

Dr. N. IYANDURAI
Associate Professor
PG & Research Department of Physics
Thiruvalluvar Govt. Arts College
Rasipuram - 637 401.
Tamil Nadu, India.



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EDUCATION

Course	Institution/University
B. Sc	Govt. Arts College, Salem (1992)
M. Sc	Bharathiar University, Coimbatore (1995)
M. Phil	Anna University, Chennai (1997)
Ph. D (Spectroscopy)	Dravidian University, Andhra Pradesh (2016)
Ph. D (Materials Science)	Periyar University, Salem (2021)

PROFESSIONAL EXPERIENCE

Field	Institution	Designation
Teaching	Maharaja Engineering College Avinashi, Coimbatore District.	Lecturer in Physics (01.10.1996 to 30.04.2000)
Teaching	Mahendra Engineering College Mallasamudhram, Namakkal District.	Lecturer in Physics (02.06.2000 to 30.04.2003)
Teaching	Sri Krishna College of Engineering and Technology, Coimbatore.	Sr. Lecturer in Physics (28.01.2004 to 08.07.2009)
Teaching	Thiruvalluvar Govt. Arts College Rasipuram.	Assistant Professor of Physics (09.07.2009 to 09.12.2023)
Teaching	Thiruvalluvar Govt. Arts College Rasipuram.	Associate Professor of Physics (10.12.2023 to Till Date)

SPECIALIZATION

- **X ray Crystallography**
- **Spectroscopy**
- **Materials Science**
- **Nanomaterials**

Total No. of M. Phil's & Ph. D's Produced

Degree	Awarded	Submitted	On-Roll
M. Phil	10	-	-
Ph. D	03	-	02

List of Books Published

S.No.	Name of the Book	Month & Year of Publication	Publishers	Remarks
1	Semiconductor Physics and Optoelectronics	Dec 2002	VRB, Chennai	-
2	Applied Materials Science	Dec 2002	VRB, Chennai	-
3	Applied Physics	June 2007	KKS, Chennai	Recognized as a Reference Book as per the Syllabus of Anna University - Coimbatore, Regulations 2007.
4	Applied Physics	July 2007	KKS, Chennai	Recognized as a Text Book as per the syllabus of Govt. College of Technology (Autonomous - Regulation 2012), Coimbatore & Recognized as a Reference Book as per the syllabus of KSR College of Technology (Autonomous- Regulation 2007), Tiruchengode.
5	Materials Science	Dec 2007	KKS, Chennai	Recognized as a Text Book as per the syllabus of Govt. College of Technology (Autonomous - Regulation 2007), Coimbatore

6	Engineering Physics I	June 2008	KKS, Chennai	Recognized as a Text Book as per the syllabus of Govt. College of Technology (Autonomous - Regulation 2009), Coimbatore
7	Engineering Physics I	July 2008	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Karpagam College of Engineering (Autonomous - Regulation 2007), Coimbatore
8	Engineering Physics II	Dec 2008	KKS, Chennai	Recognized as a Text Book as per the syllabus of Govt. College of Technology (Autonomous - Regulation 2009), Coimbatore
9	Engineering Physics I	July 2009	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Govt. College of Technology (Autonomous - Regulation 2012), Coimbatore
10	Engineering Physics II	Dec 2009	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Govt. College of Technology (Autonomous - Regulation 2012), Coimbatore
11	Engineering Physics I	July 2011	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Karpagam College of Engineering (Autonomous - Regulation 2007), Coimbatore & Recognized as a Text Book as per the syllabus of Karpagam University, Coimbatore
12	Engineering Physics II	Dec 2011	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Karpagam College of Engineering (Autonomous - Regulation 2007), Coimbatore & Recognized as a Text Book as

				per the syllabus of Karpagam University, Coimbatore
13	Engineering Physics	July 2013	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of SNS College of Technology (Autonomous - Regulation 2013), Coimbatore
14	Engineering Physics II	Dec 2013	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of SNS College of Technology (Autonomous - Regulation 2013), Coimbatore
15	Engineering Physics I	July 2014	GEMS, Coimbatore	-
16	Engineering Physics I	November 2014	GEMS, Coimbatore	-
17	Materials Science	August 2019	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Vivekanandha College of Technology for Women (Autonomous- Regulation 2019), Tiruchengode
18	Physics for Biotech	August 2019	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Vivekanandha College of Technology for Women (Autonomous- Regulation 2019), Tiruchengode
19	Semiconductor Physics and Optoelectronics	August 2019	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Vivekanandha College of Technology for Women (Autonomous- Regulation 2019), Tiruchengode

