

Curriculum Vitae



Name : Prof. V. Krishnakumar

Designation : Dean, School of Sciences
: Professor and Head, Dept of Physics

Educational Qualification : M.Sc., M.Phil., Ph.D., FASC

Post Doctoral Studies : One year, IIT, Kanpur

Experience : Teaching 33 years; Research 30 years

Areas of Research : Vibrational Spectroscopy & Materials Science (Bulk, Films, Nano)

Research Guidance : Ph.D - 23
M.Phil- 75

Countries Visited : Italy, Hungary, Finland, Poland, Germany, Switzerland & Japan

Fellowships Awarded : 05 International and 04 National fellowships awarded by DST, UGC & INSA
Fellow of National Academy of Sciences Chennai

Major Research Projects : 07 completed; 01 ongoing; 1 Sanctioned (Total cost Rs. 2.5 Crores)

Papers Published : International: 154; National: 24

Collaboration : International: 09; National: 07

Seminars/Conferences : Organized: 27 Attended: 62

Journals Review : International: 15; National 01

Books Published : 03

Membership in Professional Bodies : Scientific and Universities bodies

Administrative Experience : Vice-Chancellor i/c, Registrar i/c, Head of the Department, Member of Syndicate, Member of Senate, Member of Standing Committee on Academic Affairs, Coordinator Planning & Development, chairman P.G Board of Studies Physics, Energy studies, Member Secretary, Internal Quality Assurance Cell & NAAC coordinator

BIODATA

Name : **Prof. V. KRISHNAKUMAR**

Date of Birth : 27.07.1960

Contact Address :

Residence : Institute

S/O M. Varadharajan Iyengar
G5. Padmanaba Residency
Renga Nagar, EVS Street
Srirangam
Tiruchirappalli – 620 006

a) Dean, School of Sciences
b) Professor and Head
Department of Physics
c) Head i/c
Department of Energy Studies
Periyar University
Salem - 636 011

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Academic details

University Academic Record:

Ph.D. – Physics	Bharathidasan University, Tiruchirappalli, Tamil Nadu	Commended
M.Phil. - (Applied Physics)	Regional Engineering College, Tiruchirappalli, Tamil Nadu	First class
M.Sc. - (Physics)	University of Madras	First class

Post Doctoral Experience:

Worked as a Post Doctoral Research Associate in the CSIR sponsored project on 'Spectra Structure Correlation Characterization and Applications of Diamond and DLC films' under the supervision of Prof.H.D. Bist, Emeritus Scientist (CSIR) - Department of Physics and Centre for Laser Technology, I.I.T, Kanpur.

Teaching Experience: 32 Years
Research Experience: 30 Years
Areas of Research: Vibrational Spectroscopy, Materials Science

Research Guidance :

Ph.D	Awarded: 23
	Ongoing: 06
M.Phil	Awarded: 75
M.Sc projects	150 Students

Countries Visited: Italy, Hungary, Finland, Poland
Germany, Switzerland and Japan

Fellowships Awarded :

❖ **Fellow of National Academy of Sciences, Chennai, 2015**

❖ INSA International Bilateral Exchange Programme, University of Electro Communications, Tokyo, Japan 2012

❖ DST Indo-Swiss Joint Research Program, University of Geneva, Switzerland-2010

❖ INSA Visiting Fellow-2007-08, Bilateral Exchange Programme, Solid State Physics Department, Jan Dlugosz University, Al.Armii Krajowej, Czestochowa, Poland

❖ INSA Visiting Fellow-2003-04, Bilateral Exchange Programme, Chemical Research Center, Hungarian Academy of Sciences, Budapest, Hungary

❖ UGC Visiting Associateship, Nuclear Science Center, New Delhi-2002

❖ DST-SERC Visiting Fellowship, National facility for single crystal XRD, University of Mysore-1999

❖ CSIR-Post Doctoral Research Associateship IIT, Kanpur-1997

❖ Teacher Research Fellowship, UGC-1994

Visiting Professor:

Jan Dlugosz University, Czestochowa, Poland, April-June 2011 & May-June 2012

Awards:

