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Present Position

Associate professor, Department of Physics, Madras Institute of Technology, Anna University, Chennai from May-2017.

Present Additional Responsibility

- Programme Officer, National Service Scheme, Anna University, Chennai.

Previous Positions

- Assistant Professor, Department of Physics, Madras Institute of Technology, Anna University, Chennai during October-2008 and May-2017.
- Lecturer, Department of Applied Science and Humanities, Madras Institute of Technology, Anna University, Chennai during July-2004 and October-2008.

Other Employment

- Guest Faculty, Department of Physics, Pondicherry Central University for 03-01-2002 to 30-04-2003 .
- Research Associate, Department of Physics, Pondicherry Central University for 13-05-2003 - 14-07-2004 .

Degree

- ❖ M.Sc. in PHYSICS , K.M. Centre for Post Graduate Studies, Pondicherry-8, Pondicherry Central University (1992 - 1994).
- ❖ B.Sc. in PHYSICS , Periyar Arts College, Cuddalore-1, University of Madras (1989 - 1992).

Research Degree

- ❖ Ph.D. in Physics from Faculty of Science, Pondicherry Central University, Kalapet, Puducherry., Pondicherry Central University (1997 - 2002).
Title: Experimental and theoretical investigations on electrical relaxation in disordered ionic solids .

- ❖ M.phil. in Physics : Solid State Ionics from Faculty of Science, Pondicherry Central University, Kalapet, Puducherry., Pondicherry Central University (1995 - 1996).
Title: Debye and non-Debye response studies on solid electrolytes .

Area of Specialisation

- Physics; Materials Science, Electronic Ceramics, Solid State Ionics
- Magnetic Materials, Multiferroic Materials

Membership in Professional Organization

- Life Member in Energy Science Society of India

Research Guidance

Number of Ph.D Scholars Guided : 4

Papers Published in Journals

Research Papers Published in International Journals : 50
Research Papers Published in National Journals : 0

1. G. Govindaraj and R. Murugaraj, "A new anomalous relaxation function and electrical properties of disordered materials", Materials Science and Engineering B, Vol. 77, pp. 60-66 (2000).
2. R. Murugaraj, G. Govindaraj and Deepa George, "Ac conductivity relaxation processes and its scaling behavior in sodium bismuthate glasses", Journal of Materials Science, Vol. 37, pp. 5101-5106 (2002).
3. R. Murugaraj, G. Govindaraj and S. Ramasamy, " Characterization of silver ion conducting solid state battery with a new compact discharge unit", Journal of Power Sources , Vol. 112, pp. 184-190 (2002).
4. R. Murugaraj, G. Govindaraj, R. Suganthi and Deepa George, "Electrical conductivity studies of sodium borate system based on diffusion controlled relaxation model", Journal of Materials Science, Vol. 38, pp. 107-112 (2003).
5. R. Murugaraj, G. Govindaraj and Deepa George, "Ac conductivity and its scaling in lithium and sodium bismuthate glasses", Materials Letters, Vol. 57, pp. 1656-1661 (2003).
6. R. Murugaraj and G. Govindaraj, "Analysis of electrical relaxation in lithium phosphate glasses", Solid State Ionics, Vol. 176, pp. 109-116 (2005).

