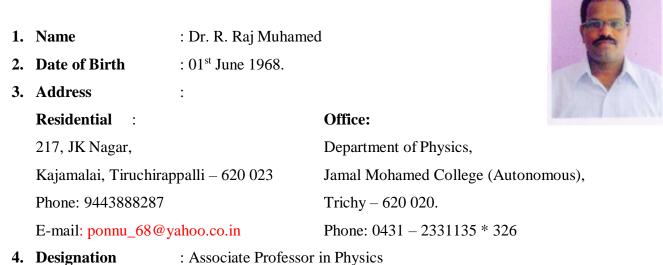
## **Bio-Data**



# 5. Educational Qualifications

	Examination Passed	Year
i) Master's Degree	M. Sc	1992
ii) Research Degree	M. Phil	1994
	Ph. D	2007
iii) Any other degree/		
Diploma / Certificate	B. Ed	1993
	PGDCA	1997
iv) NET / SELT	SELT	2000

## 6. Experience

i)	UG	:	27 years
ii)	PG	:	27 years

- **7. Area of Specialization** : Liquid State Ultrasonics, Spectroscopy & Material Science
- 8. Languages Known : Tamil, English
- 9. Subject Taught : Undergraduate: Atomic Physics

Postgraduate : Mathematical Physics

#### 10. <u>Research Supervision</u>

Name of the Degree	No of Candidates				
Nume of the Degree	Awarded	Submitted	Pursuing		
M. Phil	68				
Ph. D	06		05		

## 11. Details of Publications-11

- Molecular interaction in Aqueous Sodium Chloride Through Ultrasonic Speed Measurement, Jamal Academic Research Journal, Volume II, 2, 2005 (National)
- "Internal Pressure and Free Volume of Amino-Acid Solutions" in the Acta Ciencia Indica, Vol XXXI, P.No.3,395.(2005) (International)
- Acoustical behaviour of DL-NORLEUCINE solutions in the temperature range 303K 323K, Acta Ciencia Indica, Vol. XXXVI, P. No: 1, 47 (2010) (International)
- Acoustical properties of Insulin solutions at different temperatures, Acta Ciencia Indica, Vol. XXXVI, P. No: 1, 43 (2010) (International)
- Ultrasonic study of molecular interactions in Acetone in 2,6-Diphenyl-3-Methyl Pipendine-4-One at in the temperature Range 305K-325K, (International– Communicated)
- Studies on free energy of solvation of certain nitrogen containing heterocyclic compounds,
- Thermochimica Acta 554, 32–38 (2013) (vol. 52, Jan 2014, pp.19-23(National), IF 2.184)
- Polarizable continuum solvation model analysis of halogen substituted 6-nitropyridines, Indian journal of pure & applied physics, vol. 52, Jan 2014, pp.19-23(National)
- On the Thermal properties of Aspartic acid using ultrasonic technique, vol. 6, No.7, pp 3685-3689 Sep-Oct 2014, (international)
- Determination of thermodynamic properties for protonation equilibrium between isomeric cresols and N, N-dimethylaniline in n-hexane medium, Journal of Molecular Liquids 207 28–38 (2015) (International, IF 2.515)
- Determination thermodynamic properties for hydrogen bonded complexes of phenols with Nmethylaniline in n-hexane medium at different temperatures using ultrasonic technique, (International– Communicated)