20	Engineering Physics	July 2020	GEMS, Coimbatore	Recognized as a Text Book as per the syllabus of Hindustan College of Engineering & Technology (Autonomous-Regulation 2020), Coimbatore
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List of Papers Published in National / International Journals

1. **N. Iyandurai** and R. Sarojini, Magnesium (II) ion induced changes on the structure of DNA: an FT-Raman study, J. Appl. Sci. Res 5, **(2009)**, 283-285.
2. **N. Iyandurai** and R. Sarojini, Selenomethionine induced changes on the binding of spermine with DNA: a study by Fourier transform Raman and Fourier Transform infrared spectroscopy, International Journal of Pharmacology 5 (2), **(2009)**, 126-136.
3. **N. Iyandurai** and R. Sarojini, Structural Analysis of DNA Interaction with Spermine Studied by Raman and Infrared Spectroscopy, Journal of Applied Sciences Research 5 (9), **(2009)**, 1149-1154.
4. **N. Iyandurai**, K. Senthil and R. Sarojini, FT-Raman Spectroscopy of Heavy Metal-Nucleotide Complexes, Asian Journal of Chemistry 21 (6), **(2009)**, 4241.
5. K. Senthil, **N. Iyandurai** and R. Sarojini, Curcumin-nucleotide interaction by FT-Raman spectroscopy, Asian Journal of Chemistry 21 (6), **(2009)**, 4237-4240.
6. K. Senthil, **N. Iyandurai** and R. Sarojini, Vibrational Analysis of Heavy Metal-Nucleotide Interactions, Asian Journal of Chemistry 21 (9), **(2009)**, 6736 - 6740.
7. **N. Iyandurai** and S. Ganesan, Interaction between Spermine and Selenomethionine: A Study using Raman and Infrared Spectroscopy, International Journal of Advanced Biotechnology Research 1 (1), **2011**, 61-69.
8. S. Ponkumar, P. Duraisamy and **N. Iyandurai**, Interactions of Curcumin with Calf Thymus DNA: A Study by FT Raman Spectroscopy, Developmental Microbiology and Molecular Biology (DMMB) 1 (2), **2011**, 15-21.
9. **N. Iyandurai** and S. Ganesan, Structural Analysis of DNA Interaction with Spermine-Selenomethionine-Spermine Complex: A Study using Raman and Infrared Spectroscopy, International Journal of Genetic Engineering and Biotechnology 1 (1), **2011**, 43-56.

