

Name : Dr.R.Karunathan

Designation : Assistant Professor

Department : Physics

Qualification : M.Sc., M.Phil., Ph.D.,FARA.

Experience : Teaching: 10 Years Research: 10 Years

Specialization: Molecular Quantum Mechanics, Computational Physics

Email (Official) : drkarunathan@drngpasc.ac.in



Academic Qualifications

Degree	Branch	Institution / University Name	Year
Ph.D.	Physics	PSG College of Arts & Science, Bharathiar University, Tamil Nadu, India.	2014
M.phil	Physics	Sri Ramakrishna Mission Vidyalaya, Bharathiar University, Tamil Nadu, India	2011
M.Sc.	Physics	Sri Ramakrishna Mission Vidyalaya, Bharathiar University, Tamil Nadu, India	2009
B.Sc.	Physics	Sri Ramakrishna Mission Vidyalaya, Bharathiar University, Tamil Nadu, India	2007

Additional Qualifications

Dip. / Cert.	Area of Specialization	Institution / Agency Name	Year
Certificate	Mobile Phone service	New technology Institutions	2023

Grants Received

Event Title	Agency	Amount	Date
INTERNATIONAL CONFERENCE	Asian Research Association	₹. 50,000	15-Oct-2024

Patent

Title	Status	Year
Network traffic analysis for IOT devices Identification	Published	2025

Research Guidance

Programme	No. of Scholars	
	Awarded	Pursuing
Ph. D.	-	02
M. Phil.	-	-

Research Publications

- 1) Yamuna Radhakrishnan , R. Karunathan * , Babu Balraj, Chandrasekar Sivakumar C, Mon-Shu Ho, High-performance cobalt-doped Bismuth Vanadate supercapacitor electrodes: Experimental validation and quantum capacitance analysis via density functional theory calculation, Journal of Power Sources 663 (2025) 238847, <https://doi.org/10.1016/j.jpowsour.2025.238847>
- 2) YamunaRadhakrishnan,R.Karunathan*, Nandhini Panjulingam,Senthilkumar Lakshmipathi, Babu Balraj, Chandrasekar Sivakumar, pH impact on bismuth vanadate nanomaterial: Photocatalyst and supercapacitor application, Ceramics International 51 (2025) 27363–27378. <https://doi.org/10.1016/j.ceramint.2025.03.410>
- 3) N. Saranya , R. Karunathan * , B. Balraj , S. Selvaraj , M. Gowtham, 4-Nitroaniline picric acid single crystals: unveiling their complete optoelectronic potential through optical, thermal, and quantum chemical characterization, Digest Journal of Nanomaterials and Biostructures, Vol.20, No.4, October-2025. <https://doi.org/10.15251/DJNB.2025.204.1363>

