Curriculum Vitae

Dr. J. Hemalatha is a professor in the Department of Physics, National Institute of Technology, Tiruchirappalli, India. She received her Master's degree in Physics in April 1994 from Thiagarajar College, Madurai and she was the first rank holder and the recipient of the best student award in M.Sc degree. She received M.Phil degree with gold medal in June 1995 and Ph.D degree in December 2000 from Alagappa University, Karaikudi, India. Her Ph.D thesis work was on the ultrasonic investigations for material characterization with a main focus on quantifying the inter molecular interactions in polymeric solutions. Later, she collaborated with CONCEPT research group, University of California, Berkeley, USA, as a visiting scholar in 2007, where she got training on magneto electric multiferroic thin films, Pulsed Laser Deposition technique and Atomic force microscope (AFM). Presently, her Advanced Materials Lab in the Physics Department of NIT-T has two teams. A team of scholars is working on Multifunctional polymers, positive/negative GMR materials and novel complex oxide structures whereas the other team is working on heat transfer fluids for MEMs devices, ionic liquids, nanofluids and ferro nanofluids.

Her research expertise includes multifunctional polymers, Fabrication of GMR films and nanofibres, GMR Sensors, the operation of atomic Force microscopy, piezoelectric force microscopy (PFM), magnetic force microscopy (MFM), tunneling current studies, ferroelectric, ferromagnetic and magnetoelectric studies, complex oxide nanostructures, ferrites and the interpretation of FT-IR, TGA, UV-vis, XRD, VSM, P-E loops, AFM, PFM, MFM results, synthesis of novel nanostructures, nano fluids, ferrofluids, ionic fluids and Viscometric, Ultrasonic, rheological and thermal studies on polymer solutions/nano fluids /ferrofluids. She has several reputed international and national publications in her credit. In addition, she has taken up various administrative responsibilities such as Chairperson (Hospital), Head of Physics Department, Associate Dean (Students Welfare), Hostel Warden,

NSS Program officer, etc. She visited various countries such as The United States of America, Malaysia, Australia, Singapore, South Korea and Sri Lanka.

1. Name Dr. J. Hemalatha
2. Designation: Professor

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6. Field(s) of Specialization: Multifunctional materials, Magnetoelectric Multiferroic nanostructures, GMR materials and devices, flexible materials and devices, Nanofluids, Ferrofluids, Functional Polymer Nanocomposites, Complex oxide Nanostructures, Conducting polymers

7. Employment Profile

Job Title	Employer	From	To
Lecturer	Srinivasa Polytechnic Keeranur	02.08.1995	03.06.1996
Lecturer	Mepco Schlenk Engineering College Sivakasi	02.08.2000	30.06.2001
Senior Lecturer	Mepco Schlenk Engineering College Sivakasi	01.07.2001	30.03.2006
Lecturer	National Institute of Technology, Tiruchirappalli	03.04.2006	05. 10.2008
Assistant Professor	National Institute of Technology, Tiruchirappalli	06.10.2008	05.10.2011
Associate Professor	National Institute of Technology, Tiruchirappalli	06.10.2011	11.03.2018
Professor	National Institute of Technology, Tiruchirappalli	12.03.2018	Till date

8. Academic Qualifications:

Examination	Board / University	Year	Division/ Grade	Subjects
ASNT Level II Certificate Course	ASNT SIS Institute of Non Destructive Testing Chennai	Feb 2009	First 87.2%	NDT (Ultrasonic Testing)
Ph.D	Alagappa University Karaikudi	Dec 2000	-	Ultrasonic Studies on polymer solutions
P.G.D.C.A	Correspondence Course Alagappa University	Dec 1996	First 74.3%	Computer Applications
M.Phil	Alagappa University Karaikudi	June 1995	First 83.1% Gold Medalist	Physics
M.Sc	Thiagarajar College Madurai	April 1994	First 82.1% Best Student award & First Rank Holder	Physics
B.Sc	V.V.Vanniaperumal College for Women, VirudhuNagar	April 1992	First 86.3% Certificate of Proficiency in Electronics	Physics

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Sub Warden Girls Hostel	Mepco Schlenk Engineering College	2000	Dec 2001
Faculty advisor Photographic Club	Mepco Schlenk Engineering College	02.08.2000	31.0.2006
Editor College Bulletin	Mepco Schlenk Engineering College	02.08.2000	31.0.2006
Program Officer National Service Scheme	National Institute of Technology, Trichy	21.08.2006	30.09.2007
Associate Dean (Students Welfare)	National Institute of Technology, Trichy	24.07.2009	15.08.2010
HoD, Physics	National Institute of Technology, Trichy	16.01.2018	20.01.2020
Chairperson Hospital advisory	National Institute of Technology, Trichy	02-07-2020	Till date