- 10.S. Ponkumar, P. Duraisamy and **N. Iyandurai**, Structural analysis of DNA interactions with magnesium ion studied by Raman spectroscopy, Am. J. Biochem. Biotechnology, 7, **2011**, 135-140.
- 11.M. Mahendra Boopathi, K P Arulshri and **N Iyandurai**, Evaluation of mechanical properties of aluminium alloy 2024 reinforced with silicon carbide and fly ash hybrid metal matrix composites, American journal of applied sciences 10 (3), **2013**, 219.
- 12.P. Shanmughasundaram, M. Mahendra Boopathi , K. P. Arulshri and **N. Iyandurai**, Dry sliding wear, Co-efficient of friction and Corrosion behaviour of Aluminium alloy 2024 Reinforced with Silicon Carbide and Fly ash Hybrid Metal Matrix Composites, International Journal of Mechanical & Mechatronics Engineering 14 (04), **2014**, 44-53.
- 13.P. Shanmughasundaram, **N. Iyandurai**, M. Mahendra Boopathi, and K. P. Arulshri, Analysis of Machining Properties of AA 2024-SiC Fly Ash Hybrid Composites in Twist Drilling, International Journal of Printing, Packaging & Allied Sciences 4 (5), **2016**, 3823-3830.
- 14.**N. Iyandurai**, P. Duraisamy, M.Mahendira Boopathi and M. Muniyappan, Effect of graphite and molybdenum disulfide on AA 2024 reinforced with slag and calcium carbonate hybrid metal matrix composites, Materials Today: Proceedings 26 (4), **2019**, 3615-3622.
- 15.T. Sofia Nirmala, **N. Iyandurai**, S. Yuvaraj and M. Sundararajan, Effect of Cu²⁺ ions on structural, morphological, optical and magnetic behaviors of ZnAl₂O₄ spinel, Materials Research Express 7 (4), **2020**, 046104.
- 16.R. Mahendiran, **N. Iyandurai** and A. Rajesh, Size and shape effects on polarization reversal of nanoscale BaTiO₃, Ferroelectrics 572 (1), **2021**, 60-70.
- 17.**N. Iyandurai**, P. Duraisamy, M. Muniyappan and M. Mahendraboopathi, Structural, elemental and thermal conductivity analysis of AA 2024 hybrid metal matrix composites reinforced with slag, CaCO₃ and solid lubricants, AIP Conference Proceedings 2327 (1), **2021**, 020033.
- 18.**N. Iyandurai** and M. Muniyappan, Electrical properties of AA2024 reinforced with carbon nanotubes and silicon nanocomposites, AIP Conference Proceedings 2327 (1), **2021**, 1-10.

19. M. Muniyappan, **N. Iyandurai** and P. Duraisamy, Structural characterization and corrosion behaviour of AA 2024 reinforced with carbon nanotubes and silicon hybrid metal matrix nanocomposites, *Materials Today: Proceedings* 43, **2021**, 1132-1140.
20. G. Vijayakumari, **N. Iyandurai**, S. Muthu, F B Asif, M Raja and A Thamarai, Structural, spectral, electronic and optical investigations of D-(-)-alpha-Phenylglycine: protease kinase inhibitor, *Spectroscopy Letters* 54 (8), **2021**, 590-606.
21. T. Sofia Nirmala, **N. Iyandurai**, S. Yuvaraj and M. Sundararajan, Third order nonlinear optical behavior and optical limiting properties of Ni²⁺ ions doped zinc nano-aluminates, *Optical Materials* 124, **2022**, 111950.
22. M. Muniyappan and **N. Iyandurai**, Structural Morphology, Elemental Composition, Mechanical and Tribological Properties of the Effect of Carbon Nanotubes and Silicon Nanoparticles on AA2024 Hybrid Metal Matrix Composites, *SAE International Journal of Materials and Manufacturing*, SAE Publications, 15(2), **2022**, 1-17.
23. M. Muniyappan and **N. Iyandurai**, Structural Analysis of AA2024 Interaction Reinforced with Carbon Nanotubes and Silicon Nanocomposites Studied by Fourier Transform Infrared Spectroscopy, *IOP Conference Series: Materials Science and Engineering* 1219 (1), **2022**, 012046.
24. G. Vijayakumari, **N. Iyandurai**, M. Raja, V. Vetrivelan, A. Thamarai, Saleem Javed, S. Muthu, Chemical reactivity, solvent effects, spectroscopic (FTIR, Raman, SERS, UV-Visible), Hirshfeld analyses and antimalarial investigation of 3-Acetylbenzoic acid, *Chemical Physics Impact*, Volume 6, **2023**, 100190.
25. Mahendiran, R., **N. Iyandurai**, and M. Muniyappan. "Synthesis and characterization of strontium titanate (SrTiO₃) nanoparticles doped with Azadirachta indica leaf extract and coconut water by sol-gel method." *Eur. Chem. Bull.*, 12, **2023**, 184-198.
26. **N. Iyandurai**, M. Muniyappan, P. Duraisamy, Corrosion behaviour of AA2024 composites reinforced with slag, calcium carbonate and solid lubricants, *Materials Today: Proceedings*, **2023**, ISSN 2214-7853.