7. S. Tamilselvi, R. Murugaraj and N. Rajendran, "Electrochemical impedance spectroscopic studies of titanium and its alloys in saline medium", *Materials and Corrosion*, Vol. 58, pp. 113-120 (2007).
8. R. Murugaraj, "AC conductivity and its scaling behavior in borate and bismuthate glasses", *Journal of Materials Science*, Vol. 42, pp. 10065-10073 (2007).
9. N. Sivakumar, A. Narayanasamy, J.M. Grenèche, R. Murugaraj and Y.S. Lee, "Electrical and magnetic behaviour of nanostructured MgFe₂O₄ spinel ferrite", *Journal of Alloys and Compounds*, Vol. 504, Issue 2, pp. 395-402 (2010).
10. S. Chellammal, S. Sankar, R. Murugaraj, S. Selvakumar, E. Viswanathan, K. Sivaji, "Structural and electrical conductivity studies on undoped and copper-doped nanocrystalline zinc sulphide", *Journal of Materials Science*, Vol. 45, Issue 5, pp. 1242-1247 (2010).
11. S. Chellammal, S. Sankar, R. Murugaraj, S. Selvakumar, E. Viswanathan, K. Sivaji, "Structural and electrical conductivity studies on nanocrystalline undoped and silver doped zinc sulphide", *Journal of Materials Science*, Vol. 45, Issue 24, pp. 6701-6706 (2010).
12. E. Viswanathan, R. Murugaraj, S. Sankar, A. Arulchakkaravarthi, D. Kanjilal, K. Sivaji, "Low temperature dielectric study on swift heavy ion irradiated 6H-SiC crystals", *Transactions of the Indian Institute of Metals*, Vol. 64, Issue 3, pp. 305-308 (2011).
13. G. Sathishkumar, C. Venkataraju, R. Murugaraj, K. Sivakumar, "Bismuth effect in the structural, magnetic and dielectric properties of CoZn ferrite", *Journal of Materials Science: Materials in Electronics*, Vol. 23, Issue 1, pp. 243-250 (2012).
14. R. Kannan, S. Rajagopan, A. Arunkumar, D. Vanidha, R. Murugaraj, "Unusual metallic behavior in nanostructured cobalt ferrite at superparamagnetic regime", *Journal of Applied Physics*, Vol. 112, Issue 6, pp. 063926(1-8) (2012).
15. P. Manimuthu, R. Murugaraj, C. Venkateswaran, "Non-universal dielectric relaxation in SrFeO₃", *Physics Letters A*, Vol. 378, pp. 2725-2728 (2014).
16. P. Manimuthu, M.N.J.G. Mariam, R. Murugaraj, C. Venkateswaran, "Metal-like to insulator transition in Lu₃Fe₅O₁₂", *Physics Letters A*, Vol. 378, pp. 1402-1406 (2014).
17. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, "Effect of Ni doping on Structural, Morphological, Optical and Magnetic properties of Zn_{1-x}Ni_xO Dilute Magnetic Semiconductors", *Journal of Superconductivity and Novel Magnetism*, Vol. 27, pp. 1737-1742 (2014).
18. A. Paul Blessington Selvadurai, V. Pazhanivelu, R. Murugaraj, "Structural, Magnetic, Optical and Electrical Properties of Ba Substituted BiFeO₃", *Journal of Superconductivity and Novel Magnetism*, Vol. 27, pp. 839-844 (2014).
19. S. Selvakumar, R. Murugaraj, E. Viswanathan, S. Sankar, K. Sivaji, "Dielectric properties and relaxation mechanism of organic- trans-stilbene and p-terphenyl molecular crystals using impedance spectroscopy", *Journal of Molecular Structure*, Vol. 1056, pp. 152-156 (2014).

20. A. Paul Blessington Selvadurai, V. Pazhanivelu, B. K. Vasanth, C. Jagadeeshwaran, R. Murugaraj, "Investigation of structural and optical spectroscopy of 5 % Pr doped (Bi_{0.5}Na_{0.5})TiO₃ ferroelectric ceramics: site depended study", *Journal of Materials Science: Materials in Electronics*, Vol. 26, pp. 7655-7665 (2015).
21. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, "Sintering Effect on Structural, Optical and Unusual Magnetic Behaviour in Zn_{0.95}Co_{0.05}O-Based DMS Materials", *Journal of Superconductivity and Novel Magnetism*, Vol. 28, pp. 2575-2581 (2015).
22. A. Paul Blessington Selvadurai, V. Pazhanivelu, C. Jagadeeshwaran, R. Murugaraj, I. Panneer Muthuselvam, F.C. Chou, "Influence of Cr substitution on structural, magnetic and electrical conductivity spectra of LaFeO₃", *Journal of Alloys and Compounds*, Vol. 646, pp. 924-931 (2015).
23. A. Paul Blessington Selvadurai, V. Pazhanivelu, R. Murugaraj, "Strain correlated effect on structural, magnetic, and dielectric properties in Ti⁴⁺ substituted Bi_{0.8}Ba_{0.2}Fe_{1-x}Ti_xO₃", *Solid State Sciences*, Vol. 46, pp. 71-79 (2015).
24. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, "Unexpected ferromagnetism in 1st group elements doped ZnO based DMS nanoparticles", *Materials Letters*, Vol. 151, pp. 112-114 (2015).
25. P. Manimuthu, R. Murugaraj, C. Venkateswaran, "Temperature-induced delocalization of charge carriers and semiconductor to metal-like phase in SrFeO₃ and #948;", *Applied Physics A*, Vol. 119, pp. 359-364 (2015).
26. A. Paul Blessington Selvadurai, V. Pazhanivelu, R. Murugaraj, " A phenomenal behaviour of nanocrystalline NiFe₂O₄: influence of secondary and parasitic phases on structure and magnetic property", *Applied Physics A*, Vol. 119, pp. 299-307 (2015).
27. K Sivaji, E Viswanathan, S Sellaiyan, R Murugaraj, D Kanjilal, "Disordered induced conductivity enhancement in SHI irradiated undoped and N doped 6H-SiC single crystals", *Journal of Materials Science: Materials in Electronics*, Vol. 27, pp. 11825-11833 (2016).
28. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, "Zn interstitial defects induced room temperature ferromagnetism in Na⁺ ions codoped Zn_{0.95}Co_{0.05}O powders", *Journal of Materials Science: Materials in Electronics*, Vol. 27, pp. 1144-1150 (2016).
29. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, I. Panneer Muthuselvam, F.C. Chou, "Influence of Co ions doping in structural, vibrational, optical and magnetic properties of ZnO nanoparticles.", *Journal of Materials Science: Materials in Electronics*, Vol. 27, pp. 8580-8589 (2016).
30. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Kannan, R. Murugaraj, "Structural, optical and intrinsic defects induced magnetic properties of the ZnO:Fe Nanoparticles", *Journal of Materials Science: Materials in Electronics*, Vol. 27, pp. 5549-5556 (2016).
31. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Kannan, R. Murugaraj, "Room temperature ferromagnetism in 1st group elements codoped ZnO:Fe nanoparticles by coprecipitation method", *Physica B: Condensed Matter*, Vol. 487, pp. 102-108 (2016).