1	Studies on free energy of Salvation of certain nitrogen containing heterocylic Compounds	Dr. R. Raj Muhamed	Thermochimica Acta, 554(2013), 32-38 (International)	2013			
2	Studies on free energy of Salvation of certain nitrogen containing heterocylic Compounds	Dr. R. Raj Muhamed	Thermochimica Acta, 554(2013), 32- 38 (International)	2013			
3	Polarizable continuum salvation model analysis of halogen substituted 6- nitropyridines	Muhamed	Indian Journal of Pure & applied Physics, Vol.52, January 2014, PP. 19-23	2014			
4	On the Thermal properties of Aspartic acid using Ultrasonic Technique.	Dr. R.Raj Muhamed	J. ChemTech Res. Volume : 6, 2014, Pages : 3685-3689.	2014			
5	Determination of thermodynamic properties for protonation equilibrium between isomeric cresols and N, N- dimethylaniline in n- hexane medium.	Dr. R.Raj Muhamed	Journal of Molecular Liquids Volume: 207, 2015, Pages : 28–38.	2015			
6	Determination of thermodynamic properties for protonation equilibrium between isomeric cresols and N, N- dimethylaniline in n- hexane medium	Dr. R.Raj Muhamed	Journal of Molecular Liquids 207 28–38 (2015)	2015			
7	Effect of Mg <sup>2+</sup> , Ca <sup>2+</sup> , Sr <sup>2+</sup> and Ba <sup>2+</sup> metal ions on the antifungal activity of ZnO nanoparticles tested against Candida albicans.	Dr. R.Raj	Journal of Materials Science and Engineering: C Volume : 52, 2015, Pages : 171–177.	2015			
8	Molecular structure, first order hyperpolarizability, NBO and HOMO- LUMO analysis of cinnoline-4-carboxylic acid,	Dr. R.Raj Muhamed	Journal of Molecular Structure, 1130 (2017) 367–373.	2017			
9	Synthesis, Spectroscopic (FT-IR, FT-Raman, NMR, UV-Visible), Fukui function, antimicrobial and molecular docking study of (E)-1-(3- bromobenzylidene) semicarbazide by DFT method,	Dr. RAJ MUHAMED R	Journal of Molecular Structure, 1130 (2017) 374–384.	2017	www.elsi ver.con	http://dx.doi.or g/10.1016/j.m olstruc.2016.1 0.045	Yes
10	Synthesis, spectroscopic	Dr. RAJ	Journal of Molecular	2017	www.elsi	http://dx.doi.or	Yes

