism of Sol-Gel derived Sodium Bismuth Titanate Oxide Ion Conductors; Rajdip Roy and **Abhigyan Dutta;** ***Solid State Sciences;*** **102** (2020) 106174, https://doi.org/10.1016/j.solidstatesciences.2020.106174 (**I.F: 3.5**)

25. Effect of sintering on the structure, microstructure and electrical properties of mechanosynthesized Y_2O_3 and Dy_2O_3 alloyed ceria nanoparticles: a comparative study; S. Dutta, S Bandyopadhyay, **A. Dutta** and S. K. Pradhan; ***Materials Research Bulletin;*** **120** (2019) 110582, https://doi.org/10.1016/j.materresbull.2019.110582 **(I.F: 5.4)**.

26. Microscopic length scale of charge transport and structural properties of cobalt doped Ni-Zn ferrite nanocrystals: A structure property correlation study; S. Chakrabarty, Swagata Bandyopadhyay, **Abhigyan Dutta** and M. Pal; ***Materials Chemistry and Physics***; **233** (2019) 310-318, https://doi.org/10.1016/j.matchemphys.2019.05.061 **(I.F: 4.6)**

27. Optical and Ionic Transport Mechanism in γ-Phase Stabilized Nanostructured Bi-Ce-O Ionic Conductors: A Structure-Property Correlation Study; Swagata Bandyopadhyay and **Abhigyan Dutta**; ***Ionics*; 25** (2019) 2873-2886, https://doi.org/10.1007/s11581-018-2750-9 (**I.F: 2.8**)

28. Effect of Divalent Cation Addition on Structure, Conductivity and Grain Boundary Properties in La Doped Ceria Oxygen Ion Conductors**;** Sk. Anirban, Proloy T Das and **Abhigyan Dutta;** ***Ceramics International*; 45** (2019) 5751-5760, https://doi.org/10.1016/j.ceramint.2018.12.041 **(I.F: 5.2)**.

29. Structure, Ionic Transport Properties and Scaling Behavior of Eu, Pr and Sm Co-doped Ceria Oxygen Ion Conductors**;** Sk. Anirban and **Abhigyan Dutta**; ***Physica Status Solidi A;*** **216** (2) (2019) 1800352, https://doi.org/10.1002/pssa.201800352 **(I.F: 2.0)**

30. Structure and Defect Interaction Mediated Transport Mechanism of Mixed Di-Tri Valent Cation Containing Ceria-Based Ionic Conductors; Sk. Anirban and **Abhigyan Dutta; *International Journal of Hydrogen Energy*; 43** (2018) 23418-23429, https://doi.org/10.1016/j.ijhydene.2018.10.219 **(I.F: 7.2)**

31. An Insight into the Structure, Conductivity and Ion Dynamics of Sr-Sm Co-Doped Ceria Oxygen Ion Conductors: Effect of Defect Interaction; Sk. Anirban and **Abhigyan Dutta; *Solid State Sciences;* 86** (2018) 69-76, https://doi.org/10.1016/j.solidstatesciences.2018.10.007 **(I.F: 3.5)**

32. Mechanosynthesis of Nanocrystalline Fully Stabilized Bcc γ-phase of Bi_2O_3 without Any Additive: Manifestation of Ferroelasticity in Microstructure, Optical and Transport Properties; Swagata Bandyopadhyay, Sidhhartha Dutta, **Abhigyan Dutta** and S. K. Pradhan; ***Crystal Growth and Design;* 18** (11) (2018) 6564-6572, https://doi.org/10.1021/acs.cgd.8b00768 **(I.F: 3.8)**

33. Tailoring of microstructure, magnetic properties and charge carrier dynamics of YIG nanoparticles by Gd doping, S. Chakrabarty, A. Sinha, **A. Dutta** and M. Pal**; *Journal of Magnetism and Magnetic Materials;* 468** (2018) 215-223, https://doi.org/10.1016/j.jmmm.2018.08.004 **(I.F: 2.7)**

34. Yttrium Doped Cobalt Ferrite Nanoparticles: Study of Dielectric relaxation and Charge Carrier Dynamics; S. Chakrabarty, M. Pal and **A. Dutta; *Ceramics International;* 44** (2018) 14652-14659, https://doi.org/10.1016/j.ceramint.2018.05.091 **(I.F: 5.2)**.