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)

13. Details of Academic Work

(i) Curriculum Development

(ii) Courses taught at Postgraduate and Undergraduate levels

(iii) Projects guided at Postgraduate level: 58 PG projects, 1 UG project, 1 M.Phil project

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
Multiferroic Polymer Nanocomposite structures for Spintronic Memory Devices	TEQIP –I Network Research Project with NIT Calicut	2008	2009	Completed
Magnetoelectric Polymer Nanocomposite Structures for Magnetic Field Sensing In Non Destructive Testing	DST- SCRB Fast-track Scheme for Young scientist	2014	2017	Completed

Specific electrical conductivity of kerosene based fuels	ISRO, Government of India Department of Space Liquid Propulsion systems Centre	2016	2019	Completed
Porous Nanomaterials for Sensors, Magnetic Energy Storage and Conversion Applications	Tamilnadu state council for higher education (TANSCHE)	2021	2024	On going

15. Number of PhDs guided: 5

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
Dr. T. Prabhakaran	Synthesis and characterization of PVDF based magnetoelectric polymer nanocomposite films	Supervisor	2013
Dr. M. Nabeel Rashin	Rheological, thermal and ultrasonic studies on magnetic and nonmagnetic nanofluids	Supervisor	2014
Dr. S. Divya	Synthesis and characterization of P(VDF-HFP) based magnetoelectric polymer nanocomposite films for magnetic field sensor application	Supervisor	2020
Dr. Durga Prasad	Magnetoelectric films of PVDF/Ferrite fibers: Synthesis, cauterization and energy harvesting applications	Supervisor	2021
Dr. K.Anu	An Extensive analysis of rheological, electrical, thermal and thermoelectric properties of Zn doped magnetic nanofluids for magnetically tuned thermoelectric applications	Supervisor	2022

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
Advanced Materials: Processing and Characterization	National	2017	Convener	NIT-T
"Quality16" Technical Symposium on NDT,	National	2016	Coordinator	NIT-T
Short-Term Program on "Nanostructured Materials Processing and Characterization"	National	2014	Coordinator	NIT-T
Faculty Development Program on "Physics for Emerging Technology	National	2013	Coordinator	NIT-T
NITT FEST-2010" Symposium	National	2010	Coordinator	NIT-T
National Symposium on "Applied Electronics ELECTRON07"	National	2007	Coordinator	NIT-T
One Day Workshop on "Nanostructures and Devices"	National	2003	Coordinator	NIT-T

18. Invited Talks delivered

Topic	Date	Inviting Organization

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date
Life Member	Institute of Science & Technical Education ISTE)	LM30834
Life Member	Indian Physics Association IPA	GEN/LM/ 11931

Life Member	Indian society for Non-destructive testing	LM8450

20. Academic Foreign Visits

Country	Duration of Visit	Programme

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
K. Anu, J.Hemalatha	Extensive Analysis on the Thermoelectric Properties of Aqueous Zn-Doped Nickel Ferrite Nanofluids for Magnetically Tuned Thermoelectric Applications	ACS Appl. Mater. Interfaces	14	26833−26845	2022	9.22
S. Prathipkumar J. Hemalatha	Magnetoelectric behavior and magnetic field-tuned energy storage capacity of SrFe12O19 nanofiber reinforced P(VDF-HFP) composite films	J. Magn. Magn. Mater.	555	169378	2022	2.99
Sandeep Kumar Yadav, J. Hemalatha	Electrospinning and characterization of magnetoelectric NdFeO3–PbZr0.52Ti0.48O3	Ceram. Int.	48	18415–18424	2022	4.52