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32. V.Pazhanivelu, A. Paul Blessington Selvadurai, M. Kumaresavanji,, R.Murugaraj, " Ist group elements codoping effects on magnetic behavior in ZnO:Cu nanoparticles", Materials Letters, Vol. 166, pp. 304-306 (2016).
 33. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, "Effect of Ist group elements codoping on structural, optical and magnetic properties of ZnO:Co nanoparticles", Journal of Materials Science: Materials in Electronics, Vol. 27, pp. 2896-2903 (2016).
 34. V.Pazhanivelu, A.Paul Blessington Selvadurai, Yongsheng Zhao, R.Thiyagarajan, R.Murugaraj, "Room temperature ferromagnetism in Mn doped ZnO: Co nanoparticles by co-precipitation method", Physica B: Condensed Matter, Vol. 481, pp. 91-96 (2016).
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 36. A. Paul Blessington Selvadurai, V. Pazhanivelu, C. Jagadeeshwaran, R. Murugaraj, P. M. Md Gazzali, G. Chandrasekaran, "An analysis on structural and magnetic properties of La_{1-x}RE_xFeO₃ (x = 0.0 and 0.5, RE = Nd, Sm and Gd) nanoparticles", Applied Physics A, Vol. 123, Issue 1, pp. 1-13 (2017).
 37. C. Jagadeeshwaran, K. Madhan, R. Murugaraj, "Size effect and order-disorder phase transition in MgAl₂O₄ : synthesized by co-precipitation method", Journal of Materials Science: Materials in Electronics , published by Springer. Vol. 29, pp. 18923 - 18934 (2018).
 38. K. Madhan, R.Thiyagarajan, C. Jagadeeshwaran, A. Paul Blessington Selvadurai, V. Pazhanivelu, K. Aravinth, Wenge Yang and R. Murugaraj, "Investigations on the phase transition of Mn-doped BaTiO₃ multifunctional ferroelectric ceramics through Raman, dielectric and magnetic studies.", Journal of Sol-Gel Science and Technology, published by Springer. Vol. 88, pp. 584-592 (2018).
 39. R. Thiyagarajan, Xiaozhi Yan, V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, Wenge Yang, "Doping effect of alkali metal elements on the structural stability and transport properties of ZnO at high pressures", Journal of alloys and compounds, published by Elsevier. Vol. 751, pp. 266-274 (2018).
 40. V. Pazhanivelu, A. Paul Blessington Selvadurai, R. Murugaraj, "Room temperature magnetic behaviour of Mn codoping in ZnO:Co nanoparticles synthesized by co-precipitation method.", Journal of Materials Science: Materials in Electronics , published by Springer. Vol. 29, pp. 3087-3094 (2018).
 41. A Paul Blessington Selvadurai, R Thiyagarajan, V Pazhanivelu, R Suriakarthick, Wenge Yang, R Murugaraj and C Venkateswaran, "Metamagnetism emergence and spectroscopic elucidation of SmFeO₃ nanoceramics", Journal of Physics D: Applied Physics, published by IOP. Vol. 52, Issue 43, pp. 435002 (2019).
 42. A Paul Blessington Selvadurai, R Thiyagarajan, V Pazhanivelu, R Suriakarthick, Wenge Yang, R Murugaraj and C Venkateswaran, "Metamagnetism emergence and spectroscopic elucidation of SmFeO₃ nanoceramics", Journal of Physics D: Applied Physics, published by IOP. Vol. 52, Issue 43, pp. 435002 (2019).
 43. C. Jagadeeshwaran, R. Murugaraj, "Impact of the sintering temperature on the structural, optical and electrical properties of zinc aluminate", Journal of Materials Science: Materials in Electronics, published by Springer. Vol. 30, pp. 15683-15692 (2019).