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12hyperpolarizabilities, and molecular docking study of N.4.Chloro- 3-methylpheny)- 2phenlacetamideDr. RAJ MUHAMED ROptik 140 (2017) ElsevierMar 2017ISSN: 1127 1142www.elsi gl0.10166.iiil eg.201.03.120http://dx.doi.or gl0.1016.jiil eg.201.03.120Yes13forwestigation of steric effect in the formation of hydrogen bonded chlorophenols with N.N- dimethylamilineDr. RAJ MUHAMED RJournal of Molecular liquids 244 (2017) 405- 414. International201724693www.spi methyloid. inger.comhttps://doi.org/ inger.comYes14Lumo, NMR, UV- Visible)Dr. RAJ MUHAMED RJournal of Molecular structure 114 (2017) 284-298. InternationalJournal of Molecular structure 1141(2017) 284-298. International201724693www.spi methyloid. methyloid. methyloid. methyloid. 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 10.1016/j.moli 112Yes14Lumo, Rokin function and molecular docking study of (P)-1-(5- bromo-2- hydroxybenzylidene)se methylohenyl)-2- phenylactamideDr. RAJ MUHAMED ROptik 140(2017)1127- 1142. International201736525www.scie https://doi.org/ codier codierYes15O. Fikin function and of (N)-4-chloro-3- methylphenyl)-2- phenylactamideDr. R. RAJ MUHAMED ROptik Normal of Scientific & Technology Research Volum 8, 8616201936525https://library wijstr.or n.et/document/ gl/					1		i I	1	1
12   NBO, Fukui function and molecular docking study of N-(4-Chloro- 3-methylpheny)- 2phenlacetamide   Dr. RAJ MUHAMED R   Optik 140 (2017) Elsevier   Mar 2017   LSN: 1127 - 1142   www.eksi wtt. 2017   intp://doi.org/ 1142   ver.con   uptrophylocity co.201.03.120   Yes     Investigation of stric chlorophenols with N,N- dimethylpanline   Dr. RAJ MUHAMED R   Journal of Molecular liquids 244 (2017) 405- 414. International   2017   24693   www.spri netps://doi.org/ 10.1016/j.moll iq.2017.08.068   Https://doi.org/ 10.1016/j.moll iq.2017.08.068   Yes     14   Lumo,Fukui function and molecular docking study of (E)-1-(5- hydroxyhenzylidene)se micarbazide   Dr. RAJ MUHAMED R   Journal of Molecular structure 1141(2017) 284-298. International   2017   24693   www.spri netps://doi.org/ 10.1016/j.molls iq.2017.03.1   https://doi.org/ 10.1016/j.molls incer.com   Yes     14   Lumo,Fukui function and molecular docking study of (E)-1-(5- hydroxyhenzylidene)se micarbazide   Dr. RAJ MUHAMED R   Journal of Molecular structure 1141(2017) 284-298. International   2017   24702   www.spri netps://doi.org/ 10.1016/j.mols irec.com   https://doi.org/ 10.1016/j.mols irec.com   Yes     15   O, Fukui function and molecular docking study of (N)-4-chloro-3- methylphenyl)-2- phenyloxythenzylidene)se micarbazide   Dr. RAJ MUHAMED R   International Journal of Scientific & Technology R   2017   36525 <t< td=""><td></td><td>· · ·</td><td>1</td><td>   </td><td>1</td><td></td><td>i I</td><td>1 !</td><td>1</td></t<>		· · ·	1		1		i I	1 !	1
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	$-H\cdots\pi$ interactions in		e02155, Elsevier, 4				on.2019.e0215	
	the stabilization of the		September 2019.				<u>5</u>	
	hydrogen bonded							
	complexes of anisole							
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	Raman, UV-Vis), electronic	Dr. R. Raj	Materials Today:		ISSN No.:		https://doi.org/1	
18	properties and biological	Muhamed	Proceedings,	6 11 2020	221/-7853		0.1016/j.matpr.2	Yes
	activities (antimicrobial,	Wandhea	Publisher: Elsevier		2214 /035	e/pii/S2214	<u>020.09.569</u>	
	docking) of semicarbazide					<u>785320372</u>		
	derivative					<u>850</u>		
	Quantum chemical							
	designing of 2-(3,4-		Journal of				https://chalcog	
	dihydroxyphenyl)-3,5,7-	Dr. R. Raj	Optoelectronic and	Sen 2021	ISSN 2066-			Yes
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	dye sensitized solar cell					<u>alcogen.ro</u>	<u>†</u>	



Name of the Faculty Member	Editorial Board Member / Reviewer	Name of the Journal	Publisher and Place	
Dr D Dai Muhamad	Reviewer	Spectroscopy Letters	Taylor & Francis	
Dr.R.Raj Muhamed	Reviewer	Journal of Cluster Science	Springer	