	Core-Shell nanofibers					
K.Anu, J.Hemalatha	Synthesis and analysis of structural, compositional, morphological, magnetic, electrical, and surface charge properties of Zn-doped nickel ferrite nanoparticles	Ceram. Int.	48	3417-3425	2022	4.52
P. Durga Prasad, J. Hemalatha	Energy harvesting performance of magnetoelectric poly(vinylidene fluoride)/NiFe2O4 nanofiber films	J. Magn. Magn. Mater.	532	167986	2021	2.99
P. Durga Prasad, J. Hemalatha	Multifunctional films of poly(vinylidene fluoride)/ZnFe2O4 nanofibers for nanogenerator applications	J. Alloys Compd.	854	157189	2021	5.36
K. Anu and J. Hemalatha	Magnetically tuned thermoelectric behavior of Zn-doped magnetite nanofluids	Nanotechnology	32	025707	2021	3.87
R. Kirithiga, J. Hemalatha,	Investigation of thermophysical properties of aqueous magnesium ferrite nanofluids	J. Mol. Liq..	317	113944	2020	6.16
S. Prathipkumar J. Hemalatha	Investigation of Direct and Indirect Magnetoelectric Couplings in P(VDF-HFP)/CoFe2O4	J. Phys. Chem. C	124	25	2020	4.12

	Nanofiber Composite Films					
S. Prathipkumar J. Hemalatha	Magnetoelectric response and tunneling magnetoresistance behavior of flexible P(VDF-HFP)/Cobalt ferrite nanofiber composite films	Ceram. Int.	46.	258-269	2020	4.52
P. Durga Prasad, J. Hemalatha	Dielectric and energy storage density studies in electrospun fiber mats of Polyvinylidene fluoride (PVDF)/Zinc ferrite (ZnFe2O4) multiferroic composite	Phys. B: Condens. Matter	573	1-6.	2019	2.43
S. Divya, K. JeyadheepanJ. Hemalatha	Magnetoelectric P(VDF-HFP)-CoFe2O4 films and their giant magnetoresistance properties,	J. Magn. Magn. Mater.	492 (15)	165689	2019	2.99
P. Durga Prasad, J. Hemalatha	Enhanced dielectric and ferroelectric properties of cobalt ferrite (CoFe2O4) fiber embedded polyvinylidene fluoride (PVDF) multiferroic composite films	Mater. Res. Express	6	094007	2019	1.68
P. Durga Prasad, J. Hemalatha	Enhanced magnetic properties of highly crystalline cobalt ferrite fibers and their application as gas sensors,	J. Magn. Magn. Mater.	484	225-233	2019	2.99

K. Anu, J. Hemalatha	Magnetic and electrical conductivity studies of zinc doped cobalt ferrite nanofluids	J. Mol. Liq.	284	445-453	2019	6.16
K. Anu, J. Hemalatha	Ultrasonic and magnetic investigations of the molecular interactions in zinc doped magnetite Nanofluids.	J. Mol. Liq.,	256	213-223.	2018	6.16
S. Divya J. Hemalatha	Structural and electrical properties of P(VDF-HFP)/ZnFe2O4 nanocomposites,	Ferroelectrics	519	152–156	2017	0.69
P. Durga Prasad, J. Hemalatha	Magnetoelectric investigations on poly (vinylidene fluoride)/CoFe2O4 flexible electrospun membranes	J. Magn. Magn. Mater.	448	94-99	2018	2.99
S. Divya and J. Hemalatha	Ultrasonics—An Effective Non-invasive Tool to Characterize Nanofluids, Study on the enhancement of ferroelectric β phase in P(VDF-HFP) films under heating and poling conditions	Eur. Polym. J,	88	136-147	2017	4.59
T. Prabhakarana , J. Hemalatha	Magnetoelectric investigations on poly(vinylidene fluoride)/NiFe2O4 flexible films fabricated through a solution casting method,	RSC Adv.	6	86880-86888	2016	4.03

S. Divya, T. Shakthi, J. Hemalatha,	Synthesis and ferroelectric investigations of poly(vinylidene fluoride-co-hexafluoropropylene)-Mg(NO3)2 films,	J. Appl. Polym. Sci	133	20	2016	3.125
T. Prabhakarana, J. Hemalatha,	Combustion synthesis and characterization of cobalt ferrite nanoparticles,	Ceram. Int	42	14113-14120.	2016	4.52
M. Bindu, J. Janisha, J. Hemalatha, G. Unnikrishnan	Molecular interactions in silicone rubber - nano hydroxyl apatite system in solution phase probed by ultrasonic technique	J. Mol. Liq.	221	216-223	2016	6.16
M. Nabeel Rashin, R. Govindan Kutty, J. Hemalatha	Novel Coconut Oil Based Magnetite Nanofluid as an Ecofriendly Oil Spill Remover	Ind. Eng. Chem. Res.	53 (40)	15725–15730	2014	3.72
M Nabeel Rashin, J.Hemalatha,	A novel ultrasonic approach to determine thermal conductivity in CuO–ethylene glycol nanofluids,	J. Mol. Liq.	197	257-262.	2014	6.16
Prabhakaran, T.; Hemalatha, J.	Flexible Films of β-Phase Poly(vinylidene fluoride)/ZnFe2O4 Polymer Nanocomposite for Magnetoelectric Device Applications,	Sci. Adv. Mater.	6	1313-1321	2014	1.47