35. Effect of yttrium doping on structure, magnetic and electrical properties of nanocrystalline cobalt ferrite; S. Chakrabarty, **A. Dutta** and M. Pal**; *Journal of Magnetism and Magnetic Materials;* 461** (2018) 69-75, https://doi.org/10.1016/j.jmmm.2018.04.051 **(I.F: 2.7)**

36. A Structural Insight into the Electrical Properties of Dy-Ho co - doped Phase Stabilized Bismuth Oxide Based Electrolytes; Swagata Bandyopadhyay and **Abhigyan Dutta**; ***Journal of Electroanalytical Chemistry;* 817** (2018) 55-64, https://doi.org/10.1016/j.jelechem.2018.03.063 **(I.F: 4.5)**

37. One step synthesized In_2O_3 alloyed CeO_2 nanoparticles: Microstructure, phase stability investigation and charge transport properties; S. Dutta, S Bandyopadhyay, S. Sain, **A. Dutta** and S.

K. Pradhan; ***Journal of Alloys and Compounds***; **749** (2018) 724-733, https://doi.org/10.1016/j.jallcom.2018.03.270 (**I.F: 6.2**)

38. Structural Interpretation of Ionic Transport and Small Polaron Hopping Conduction in Gd Substituted Nickel Nanoferrites; Ankurava Sinha and **Abhigyan Dutta**; ***Physica Status Solidi A;*** **215** (11)(2018) 1700908 (1-8), https://doi.org/10.1002/pssa.201700908 **(I.F: 2.0)**

39. Structural and ionic transport mechanism of rare earth doped cerium oxide nanomaterials: Effect of ionic radius of dopant cations; Sk. Anirban and **Abhigyan Dutta**; ***Solid State Ionics;*** **309** (2017)137-145, https://doi.org/10.1016/j.ssi.2017.07.020 **(I.F: 3.2)**

40. Microstructure and electrical transport phenomenon of yttria alloyed nanocrystalline ceria solid solution synthesized by mechanical alloying; S. Dutta, S Bandyopadhyay, **A. Dutta** and S. K. Pradhan; ***Materials Research Bulletin;*** **93** (2017) 333-341, https://doi.org/10.1016/j.materresbull.2017.05.028 **(I.F: 5.4)**.

41. Electrical relaxation studies and ac conductivity of one step synthesized dysprosium alloyed ceria nanoparticles; S. Dutta, G. Maity, **A. Dutta** and S. K. Pradhan; **Invertis Journal of Science and Technology**; **10**(3) (2017) 1-5, http://dx.doi.org/10.5958/2454-762X.2017.00020.8

42. Microstructural interpretation of conductivity and dielectric response of $Ce_{0.9}Eu_{0.1}O_{1.95}$ oxygen ion conductors; Sk. Anirban and **Abhigyan Dutta;** ***Ionics*****; 23** (10) (2017) 2579-2587, https://doi.org/10.1007/s11581-017-2066-1 **(I.F: 2.8)**

43. Microstructure correlated electrical conductivity of Manganese alloyed nanocrystalline cubic zirconia synthesized by mechanical alloying; Anshuman Nandy, **A. Dutta** and S. K. Pradhan; ***Advanced Powder Technology*****; 28** (2017) 618-628, https://doi.org/10.1016/j.apt.2016.11.014 **(I.F: 5.2)**

44. Thermal, Optical and Dielectric Response of Phase Stabilized δ–Dy-Bi_2O_3 Ionic Conductors; Swagata Bandyopadhyay and **Abhigyan Dutta;** ***Journal of Physics and Chemistry of Solids*****; 102** (2017) 12-20, https://doi.org/10.1016/j.jpcs.2016.11.001 **(I.F: 4.0)**

45. Structural interpretation of optical properties and ion transport mechanism in mixed valent Pr containing nanoceria; Sk. Anirban and **Abhigyan Dutta**; ***Materials Research Bulletin;*** **86** (2017)119-130, https://doi.org/10.1016/j.materresbull.2016.10.015 **(I.F: 5.4)**

46. Microstructure and charge carrier dynamics in Pr-Sm-Eu triple-doped nanoceria; Sk. Anirban and **Abhigyan Dutta**; ***Solid State Ionics;*** **295** (2016)48-56, https://doi.org/10.1016/j.ssi.2016.07.008 **(I.F: 3.2)**