## 12. Details of Paper Presented: 36 (National and International)

- Ultrasonic Study of Molecular Interactions in Aqueous Electrolytic Solutions at Different Temperatures, National Seminar on Emerging Trends in Molecular Physics, Annamalai University, Annamalai Nagar, 8 March, 2004.
- Acoustical parameters of zinc sulphate in aqueous medium at different temperatures Proceedings of the International Conference on Spectrophysics, Pachaiyappa's College, Chennai-600030, 9-12, February, 2005.
- Study of Molecular Interaction of Cupric Sulphate through Ultrasonic Speed Measurement Proceedings of the International Conference on Spectrophysics, Pachaiyappa's College, Chennai-600030, 9-12, February, 2005.
- Study of Intermolecular Interaction in Glycine at Different Temperatures, Proceedings of the International Conference on Spectrophysics, Pachaiyappa's College, Chennai-600030, 9-12, February, 2005.
- Ultrasonic Study of Molecular Interactions In Benzene-Iodine Mixture, National Conference on Ultrasonics , Holy Cross College, Tiruchirappalli, 1-2 Dec. 2005
- Molecular Interaction in Insulin Through Ultrasonic Velocity Measurements At Different Temperatures, National Conference on Ultrasonics, Holy Cross College, Tiruchirappalli, 1-2 Dec. 2005
- Study of Molecular Interactions in Sodium Chloride Through Ultrasonic Velocity Measurement, National Conference on Ultrasonics , Holy Cross College, Tiruchirappalli, 1-2 Dec. 2005
- Ultrasonic study of molecular interaction in binary mixtures, International Conference on Vibrational Spectroscopy, Meerut (UP) College, Meerut, 25 28, Feb. 2006.
- Acoustical study of strontium chloride in aqueous medium, International Conference on Vibrational Spectroscopy, Meerut(UP) College, Meerut, 25-28, Feb. 2006.
- Ultrasonic study of molecular interaction in Insulin, International Conference on Vibrational Spectroscopy, Meerut(UP) College, Meerut, 25-28, Feb'2006.
- Molecular interaction in Amino-Acids in aqueous medium, International Conference on Vibrational Spectroscopy, Meerut College, Meerut, 25-28, Feb. 2006.
- Internal Standard Measurement and Qualitative Analysis on Adrenocortical Steroid Drugs, National Conference on Recent Advances in Vibrational Spectroscopy, Department of Physics, Periyar University, Salem January 29-30, 2007
- Characterization of Cloxacllin by Spectral Measurement, National Conference on Recent Advances in Vibrational Spectroscopy, Department of Physics, Periyar University, Salem, January 29-30, 2007
- Acoustical Studies on Insulin, National conference on "ECO, Sono and Nano chemistry and recent advancement in chemistry, Postgraduate and Research Department of Chemistry, The New College, Chennai–600014, February 2007.

- Study of Solute Solvent interaction in Polyvinyl alcohol through ultrasonic velocity measurements, UGC & CSIR sponsored National level conference on Spectro physics NCONS (2012) organized by Indian Spectro Physics Association (ISPA), held at Pachiyappa's College, Chennai on 07<sup>th</sup> & 08<sup>th</sup> March 2012.
- Study of Insulin in human blood samples through ultrasonic velocity, UGC & CSIR sponsored National level conference on Spectro physics NCONS (2012) organized by Indian Spectro Physics Association (ISPA), held at Pachiyappa's College, Chennai on 07<sup>th</sup> & 08<sup>th</sup> March 2012.
- Thermodynamic properties of binary mixture at different temperatures, UGC & CSIR sponsored National level conference on Spectro physics NCONS (2012) organized by Indian Spectro Physics Association (ISPA), held at Pachiyappa's College, Chennai on 07<sup>th</sup> & 08<sup>th</sup> March 2012.
- Ultrasonic Investigation of Amino acid in aqueous medium, UGC & CSIR sponsored National level conference on Spectro physics NCONS (2012) organized by Indian Spectro Physics Association (ISPA), held at Pachiyappa's College, Chennai on 07<sup>th</sup> & 08<sup>th</sup> March 2012.
- Ultrasonic studies of molecular interaction in water with Succinic acid solutions at different temperatures, UGC sponsored National level seminar on Recent Trends in Crystal Growth and Nano Materials (NSCGNM-2012) held at National College, Trichy on 15<sup>th</sup> – 17<sup>th</sup> March 2012.
- Acoustical behavior of oxalic acid in aqueous medium, UGC sponsored National level seminar on Recent Trends in Crystal Growth and Nano Materials (NSCGNM-2012) held at National College, Trichy on 15<sup>th</sup> – 17<sup>th</sup> March 2012.
- Molecular interactions in binary mixtures through ultrasonic velocity measurements, UGC sponsored National level seminar on Recent Trends in Crystal Growth and Nano Materials (NSCGNM-2012) held at National College, Trichy on 15<sup>th</sup> 17<sup>th</sup> March 2012.
- Ultrasonic studies of Molecular Interactions in water & succinic acid, International Conference on Emerging trends in Physics (ICETP-2013) held at ST. Joseph's College of Arts and Science(Autonomous), Cuddalore-1 on 22<sup>th</sup>-22<sup>th</sup> February 2013.
- CP-64 Molecular interaction of Glycine and Sodium Hydroxide solutions, UGC sponsored National seminar on Recent Trends in Crystal Growth and Nano Materials (NSCGNM-2013) held at National College, Trichy on 13<sup>th</sup> – 15<sup>th</sup> March 2013.
- Molecular interaction Parameters of ternary mixtures of M-Cresol in hexane and N, N-Dimethyl formamide at different temperature using Ultrasonic technique, International Conference on Resent Advances in Physics 2013 (ICRAP-2013) held at Sri Vidya Mandir Arts and Science College, Krishnagiri on 12<sup>th</sup>-13<sup>th</sup> August 2013.
- Molecular interaction Parameters of ternary mixtures of M-Cresol in hexane and N, N-Dimethyl formamide at different temperature using Ultrasonic technique, International Conference on Resent Advances in Physics 2013 (ICRAP-2013) held at Sri Vidya Mandir Arts and Science College, Krishnagiri on 12<sup>th</sup>-13<sup>th</sup> August 2013.
- Study of Molecular Interactions of Glycine with Formic Acid, NaOH and water At various temperatures, International Conference on Chemical and Environment Research (ICCER-2014) held at Jamal Mohamed College (Autonomous), Trichy on 11<sup>th</sup>-12<sup>th</sup> March 2014.