Prabhakaran, T.; Hemalatha, J.	Chemical control on the size and properties of nano NiFe2O4 synthesized by sol–gel autocombustion method T. Prabhakarana, J. Hemalatha	Ceram. Int.	40	315-3324	2014	4.52
M. Nabeel Rashin, J. Hemalatha	Synthesis and viscosity studies of novel ecofriendly ZnO–coconut oil nanofluid.	Exp. Therm. Fluid Sci.	51	312-318	2013	3.23
M. Nabeel Rashin, J. Hemalatha	Magnetic and ultrasonic studies on stable cobalt ferrite magnetic nanofluid,	Ultrasonics	54	834-840	2014	4.06
M. Nabeel Rashin, J. Hemalatha	Viscosity studies on novel copper oxide–coconut oil nanofluid, M. Nabeel Rashin, J. Hemalatha, Exp. Therm. Fluid Sci., 48 (2013) 67-72.	Exp. Therm. Fluid Sci.	48	67-72	2013	3.23
T. Prabhakarana , J. Hemalatha.,	Ferroelectric and magnetic studies on unpoled Poly (vinylidine Fluoride)/Fe3O4 magnetoelectric nanocomposite structures	Mater. Chem. Phys.	137	781-787	2013	4.09
M. Nabeel Rashin, J. Hemalatha	Magnetic and ultrasonic investigations on magnetite nanofluids	Ultrasonics	52	1024-1029	2012	4.06

T Prabhakaran, J Hemalatha	Negative giant magnetoresistance effect in single layered superparamagnetic polymer nanocomposite structures of poly(vinyl alcohol)–polyaniline/bismuth ferrite	Smart Mater. Struct.	21	085012	2012	3.58
T Prabhakaran, J Hemalatha	Combustion synthesis and characterization of highly crystalline single phase nickel ferrite nanoparticles	J. Alloys Compd.	509	7071-7077	2011	5.36
Hemalatha, J., Prabhakaran, T. & Pratibha Nalini, R.	A comparative study on particle–fluid interactions in micro and nanofluids of aluminium oxide,	Microfluid Nanofluid	10	263–270	2011	2.52
K. Geethalakshmi, T. Prabhakaran, J. Hemalatha,	Dielectric Studies on Nano Zirconium Dioxide Synthesized through Co-Precipitation Process	Int. j. phys. math. Sci	6	4	2012	-
M. Nabeel Rashin, J. Hemalatha	Acoustic Study on the Interactions of Coconut Oil Based Copper Oxide Nanofluid.	Int. j. phys. math. Sci.	6	4	2012	-
J. Hemalatha,	A Review of: "Nanofluids: Science and Technology" by S. K. Das, S. U. S. Choi, W. Yu, and T. Pradeep,	Materials and Manufacturing Processes	24(5)	600-601	2009	4.61

T. Prabhakaran, J. Hemalatha,	Synthesis and characterization of magnetoelectric polymer nanocomposites	Inc. J Polym Sci Part B: Polym Phys	4	2418-2422	2008	3.31
J. Hemalatha	A Review of: "The Physics of Solar Cells, Jenny Nelson"	Materials and Manufacturing Processes	-	735-736	2008	4.61
S. Kalyanasundaram, J. Hemalatha , B. Sundaresan	Acoustical method of finding the interaction parameter for polymer - Salt solution	J. Polym. Mater.	18(2)	211-216	2008	-
S. Kalyanasundaram, J. Hemalatha , B. Sundaresan	Molecular interaction studies on polymer and polymer - Electrolyte solutions using thermoacoustical parameters, J. Polym. Mater.	J. Polym. Mater.	17(4)	375-362	2000	-
S. Kalyanasundaram, J. Hemalatha, B. Sundaresan	Solvation study of polymers by ultrasonic method,	J. Polym. Mater.	17(2)	155-163	2000	-
S. Kalyanasundaram, J. Hemalatha, B. Sundaresan,	Study on the viscosity of polymer solutions	J. Polym. Mater.	17(1)	91-95	2000	-
S. Kalyanasundaram, J. Hemalatha	Determination of molecular weight of polymer by ultrasonic method,	Bull. Electrochem.	15(11)	492-496	1999	-