47. Dielectric Relaxation and Charge carrier mechanism in nanocrystalline Ce-Dy ionic conductors; Sk. Anirban and **Abhigyan Dutta**; ***RSC Advances;*** **6** (2016) 49852-49861, https://doi.org/10.1039/C6RA06654B **(I.F: 3.9)**

48. Microstructural interpretation of vibrational properties and ionic transport mechanism in Dy stabilized δ-Bi_2O_3; Swagata Bandyopadhyay and **Abhigyan Dutta;** ***Journal of Alloys and Compounds*****; 682** (2016) 80-88, https://doi.org/10.1016/j.jallcom.2016.04.256 **(I.F: 6.2)**

49. Structure and microstructure dependent ionic conductivity in 10mol% Dy_2O_3 doped CeO_2 nanoparticles synthesized by mechanical alloying; S. Dutta, A. Nandy, **A. Dutta** and S. K. Pradhan; ***Materials Research Bulletin*****; 73** (2016) 446-451, https://doi.org/10.1016/j.materresbull.2015.09.029 **(I.F: 5.4)**

50. Enhanced magnetic properties of Mn-Ni co-doped cobalt ferrite nanoparticles corroborated with microstructural analysis; S. Chakrabarty, M. Pal and **A. Dutta;** ***Advanced Science Letters*****; 22** (2016) 89-94, https://doi.org/10.1166/asl.2016.6797 **(I.F: 0.600)**

51. Microstructure evolution, dielectric relaxation and scaling behavior of Dy-for-Fe substituted Ni-nanoferrites; Ankurava Sinha and **Abhigyan Dutta**; ***RSC Advances*****; 5** (2015) 100330-100338, https://doi.org/10.1039/C5RA14783B **(I.F: 3.9)**

52. Charge carrier dynamics in Gd-Y co-doped nanocrystalline ceria corroborated with defect interactions; Sk. Anirban and **Abhigyan Dutta;** ***RSC Advances*****; 5** (2015) 95736-95743, https://doi.org/10.1039/C5RA20251E **(I.F: 3.9)**

53. Effect of Mn and Ni codoping on ion dynamics of nanocrystalline cobalt ferrite: A Structure property correlation study; S. Chakrabarty, **A. Dutta** and M. Pal; ***Electrochimica Acta*****; 184** (2015) 70-79, https://doi.org/10.1016/j.electacta.2015.10.027 **(I.F: 6.6)**

54. Microstructure and Charge Carrier Dynamics in Dy substituted phase stabilized cubic Bi_2O_3, Swagata Bandyopadhyay and **Abhigyan Dutta**; ***RSC Advances*****; 5** (2015) 65123-65132, https://doi.org/10.1039/C5RA10318E **(I.F: 3.9)**

55. Vacancy mediated ionic conduction in Dy substituted nano ceria: A structure-property correlation study; Sk. Anirban, T. Paul and **Abhigyan Dutta;** ***RSC Advances*****; 5** (2015) 50186-50195, https://doi.org/10.1039/C5RA06730H **(I.F: 3.9)**

56. Effect of Manganese (II) oxide on microstructure and ionic transport properties of nanostructured cubic zirconia; Anshuman Nandy, C. S. Tiwary, **A. Dutta**, K. Chattopadhyay, and

S. K. Pradhan; ***Electrochimica Acta***; **170** (2015) 360-368, https://doi.org/10.1016/j.electacta.2015.04.175 **(I.F: 6.6)**

57. Structural, optical and electrical properties of chemically derived nickel substituted zinc ferrite nanocrystals; S. Chakrabarty, M. Pal and **A. Dutta**; ***Materials Chemistry and Physics***; **153**(2015) 221-228, https://doi.org/10.1016/j.matchemphys.2015.01.006 **(I.F: 4.6)**

58. Microstructure and electrical relaxation studies of chemically derived Gd-Nd co-doped nanocrystalline ceria electrolytes; Sk. Anirban, T. Paul, Proloy T. Das, T K. Nath and **A. Dutta**; ***Solid State Ionics***; **270** (2015) 73-83, https://doi.org/10.1016/j.ssi.2014.12.011 **(I.F: 3.2)**

59. Enhanced magnetic properties of doped cobalt ferrite nanoparticles by virtue of cation distribution; S. Chakrabarty, **A. Dutta** and M. Pal; ***Journal of Alloys and Compounds***; **625** (2015) 216-223, https://doi.org/10.1016/j.jallcom.2014.10.179 **(I.F: 6.2)**