- 4) G Arjunana , R. Karunathan, Babu Balraj & V Sathyanarayanamoorthi, Quantum chemical, spectroscopic and third order nonlinear optical investigations on 3-(3-bromophenyl)-1-imidazol-1-yl-propenone, Vol. 63, January 2024, pp. 33-39, Indian Journal of Chemistry. <https://doi.org/10.56042/ijc.v63i1.1093>
- 5) G Arjunana, R.Karunathan, R Raj Muhamed & V Sathyanarayanamoorthi, Quantum chemical and third order nonlinear optical investigation of (E)-1-(1H-imidazol-1-yl)-3-(1H-indol-2-yl) prop-2-en-1-one, Vol. 62, August 2023, pp. 808-815. <https://doi.org/10.56042/ijc.v62i8.198>
- 6) D. Prabha ,R. Karunathan , V. Sathyanarayanamoorthi, Experimental and theoretical perspectives on 2-amino 5-bromopyridinium salicylate: a third order nonlinear optical Material, J Mater Sci: Mater Electron in Springer-DOI 10.1007/s10854-017-6718-8-2017. [10.1007/s10854-017-6718-8](https://doi.org/10.1007/s10854-017-6718-8)
- 7) V. Anbu, R. Karunathan, K.A.Vijayalakshmi,A. David Stephen, Explosives properties of high energetic Trinitrophenyl Nitramide molecules: A DFT and AIM analysis, Arabian journal of chemistry, September 2016. <http://dx.doi.org/10.1016/j.arabjc.2016.09.023> 1878-5352
- 8) I. Pradeep, N Suriyanarayanan, R. Karunathan, "Influence of Concentration on Structural, Optical and Electrical Properties of Nebulizer Sprayed n-type v2o5 Thin Films", Asian Journal of Research in Social Sciences and Humanities, Vol. 6, No. 5, May 2016, pp. 1218-1236.
- 9) B.Vijayakumar, .Sathyanarayanamoorthi, R.Karunathan, Theoretical studies on 3-aminorhodaninederivatives in the gas phase: charge delocalization and NLO properties ,International Journal of Innovations in Scientific and ISSN: 2347-9728(print) Engineering Research (IJISER),Vol 3,Issue 12 December 2016/102.
- 10) S. Suganthi, V. Kannappan, V. Sathyanarayanamoorthi , R. Karunathan, 'Quantum mechanical investigation of vibrational and electronic spectra of some 5-substituted isoquinolines' Indian journal of pure &Applied physics, Volume 53,2015.

- 11) B. Babu J. Chandrasekaran, R. Karunathan, V.Sathyanarayanamoorthi, "Optical, structural, thermal and powder SHG investigations on 5-chlorosalicylaldehyde single crystals", Optik - International Journal for Light and Electron Optics (2015) 3 September 2015.
- 12) A.Thirunavukkarasu¹, R Karunathan, J Mallika & V Sathyanarayanamoorthi Vibrational and quantum chemical analysis of 3-methyl-2,6-diphenyl piperidin-4- one using HF and DFT methods, Volume 52,October 2014,pp-653-670.
- 13) D.Sridher, V.kannappan, R.Karunathan and V.Sathyanarayanamoorthi, "Spectroscopic Investigation, HOMO-LUMO analysis and DFT studies on Acetone Thiosemicarbazone" Elixir Vib. Spec. 72 (2014) 25577-25582.
- 14) R.Karunathan, V.Kannappan and V.Sathyanarayanamoorthi, Geometry and vibrational analysis of 2-amino thiazole - quantum chemical study, Elixir Vib. Spec. 72 (2014) 25565-25576.
- 15) V. Sathyanarayanamoorthi, R. Karunathan, and V. Kannappan, Molecular Modeling and Spectroscopic Studies of Benzothiazole, Hindawi Publishing Corporation, Journal of Chemistry, Volume 10.1155/2013/258519.

Books/ Book Chapters Publication

- 1.PHYSICS QUESTIONS AND ANSWERS FOR COMPETITIVE EXAMINATIONS, Dr.R.Karunathan, First edition, Royal book Publishing-International, Coimbatore, 2018, ISBN: 978- 93-884130-1-5.
- 2.Spectroscopic And Theoretical Investigation Of some thiazole Derivatives, Dr.R.Karunathan, First edition, Nature Academic Publishing, Coimbatore, 2017, ISBN:978-93-884130-2-2.

Presentations in Conference/ Seminar

- 1) Paper presented in National Conference on Green Energy, UNDER UNSECO CHAIR ACTIVITY, Organized By Pondicherry University,Department of Green Energy TechnologyTechnologies for Sustainability, 20th & 21st March 2025.