S. Kalyanasundaram, J. Hemalatha, B. Sundaresan	Determination of interaction parameter in aqueous poly (vinyl pyrrolidone) solution	Bull. Electrochem.,	15(11)	501-503	1999	-
S. Kalyanasundaram, J. Hemalatha, B. Sundaresan	Acoustical and Optical Investigations on Poly(Vinylchloride) in Nitrobenzene, ,	Acta Acust. united Acus.	84	6	1998	0.76
S. Kalyanasundaram, J. Hemalatha.	Ultrasonic Studies on PVC in Chlorobenzene.	J. Polym. Mater.	14(4)	285-289	1997	-
S. Kalyanasundaram, J. Hemalatha, B. Sundaresan,	Molecular Interaction Studies on Poly(Vinyl Chloride) in Nitrobenzene by Optical Method	J. Polym. Mater.	14(3)	269-272	1997	-

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
P. Durgaprasad, J. Hemalatha	The structural, morphological, and magnetic force microscopy studies of highly crystalline cobalt ferrite ($CoFe_2O_4$) fibers	AIP Conference Proceedings	030105	Nanotechnology	DAE Solid State Physics Symposium, IIT Jodhpur.	2020
R. Kirithiga, J. Hemalatha	Experimental investigation on interfacial properties and	AIP Conference Proceedings	030113	Nanotechnology	DAE Solid State Physics Symposium, IIT Jodhpur	2020

	wettability of $MgFe_2O_4$ nanofluids					
Lavanya Rathi Palvannan, J. Hemalatha,	Synthesis and characterization of PANI-$CoFe_2O_4$ nanocomposite and its gas sensing application	AIP Conference Proceedings	030173	Nanotechnology	DAE Solid State Physics Symposium, Guru Jambheshwar University of Science and Technology (GJUS&T), Hisar, Haryana	2019
Kirithiga, R., Hemalatha, J.	Acoustic studies of water-based hybrid magnetite-magnesium ferrite magnetic nanofluids	AIP Conference Proceedings	030132	Nanotechnology	DAE Solid State Physics Symposium, Guru Jambheshwar University of Science and Technology (GJUS&T), Hisar, Haryana	2019
S. Prathipkumar, J. Hemalatha	Enhancement in β phase and dielectric property of P(VDF-HFP)/$SrFe_{12}O_{19}$ nanofiber composite films	AIP Conference Proceedings	030183	Nanotechnology	DAE Solid State Physics Symposium, Guru Jambheshwar University of Science and Technology (GJUS&T), Hisar, Haryana	2019
P. Durgaprasad J. Hemalatha	Fabrication of P(VDF) fiber membranes with enhanced ferroelectricity through electrospinning	AIP Conference Proceedings	050102	Nanotechnology	DAE Solid State Physics Symposium, DAE Convention Centre Anushaktinagar, Mumbai.	2017
K. Anu, J. Hemalatha	Viscosity studies of water-based	AIP Conference Proceedings	050148	Nanotechnology	DAE Solid State Physics	2016

	magnetite nanofluids				Symposium. KIIT University	
S. Divya, G. Saipriya, J. Hemalatha	Preparation and Characterization of PVP-PVA – ZNO Blend Polymer Nano Composite Films	AIP Conference Proceedings	050089	Nanotechnology	DAE Solid State Physics Symposium, Amity University UP, Noida	2015

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
V.Rajendran, **J.Hemalatha**, M.Stalin Mano Gibson	Semiconductor Physics and Optoelectronics	Vikas Publishing House Pvt. Ltd	2003	ISBN: 812591448X, 9788125914488
J. Hemalatha and M.C. Santhosh Kumar,	Advanced Materials Processing and Characterization,	Excel India Publishers,	2017	ISBN: 978- 93-86724-04-5
Nabeel Rashin, M. and **J. Hemalatha,**	Ultrasonics–an effective non-invasive tool to characterize nanofluids in the book Modelling, Methodologies and Tools for Molecular and Nano-scale Communications,	Springer Berlin Heidelberg	2017	ISBN 978-3-319-50686-9
T. Prabhakaran and **J. Hemalatha**	Poly (Vinylidene fluoride) Based Magnetoelectric Polymer nanocomposite Films in the book Magnetoelectric Polymer-Based Composites Fundamentals and Applications	Wiley	2016	ISBN 978-3-527-34127-6