60. Structural, Optical and Dielectric Properties of $Ce_{0.9}Nd_{0.1}O_{1.95}$ nanocrystalline oxygen ion conductors: Effect of Sintering Temperature; Sk. Anirban and **A. Dutta***; **Journal of Physics and Chemistry of Solids***; **76** (2015) 178–183, https://doi.org/10.1016/j.jpcs.2014.08.015 **(I.F: 4.0)**

61. Effect of neodymium doping on structure, electrical and optical properties of nanocrystalline ZnO; B Roy, S Chakrabarty, O Mondal, M Pal and **A. Dutta, *Materials Characterization*; 70,** (2012) 1-7, https://doi.org/10.1016/j.matchar.2012.04.015 **(I.F: 4.7)**

62. Li^+ ion migration in strontium metaphosphate glasses; **A. Dutta** and A. Ghosh, ***Journal of Chemical Physics***, **127** (2007) 144504, https://doi.org/10.1063/1.2789431 **(I.F: 4.4)**

63. Structural and optical properties of lithium barium bismuthate glasses; **A. Dutta** and A. Ghosh, ***Journal of Non-Crystalline Solids*, 353** (2007)1333-1336, https://doi.org/10.1016/j.jnoncrysol.2006.09.052 **(I.F: 3.5)**

64. Dynamics of lithium ions in bismuthate glasses: Influence of strontium ions; **A. Dutta** and A. Ghosh, ***Journal of Chemical Physics*, 125** (2006) 054508, https://doi.org/10.1063/1.2222371 **(I.F: 4.4)**

65. Effect of alkaline earth ions on the dynamics of alkali ions in bismuthate glasses; **A. Dutta** and A. Ghosh, ***Physical Review B*, 72** (2005) 224203, https://doi.org/10.1103/PhysRevB.72.224203 **(I.F: 3.7)**

66. Dynamics of lithium ions in calcium bismuthate glasses; **A. Dutta** and A. Ghosh; ***Journal of Chemical Physics.***, **122** (2005) 234510, https://doi.org/10.1063/1.1940636 **(I.F: 4.4)**

67. Ionic conductivity of Li_2O-BaO-Bi_2O_3 glasses; **A. Dutta** and A. Ghosh, ***Journal of Non-Crystalline Solids*****, 351** (2005) 203-208, https://doi.org/10.1016/j.jnoncrysol.2004.11.010 **(I.F: 3.5)**

68. Li^+ ion dynamics in strontium bismuthate glasses; **A. Dutta** and A. Ghosh, ***Journal of Physics: Condensed Matter*****, 16** (2004) 7895-7902, https://doi.org/10.1088/0953-8984/16/45/011 **(I.F: 2.7)**

RESEARCH PUBLICATIONS IN CONFERENCE PROCEEDINGS

1. Structural and Electrical characterizations of Gd doped NBT Perovskite nanocrystals synthesized by mechanical alloying; Rajdip Roy and **Abhigyan Dutta; *Materials Today: Proceedings;* 66 (2022)** 3298-3301, https://doi.org/10.1016/j.matpr.2022.06.412.
2. Synthesis, characterization, and ionic transport study of Bi-Fe doped $BaCoO_{3-\delta}$ electrolytes; Anindita Banerjee and **Abhigyan Dutta; *AIP Conference Proceedings;* 2352** (2021) 020034, https://doi.org/10.1063/5.0052777.
3. Synthesis and Study of Ion Dynamics in Ca Doped Bismuth Oxide Electrolytes; Anindita Banerjee and **Abhigyan Dutta; *AIP Conference Proceedings;* 2220** (2020) 040015, https://doi.org/10.1063/5.0001625.
4. Synthesis, Optical and Electrical properties of Cubic La Containing Mo based Oxide Ion Conductors; Arunmay Baidya and **Abhigyan Dutta; *AIP Conference Proceedings;* 2220** (2020) 040012, https://doi.org/10.1063/5.0001117.
5. Ionic Conductivity of Rare Earth Doped Phase Stabilized Bi_2O_3: Effect of Ionic Radius; S. Bandyopadhyay, Sk. Anirban, A. Sinha, and **A. Dutta**; ***AIP Conference Proceedings;* 1832**(2017) 110020, https://doi.org/10.1063/1.4980644.
6. Effect of Sintering Temperature on Structural, Optical and Electrical Relaxation Properties of Gd-Doped Nickel-ferrites; A. Sinha, Sk. Anirban, S. Bandyopadhyay, and **A. Dutta**; ***AIP Conference Proceedings;* 1832**(2017) 110021, https://doi.org/10.1063/1.4980645.
7. Microstructure Correlated Impedance Spectroscopy Studies of $Ce_{0.8}Y_{0.2}O_{2-\delta}$: Effect of Grain Growth; Sk. Anirban, A. Sinha, S. Bandyopadhyay, and **A. Dutta; *AIP Conference Proceedings;* 1832**(2017) 110032, https://doi.org/10.1063/1.4980656.
8. Defect Association Mediated Ionic Conductivity of Rare Earth Doped Nanoceria: Dependency on Ionic Radius; Sk. Anirban, A. Sinha, S. Bandyopadhyay, and **A. Dutta**; ***AIP Conference Proceedings;* 1731**(2016) 110008, https://doi.org/10.1063/1.4948029 .