27. Yuvaraj Selvarathinam and Sundararajan Murugesan Sofia Nirmala Tharsiuse, **Iyandurai Natesan**, Jayaprakash Kaliyamurthy, Microwave Combustion Synthesis and Third Order Nonlinear Optical Traits and Optical Limiting Behavior of Sr^{2+} Ion Doped ZnAl_2O_4 Nanoparticles, ES Materials & Manufacturing, 27, **2025**, 1404.
28. Vijayakumari, G., Divya, P., **Iyandurai, N.**, Jeba Reeda, V. S., Thamarai, A., Manikandan, A., Muthu, S. Experimental spectra, quantum chemical methods molecular docking and research on fexofenadine: Experimental and theoretical approach. Spectroscopy Letters, 58(2), **2025**, 214–229.

List of Papers Presented in National and International Conferences / Seminars / Symposiums

1. Presented a Paper titled “Corrosion Behaviour of Aluminium Alloy 2024 Reinforced with Lime Stone and Graphite Hybrid Metal Matrix Composites” in the **“Third National Seminar on Advanced Oxidation Processes (AOP’2017)”** Organized by the Department of Chemistry, Bharathidasan Institute of Technology (BIT campus), Anna University, Tiruchirappalli held on 17th - 19th December 2017.
2. Presented a Paper titled “Analysis of Machining Properties of Aluminium Alloy 2024 Reinforced with Lime Stone and Graphite Hybrid Metal Matrix Composites” in the **“International conference on recent trends in material science and Technology (ICRTMST-2018)”** Organized by the Department of Physics, Sri Vijay Vidyalaya college of arts & science, Nallampalli, Dharmapuri, held on 19th - 20th January 2018.
3. Presented a Paper titled “Dry Sliding Wear and Coefficient of Aluminium Alloy 2024 Reinforced With Limestone and Graphite Hybrid Metal Matrix Composites” in the **“IInd International Conference on Materials Science and Technology”** Organized by the Department of Physics, Pachamuthu College of Arts & Science for Women, Dharmapuri held on 27th & 28th August 2018.
4. Presented a Paper titled “Corrosion Behaviour of Aluminium Alloy 2024 Reinforced with Limestone and Graphite Hybrid Metal Matrix Composites” in the **“India - UK Joint International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH-2018)”** Organized by the

Department of Physics, K.S.R College of Arts & Science for Women, Tiruchengode, Namakkal held on 31st & 1st September 2018.

5. Presented a Paper titled “Synthesis and Characterization of Hybrid Nano Metal Matrix Composites” in the **“International Conference on Emerging Materials and Modeling (ICEMM-2019)”** Organized by the Department of Physics, K.S.R College of Arts & Science, Tiruchengode, Namakkal held during 7th-9th January 2019.
6. Presented a Paper titled “Mechanical Characterization of Al - 2024 Reinforced with Limestone and Graphite by Stir Casting method” in the **“TNSCST Sponsored National Seminar on Current Innovations & Future Perspectives in Nanoscience and Technology (NSNST-2019)”** Organized by the Department of Physics, Chikkanna Govt. Arts College, Tiruppur held on 1st February 2019.
7. Presented a Paper titled “Some Properties of AA2024 Hybrid Metal Matrix Composites Reinforced with Carbon Nanotubes and Silicon” in the **“International Conference on Functional Materials for Bio-Energy, Green technology and Environmental Sustainability”** Organized by PG & Research Department of Physics & Chemistry, Trinity College, ISTA and Organization of Elavenil, Namakkal held on 8th August 2019.
8. Presented a Paper titled “Mechanical Properties of Aluminium Alloy 2024 Reinforced with Solid Lubricants Hybrid Metal Matrix Composites” in the **“CSIR Sponsored One Day Conference on Recent Trends in Smart Materials and Technologies in Bio Resources and Environments Safety”** Organized by the Department of Physics, Velalar College of Engineering and Technology, Erode on 4th September 2019.
9. Presented a Paper titled “Corrosion Behavior of graphite and Molybdenum Disulfide on Aluminium Alloy 2024 reinforced with slag and Calcium Carbonate Nanocomposites” in the **“First International Conference on Emerging Challenges of Global Business and Road Map for Innovative Solutions (ICGB-2019)”** Organized by PG & Research Department of Commerce, Govt. Arts College, Dharmapuri held on 16th & 17th December 2019.
10. Presented a Paper titled “Structural and Elemental Analysis of AA2024 Reinforced with Solid Lubricants” in the **“International Conference on Applications of**