- Thermo Acoustic studies of 2-Amino-7-Hydroxy-4-Phenyl-4H-Chromene-3-Carbonitrile and 2-Amino-7-Hydroxy-4(Methoxy Phenyl)-4H-Chromene-3-Carbonitrile with Ethanol at different temperature, National Conference in Advance Materials and its Applications(NCAMA-2014) held at Annamalai University, Annamalainagar on 4<sup>th</sup>-5<sup>th</sup> April 2014.
- Molecular interaction parameters of some Amino acid with Aqueous CaCl<sub>2</sub>, KCl and BaCl at different temperature using Ultrasonic technique" National Conference in Advance Materials and its Applications (NCAMA-2014) held at Annamalai University, Annamalainagar on 4<sup>th</sup>-5<sup>th</sup> April 2014.
- Study of molecular interactions in ternary mixtures of Xylene, O-Cresol with N, N- Dimethyl Formamide at different temperature, National Conference in Advance Materials and its Applications (NCAMA-2014) held at Annamalai University, Annamalainagar on 4<sup>th</sup>-5<sup>th</sup> April 2014.
- Determination of thermo dynamical properties and Molecular interaction for hydrogen bonded complexes of cresols with N-Dimethylaniline in n-Hexane, TEQIP II sponsored International Conference on Chemistry and Materials (ICCM-2014) held at Anna University, Tiruchirappalli on 14<sup>th</sup> -15<sup>th</sup> November 2014.
- Vibrational spectroscopic studies, Normal co-ordinate analysis, first order hyperpolarizability, HOMO-LUMO of 2-Ethylpyridine-4-caobothioamide, UGC sponsored National level Conference on Spectrophysics held at S.T. Hindu College, Nagercoil on 30<sup>th</sup>-31<sup>th</sup> January 2015.
- Determination of thermodynamic properties of Hydrogen bonded complexes of phenols with N, N- Dimethylaniline in N-Hexane at different temperatures (298, 303 and 308K) using the Ultrasonic Technique, UGC sponsored International Conference on Energy, Water and Environmental Science & Technology (ICEWEST-2015) held at Presidency College(Autonomous), Chennai-05 on 05<sup>th</sup>-06<sup>th</sup> February 2015.
- Ultrasonic and viscometric studies of molecular interaction of some Chlorophenols with N-Methylaniline in THF at different temperatures, DST-SERB sponsored 2<sup>nd</sup>International Conference on Materials for Modern world (NCMMW-2015) held at Easwari Engineering College, Ramapuram, Chennai -89 on 28<sup>th</sup>-29<sup>th</sup> September 2015.
- Molecular structure, Vibrational spectra, Fukui function, HOMO-LUMO Analysis and Molecular Docking study of Ethyl 2-(6-(2-Chloro-6-Ethoxypyridine-4-yl)-3-Cyano-4-(4-Fluorophenyl)pyridin-2-ylthio)Acetate, International Conference on Chemical and Environmental Research (ICCER- 2015) held at Jamal Mohamed College, Trichy on 17<sup>th</sup> December 2015
- Ultrasonic Investigation on polymers and Surfactant Balents, International Conference on Chemical and Environmental Research (ICCER- 2015) held at Jamal Mohamed College, Trichy on 17<sup>th</sup> December 2015.
- Vibrational spectroscopic studies, first order hyperpolarizability, HOMO-LUMO, antimicrobial and molecular docking study of 2-(4-bromobenzylidene) hydrazinecarboxamide, KSCSTE, UGC and KSHEC sponsored National Conference on Experimental and Theoretical Approaches to Photonic Materials (ETAP-2016) held at Bishop Moore College, Mavelikara, Kerala from 6-8 January 2016.