44. K. Madhan, A. Paul Blessington Selvadurai, R. Murugaraj, "Conjuring of defect-induced short and long-range ferromagnetism ordering in $Ba(1-x)Nd_xTi_{0.99}Co_{0.01}O_3$ ", *Materials Letters*, published by Elsevier. Vol. 243, pp. 100-103 (2019).
45. K. Madhan, C. Jagadeeshwaran, , R. Murugaraj, "Enhancement of electrical and magnetic properties in acceptor-doped $BaTiO_3$ ferroelectric ceramics.", *Journal of Materials Science: Materials in Electronics*, published by Springer. Vol. 30, pp. 2953-2965 (2019).
46. C.Jagadeeshwaran, R. Murugaraj, "Structural, optical, magnetic and electrical properties of $Ni_{0.5}Co_{0.5}Al_2O_4$ system", *Journal of Superconductivity and Novel Magnetism*, published by Springer. Vol. 33, pp. 1765-1772 (2020).
47. C. Jagadeeshwaran, R. Murugaraj, "Investigation on structural, optical, and electrical properties for sintered Mg–Zn aluminate systems", *Journal of Materials Science: Materials in Electronics*, published by Spinger. Vol. 31, Issue 9, pp. 6744-6754 (2020).
48. K. Madhan, R. Murugaraj, "Structural, electrical, and weak ferromagnetic-to-antiferromagnetic nature of Ni and La co-doped $BaTiO_3$ by sol–gel combustion route", *Journal of Sol-gel Science and technology*, published by Springer. Vol. 95, pp. 11-21 (2020).
49. K Madhan, R Murugaraj, "Enrichment of optical, electrical, and magnetic properties of Li^+ , La^{3+} doped $BaTiO_3$ perovskite multifunctional ceramics", *Applied Physics A*, published by Springer. Vol. 126, Issue 2, pp. 97 (2020).
50. A. Paul Blessington Selvadurai, V. Pazhanivelu, K. Suriakarhick, K. Madhan, M. Sadequ (jie Tang) Balogun, R. Murugaraj, C. Venkateswaran, " Ionic radii correlative study of $LaFe_{0.5}Cr_{0.5}O_3$ and $YbFe_{0.5}Cr_{0.5}O_3$ magnetic double perovskites ", *Physica B : Condensed Matter*, published by Elsevier Publications. Vol. 607, pp. 412717 (2021).

Papers Presented in Programmes

Research Papers Presented in International Programmes : 2
Research Papers Presented in National Programmes : 4

1. "AC conductivity and relaxation processes in Lithium phosphate glasses" presented in a National level conference on Seventh national conference on solid state ionics (NCSSI - 7), organised by Department of Physics, Bharathiar University, India from 06-Jun-2006 to 08-Jun-2006.
2. "Solid state battery characterisation with a compact battery discharge unit." presented in a National level conference on Seventh national conference on solid state ionics (NCSSI - 7), organised by Department of Physics, Bharathiar University, India from 06-Jun-2006 to 08-Jun-2006.
3. R. Kannan, R. Murugaraj and R. Thirunavukkarasu, "Synthesis, Characterisation and Electrical Properties of $Ni_{1-x}Cu_xFe_2O_4$ Ferrites" presented in a National level conference on 3rd National Symposium for Materials Research Scholars-2010, organised by Indian Institute of Technology Bombay, India from 07-May-2010 to 08-May-2010.