Smart Materials (ASM-2020)” Organized by Annamalai University, Chidambaram held on 05-07 February 2020.

11. Presented a Paper titled “Physical and Chemical Properties of Aluminium Alloy 2024 Reinforced with Solid Lubricants Hybrid Metal Matrix Composites” in the **“UGC Sponsored National Conference on Advanced Functional Materials (NCAFM-2020)”** Organized by the Department of Physics, National College (Autonomous), Tiruchirapalli **in Association with Indian Science and Technology (ISTE) Elavenil** held on 13th February 2020.
12. Presented a Paper titled “Dielectric Properties of AA2024 Reinforced with Carbon Nanotubes and Silicon Hybrid Metal Matrix Nanocomposites” in the **“A Two Day International Conference on Innovations in Physical Sciences, Information Technology and Social Sciences(IC-IPIS2020)”** Organized by the Sri Vidya Mandir Arts & Science College (Autonomous), Uthangarai, Krishnagiri District held on 14th and 15th February 2020.
13. Presented a Paper titled “Effect of CNT and Si on AA2024 Metal Matrix Composites” in the **“A Two Day National Conference on Emerging Materials and Nanotechnology (NCEMN-2020)”** Organized by Department of Physics, Thiruvalluvar govt. Arts College, Rasipuram held on 28th and 29th February 2020.
14. Presented a Paper titled “Density, Tensile Strength and Dielectric Properties of AA2024 Reinforced with Carbon Nanotubes and Silicon Hybrid Metal Matrix Composites” in the **“TANSCHS Sponsored National Conference on Modern Innovations and Perspectives on Emerging Interfaces in Physical Sciences and Technology (NCPST-2020)”** Organized by the Department of Physics, Chikkanna Govt. Arts College, Tiruppur on 5th March 2020.
15. Presented a Paper titled “Electrical Properties of AA2024 Reinforced with Carbon Nanotubes and Silicon Hybrid Metal Matrix Nanocomposites” in the **“National Web Conference on Synthesis and Characterization of Novel Materials”** Organized by the PG & Research Department of Physics, Muthurangam Government Arts College (A), Vellore held on 6th & 7th July 2020.
16. Presented a Paper titled “Electrical Properties of AA2024 Reinforced with Carbon Nanotubes and Silicon Nanocomposites” in the **“MHRD - SPARC, Government of India Sponsored Indo-UK International Virtual Conference on Advanced Nanomaterials for Energy and Environmental Applications (ICANEE-2020)”**

Jointly Organized by the Department of Nanoscience and Technology, Alagappa University, Karaikudi, India and Brunel University, London held on 16-18 September 2020.

17. Presented a Paper titled “Electrical Properties of AA2024 Reinforced with Carbon Nanotubes and Silicon Nanocomposites” in the **“3rd International Conference on Material Science, Smart Structure and Applications (ICMSS-2020)”** held in Association with Inventive Research Organization and Surya Engineering College, Erode, on 15-16 October 2020.
18. Presented a Paper titled “Investigation of Structural, Elemental and Dielectric Properties of AA2024 Matrix Reinforced with Carbon Nanotubes and Silicon Nano Particles” in the **“4th International Conference on Recent Trends in Applied Science and Technology (ICRTAST-2020)”** Organized by the Department of Physics, Bharathidasan University, Tiruchirappalli held on 26-29 December 2020.
19. Presented a Paper titled “Structural, Elemental and Dielectric Properties of AA2024 Reinforced With Carbon Nanotubes and Silicon Hybrid Metal Matrix Nanocomposites” in the **“6th International Conference on Nanoscience and Nanotechnology (ICONN-2021)”** Organized by the Department of Physics and Nanotechnology, SRMIST, SRM Nagar, Kattankulathur, Chennai, held on 01-03 February 2021.
20. Presented a Paper titled “Structural Characterization and Dielectric Properties of the Effect of Carbon Nanotubes and Silicon on AA2024 Metal Matrix Composites” in the **“International Virtual Conference on Advances in Chemistry and Materials (ICCM-2021)”** Organized by the Department of Chemistry, Saveetha Engineering College (A), Thandalam, Chennai, held on 21-22 July 2021.