## 13. Details of Seminars / Conferences / Workshops attended : 18

- RSC-SA sponsored workshop on Photocatalysis for sustainability: Fundamentals and Applications" held at Anna University, Tiruchirappalli-024 on 09<sup>th</sup> October 2013.
- National workshop on "Materials Science and theoretical physics" held at ST. Joseph's College of Arts and Science (Autonomous), cuddalore-1 on 2<sup>nd</sup>-3<sup>rd</sup> September2015.

## 14. Details of Seminars / Conferences / Workshops organized: 02

- UGC sponsored State Level Seminar on Applications of Ultrasonics to Organic and Bimolecular Compounds, held at Jamal Mohamed College, Tiruchirappalli-20 on 26-27 September2005.
- UGC sponsored State Level Seminar on, Advances in the Electronics, held at Jamal Mohamed College, Tiruchirappalli-20 on 20<sup>th</sup> March'2006.

## 15. Details of Orientation / Refresher Course attended:

- Orientation program on Research activities in Science for College Teachers, held by Bharathidasan University on 24<sup>th</sup> and 25<sup>th</sup> March, 2012.
  - Refresher course for College teachers in Physics held at Institute of Mathematical Sciences 10-5-2002 to 05-06-2002
  - Orientation Course for National Service scheme, Madras School of Social Work, held at Bharathidasan University on 05<sup>th</sup> July to 14<sup>th</sup> July, 2004

## 16. Details of chairing as Resource Person: 03

- Regional workshop orientation course in physics for PG teachers of Higher secondary schools organized by department of Physics SIGC, Trichy and Tamilnadu state council for science and technology Chennai and National council for science and technology & Communication, New Delhi ' 24 – 26<sup>th</sup> October, 2006.
- Induction training programme for secondary grade teachers, Directorate of teacher education research and training, Chennai-6 at Bishop Heber Hr. Sec. School, Trichy – 03<sup>rd</sup> – 5<sup>th</sup> October – 2007.
- Theory and Practical Exposure, In-service training programme for the Science teachers, Directorate of teacher education research and training Chennai-6 at Jamal Mohamed College, Trichy on 06<sup>th</sup> 10<sup>th</sup> February, 2012.

## 17. Administrative Positions held in the college

Additional Camp – Officer, Bharathidasan University CV.(2006-2007)

## 18. Details of Incharge / Participation in Extracurricular Activities

(NSS, NCC, Sport, Games, Voluntary Association and Cultural Activities), NSS Programme

Officer, 2004-2007, Jamal Mohamed College, Trichy

## 19. Details of participation in consultancy, training, Development etc.

Placement Officer, Department of Physics, Jamal Mohamed College, Trichy