4. R. Kannan, S. Rajagopan, R. Murugaraj, R. Sivakumar, C.Kavitha and K. Oudayakumar, "Synthesis and Ac conductivity studies of Mg-Mn Ferrite Nano particles" presented in a National level conference on 3rd National Symposium for Materials Research Scholars-2010, organised by Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, India from 07-May-2010 to 08-May-2010.
5. A. Paul Blessington Selvadurai, V. Pazhanivelu, and R. Murugaraj, "Synthesis and Single Phase extraction of Bi substituted Nickel Ferrite" presented in a International level conference on 4th International conference on Advanced Nano Materials (ANM 2012), organised by Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, India from 17-Oct-2012 to 19-Oct-2012.
6. A. Paul Blessington Selvadurai, V. Pazhanivelu, C. Jagadeeshwaran, and R. Murugaraj, "Synthesis and Characterisation of $\text{Li}_{0.5}\text{Fe}_{2.5}\text{O}_4$ by Citrate auto combustion method" presented in a International level conference on 2nd NATIONAL CONFERENCE ON MATERIALS FOR ENERGY CONVERSION AND STORAGE (MECS-2016), organised by Department of Physics, Pondicherry University, India from 11-Mar-2016 to 13-Mar-2016.

Sponsored Projects Completed

1. "Preparation, Structure and Electrical relaxation properties of solid state ionic materials", funded by CTD, Anna University (February-2011 - February-2012). Project Cost: 50000.00.
2. "Experimental Investigations on electrical relaxation process in solid state ionic materials", funded by UGC, Government of India (July-2012 - June-2015). Project Cost: 571800.00.
3. "Preparation, Structure and Electrical Relaxation Properties of Multiferroic Materials.", funded by CTD, Anna University (March-2012 - April-2013). Project Cost: 100000.00.

Programme Organized

1. Coordinator, National level workshop on "FDP on Essentials of SEM Analysis" from 31-Jan-2020 to 01-Feb-2020.

Programme Attended

1. Participated in a National level workshop on " Awareness Workshop on UGC-DAE Consortium for Scientific Research" organized by Department of Physics, Indian Institute of Technology Madras, India from 27-Sep-2010 to 29-Sep-2010.
2. Attended a National level Short Course on "30th Refresher Course in Experimental Physics" organized by Indian Institute of Technology, Madras, India from 11-Jul-2011 to 27-Jul-2011.
3. Participated in a International level workshop on "International Workshop on Advanced Ceramics for the Future" organized by Indian Institute of Technology, Madras, Indian from 16-Jan-2012 to 17-Jan-2012.
4. Attended a National level Short Course on "New Materials- Their Characterisation and Applications" organized by Anna University Chennai , India from 15-Oct-2014 to 16-Oct-2014.

Invited Lectures

1. Delivered a Lecture on "Electromagnetic Theory" in STIP Programme organized by Department of Nuclear Physics, University of Madras, Guindy Campus, Chennai - 25.
2. Delivered a Lecture on "Extrinsic Semiconductor" in FDTP programme on Engineering Physics II organized by Department of Physics, Anna University, Guindy Campus, Chennai - 25.
3. Delivered a Lecture on "Electrical relaxation process in solid state ionic materials" in ISTE sponsored two weeks short term training programme (STTP) on "Nano Engineering Materials" organized by Department of Physics, Pondicherry Engineering College, Pondicherry (17-Dec-2010).
4. Delivered a Lecture on "Dielectric Properties of Materials" in Refresher Course on Experimental Physics organized by Department of Physics, Madurai Kamaraj University, Madurai (07-Feb-2015).
5. Delivered a Lecture on "Characterisation of Materials by BDS" in National Level Workshop on "Revealing the Advances in Materials Science" organized by Sai Ram Institute of Technology, East Tambaram, Tambaram, Chennai (19-Jul-2016).
6. Delivered a Lecture on "Dielectric Spectroscopy" in National conference on Nano and Molecular Physics organized by Kanchi Mamunivar Centre for Post Graduate Studies, Lawspet, Pondicherry (14-Oct-2016).
7. Delivered a Lecture on "Dielectric Measurements, Analysis and Properties of Materials " in National Conference on Materials Science and Technology: Recent Trends and Future Prospects-2016 organized by PG and Research Department of Physics, Arignar Ann, Villupuram (29-Dec-2016).
8. Delivered a Lecture on "Electrical Energy Storage System : Materials, Characterizations and Technology" in National workshop on Alternate Energy Resources, Conversion and Storage organized by Department of Physics, SRM University, Ramapuram C, Ramapuram, Chennai (24-Jan-2017).
9. Delivered a Lecture on "Dielectric Materials" in Special Invited Lecture organized by Sri Sai Ram Institute of Technology, West Tambaram, Chennai (20-Feb-2017).
10. Delivered a Lecture on "New Engineering Materials" in Seminar for UG Students organized by Department of Physics, Valliammai Engineering College, SRM Nagar, Chennai (26-Feb-2019).
11. Delivered a Lecture on "Physics of Materials" in Seminar on Recent trends in Physics organized by Department of Physics, Bharathidasan Govt. College, Pudukcherry (08-Mar-2019).