List of Faculty Development Programmes Attended

1. **Six Days International Faculty Development Programme on “Novel Materials for Energy and Biomedical (Covid-19) Healthcare Applications”** Organized by Department of Science & Humanities, M.Kumarasamy College of Engineering, Karur from 11th to 16th May 2020.
2. **Online Faculty Development Programme on “Materials Science: Synthesis and Characterization”** Organized by Shri Vaishnav Vidyapeeth Vishwavidyalaya, during 11th to 15th May 2020.

3. **One Week Faculty Development Programme on “Nanomaterials for Energy Harvesting and Biomedical Applications”** Organized by Nanomaterials for Photovoltaic and Biomaterials Laboratory (NPBL), Department of Humanities and Basic Science, for 18-05-2020 to 22-05-2020 at Godavari Institute of Engineering and Technology (A), Andhra Pradesh, India.
4. **Three Day Online Faculty Development Programme on “Physics of Materials”** Organized by Nanomaterials for Photovoltaic and Biomaterials Laboratory (NPBL), Department of Physics, Faculty of Engineering & Technology, JAIN (Deemed to be University) from 28th to 30th May 2020.
5. **Online Faculty Development Programme on “Statistical Mechanics”** Organized by the Department of Physics, PSGR Krishnammal College for Women, Coimbatore, during 25th to 29th May 2020.
6. **Online Faculty Development Programme on “Recent Advances in Nanomaterials”** during 4-6, June 2020 Organized by Department of Science, St. Josephs College of Engineering, OMR, Chennai-119.
7. **Two Days National Level Online Faculty Development Programme on “Advancements in Materials Science”** Organized by the Science Club on 05.06.2020 and 06.06.2020. at Jeppiaar Institute of Technology, Sriperumbudur - 631604.
8. **Six Days Faculty Development Programme on “Recent Developments in Materials Science - 21”** Jointly Organized by the Department of Physics and Chemistry, Sree Saraswathi Thyagaraja College, Pollachi, Coimbatore from 16.06.2021 to 22.06.2021.
9. **Online Faculty Development Programme on “Virtual Learning Platform for Experimental Science”** Organized by A.P.C. Mahalaxmi College for Women, Department of Physics, Thoothukudi, on 02nd July 2020.

List of Orientation / Refresher Courses Attended

Name of the Course	Academic Staff College, University	Duration	Date
Orientation Course (Intensive Training Programme)	TamilNadu State Council for Higher Education and UGC Academic Staff College	24 Working Days	09.07.2009 to 05.08.2009

	University of Madras Chennai - 600 005		
Refresher Course in Physics	UGC - HRDC Academic Staff College Bharathidasan University Tiruchirappalli - 620 023	21 Days	20.11.2012 to 10.12.2012
Summer Refresher Course on Sciences (Physics, Chemistry, Biology and Biotechnology)	UGC-HRDC Academic Staff College Pondicherry University Puducherry - 605 014	21 Days	04.07.2018 to 24.07.2018
Refresher Course in Nanoscience (Interdisciplinary)	UGC-HRDC Academic Staff College Bharathidasan University Tiruchirappalli - 620 023	14 Days	25.11.2020 to 08.12.2020
Refresher Course in Physical Sciences and Nanosciences	UGC-HRDC Academic Staff College Jawaharlal Nehru University Delhi - 110 067	12 Working Days	10.01.2022 to 22.01.2022