- 2) Synthesis of iron oxide NPs by co-precipitation technique for Supercapacitors, “7 th International conference on recent innovations in modern science and technology”, KPR Institute of Engineering & Technology, Coimbatore, 9-11 January 2024.
- 3) Quantum Chemical Study on 2 Amino thiazole, International Conference on Atomic, Molecular, Optical & Nano Physics With Applications, Delhi Technological University, Department of Applied Physics, 18 – 20 December 2019.
- 4) Spectroscopy Studies And Abinitio Calculations Of DMT, National Seminar on Plasma physics, Sri Shakthi Institute of Engineering & Technology (UGC&DST), Department of Science & Humanities, Coimbatore, 12-Feb-2014.
- 5) Vibrational And Spectroscopic Studies And Ab Initio Calculation Of Pyrazole 4-Carboxylic Acid, National conference on Spectrophysics (UGC and CSIR), Pachaiyappa's college and women's Christians College, WCC-Chennai, 8-Nov-2012.
- 6) QUANTUM CHEMICAL STUDY OF 2-AMINO-6 NITROBENZOTHAZOLE, International conference on Research in condensed Matter Physics, University of Madras and Mie University in Japan, Department of theoretical Physics (University of Madras), 6-Sep-2011.

Participation in Conference/Seminar

1. Quantum Chemical Study Of 2-Amino-6 Nitrobenzothiazole, International conference on Research in condensed Matter Physics, University of Madras and Mie University in Japan, Department of theoretical Physics (University of Madras), 6-Sep-2011.
2. International Conference On Atomic, Molecular, Optical & Nano Physics With Applications, DTU, Delhi, 18th-20th December, 2019.
3. 2. A National Seminar On Space Science And Technology, Sri Ramakrishna College of Arts and Science, SNR Arangam, Coimbatore, 14-Oct- 2017.
4. Participated in a National Conference on "EMERGING TRENDS IN MATERIALS AND METHODS" (NCETMM-2015) KSR College of Arts and Science for women, 7-Oct-15.

Participation in Faculty Development Programme

1. Novel Materials for sustainable development, Dr. N.G.P. Arts and Science College, Coimbatore, 29-February 2024
2. NAAC revised accreditation frame work and OBE assessment methodology, Dr. N.G.P. Arts and Science College, Coimbatore, May 27th to June 02nd, 2019.
3. Quality Initiatives In Higher Education, Dr. N.G.P. Arts and Science College, Coimbatore, 3-Dec-18 to 9-Dec-18.

Participation in Workshop

Participated In A National Workshop On Advanced Materials And Solar Energy (Amase'2015), KPR Institute of Engineering & Technology, Coimbatore-07, 28-Oct-15.



Conference / Seminar / Workshop Organized

1. Committee member, Inspire Internship Science Camp (DST), Dr. N.G.P. Arts and Science College, Coimbatore, 4-8 Aug-2018
2. Committee member, Inspire Internship Science Camp(DST), Dr. N.G.P. Arts and Science College, Coimbatore, 25-29 Aug-2018
3. Committee member, Industry institute partnership Conclave, Industry institute partnership Cell (Dr.N.G.P. Arts and Science College, Coimbatore) & Bioline Laboratory Coimbatore, 11 Jan-2019.

Invited Speaker / Session Chair/ Reviewer

1. Invited Speaker, Synthesis of iron oxide NPs by co-precipitation technique for Supercapacitors, “7 th International conference on recent innovations in modern science and technology”, KPR Institute of Engineering & Technology, Coimbatore, 9-11 January 2024.

Editorial / Reviewer Board Member

-  Royal Society of Chemistry
-  Bulletin of Scientific Research (E-ISSN 2582-4678)

Member in BoS

1. Board of Physics, Dr.NGP Arts and Science College, Coimbatore- 2015-18
2. Board of Physics, Dr.NGP Arts and Science College, Coimbatore- 2019-20
3. Board of Physics, Dr.NGP Arts and Science College, Coimbatore- 2014-25

Membership in Professional Bodies

Name of the Professional Body	Nature of membership	Duration
Fellow of Asian research Association (FARA)	Life-time	-

Awards / Honors

Awards / Honors	Agency / Institute	Year
Best Research Faculty Award	Environmental solutions, Chennai	2025