9. Conductivity Enhancement in Mechanosynthesized Bi_2O_3; S. Bandyopadhyay, Sk Anirban, A. Sinha, S.K. Pradhan, and **A. Dutta;** ***AIP Conference Proceedings;*** **1731**(2016) 110022, https://doi.org/10.1063/1.4948043 .
10. Charge Carrier Dynamics in Nanocrystalline Dy Substituted Ceria Based Oxygen Ion Conductors; Sk. Anirban and **Abhigyan Dutta**; ***AIP Conference Proceedings***; **1728** (2016) 020070, https://doi.org/10.1063/1.4946121 .
11. Synthesis and electrical transport properties of Gd doped nanocrystalline ceria**;** Sk. Anirban, A. Sinha, and **A. Dutta;** ***AIP Conference Proceedings***; **1536** (2013) 157-158, https://doi.org/10.1063/1.4810148.

RESEARCH PUBLICATIONS IN BOOKS/ BOOK CHAPTERS

1. Ferrites: Structural Classification and Novel Applications: Ankurava Sinha, Chaitali Mondal and **Abhigyan Dutta; Recent Developments in Chemical Sciences (2023);** Publisher: World lab Publications, Ghaziabad, India (**ISBN:** 978-93-90734-37-5)
2. Structural and AC Conductivity analysis of Gd_2NiTiO_6 Double Perovskite Material; Sujan Malik and **Abhigyan Dutta**; **Proceedings of the National Conference on Materials, Devices and Circuits in Communication Technology, 2020 (MDCCT 2020)**, Publisher: IETE Burdwan Sub Centre, (**ISBN**: 978-81-955389-3-5).
3. Synthesis, Structural and Electrical Characterization of NBT: Eu Solid Solution as an Electrolyte Material for SOFC; Rajdip Roy and **Abhigyan Dutta; Proceedings of the National Conference on Materials, Devices and Circuits in Communication Technology, 2020 (MDCCT 2020),** Publisher: IETE Burdwan Sub Centre, (**ISBN:** 978-81-955389-3-5).
4. Structural and Ionic Transport Property of Ho stabilized Bismuth Oxide Nanoparticles; Swagata Bandyopadhyay and **Abhigyan Dutta**; **Advances in Laser Applications and Condensed Matter Physics: Collected Contributions** (**2017**); **Levant Books, India**; (**ISBN**: 978-81-936036-9-7)
5. Defect interaction mediated charge carrier dynamics in Gd-Y co-doped nanocrystalline ceria; Sk. Anirban and **A. Dutta**; **Energy Storage and Conversion: Materials and Devices (2017); Narosa Publishing House, India. (ISBN:** 978-81-8487-578-2**)**

6. Preparation and electrical properties of some Nd-doped ZnO nanoparticles; B. Roy, S. Chakrabarty, M. Pal, and **A. Dutta**; **Proceedings of International Conference on Laser, Materials Science and Communication**(2011); (**ISBN:** 978-93-80813-14-1)
7. Lithium Ion Dynamics in Sr-Bi-Li-O glasses; **A. Dutta** and A. Ghosh; **Solid State Physics** 46: **Proceedings DAE Solid State Physics Symposium** (2003); Allied Publisher Pvt. Ltd. (**ISBN:** 81-7764-652-4).

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