Nominated as Fellow in Academy of Science, Chennai Chapter

Best Department Head - 2013

Best Academic Researcher Award-ASDF-ICCA-2012, Pondicherry

Best Teacher Award – 2010 from among the University Departments- Periyar University, Salem

Professional Training:

Year	Nature of Training	Duration	Organization where training was provided
2014	Operating sophisticated software	01 Month	Gaussian Incorporation Chennai
2013	Operating sophisticated software	01 Month	Gaussian Incorporation Mumbai
2012	Electro optical studies on NLO materials	02 Months	The University of Electro Communication, Tokyo, Japan
2010	LT and RT Raman and EPR Experiments	01 Month	University of Geneva Switzerland
2007	Techniques of Measurements: Photoinduced optical absorption of NLO Crystals, Electro & Piezo optical studies, Temperature dependent SHG studies	03 Months	Institute of Physics Jan Dlugosz University, Poland
2003	Quantum Chemical calculations of Complex Molecules	03 Months	Chemical Research Center, Hungarian Academy of Sciences Budapest
2003	Refresher course on Analytical Instrumentation	02 Weeks	RSIC, IIT Madras
1997	Workshop on X- ray Crystallography	01 Month	University of Mysore
1995	Refresher Course in Physics	01 Month	University of Madras
1989	Orientation Course for Physics Teachers	01 Month	Bharathidasan University, Trichy
1984	Summer Institute for Physics Teachers Teaching Electronics at Graduate and Post Graduate Levels	01 Month	University of Cochin

Major Research Projects (Total grant received: More than Rs 2.5 Crores)

Agency	Title of The Project	Period of Support	Remarks
UGC	Raman and photoluminescence spectroscopic studies of ion irradiation effects on good crystal of semi and super conducting crystals	1998-2001 3 Years	Completed
CSIR	Spectroscopic study on the effect of ion implantation in semi conducting films	1999 – 2002 3 Years	Completed
DRDO	Growth and characterization of NLO crystals.	2003- 2006 3 Years	Completed
UGC	Growth and spectroscopic investigations of swift heavy ion irradiated single crystals for photonic applications	2006-2009 3 years	Completed
DST	Influence of swift heavy ion irradiation on the dielectric and optical properties of non linear optical crystals.	2007-2010 3 years	Completed
DRDO	Nonlinear optical crystals for Terahertz generations	2009-2012 3 years	Completed
UGC	Nanocomposites materials for optical applications	2011-2014 3 Years	Completed
CSIR	Synthesis, growth and optical characterization of pure and rare earth doped (Re: Ce and Er) MgWO ₄ crystals for scintillating applications	2012-2015 3 Years	On going
DST	Synthesis of polymeric organic materials for electro-optics materials	3 Years	Sanctioned

International Collaborations:

Prof. Gabor Keresztury, Head, Optical spectroscopy Lab, Hungarian Academy of Sciences, Budapest, Hungary
Prof. Tom Sundius, Department of Physics, University of Helsinki, Helsinki, Finland
Prof. Pioter Brazil, Solid State Physics Department, Jan Dlugosz University, Al.Armi Krajowej Czestochowa, Poland
Prof. Hans Hangemann, Department of Chemistry University of Geneva, Switzerland
Prof. Belsley Michael Scott, Centre of Physics, University of Minho, Portugal
Prof. James R. Durig, Department of Chemistry, University of Missouri-Kansas City, USA
Prof. Rui Fausto, Department of Chemistry, Faculty of Sciences and Technology, University of Coimbra, Portugal
Prof. Yuri S. Kivshar, Nonlinear Physics Centre, Research School of Physics and Engineering, The Australian National University, Australia.
Prof. Marjatta Loui Kaltanen, Lappeenranta University of Technology, Finland.

National Collaborations:

Dr. D.K. Avasthi and Dr. D. Kanjilal, Inter-University Accelerator Centre (IUAC) formerly called Nuclear Science Centre, New Delhi
Dr. G. Bhagavannarayana, National Physical Laboratory (NPL), New Delhi
Prof. P.K. Das, Indian Institute of Science (IISc), Bangalore
Dr. A.K. Arora, Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, Tamilnadu
Dr. R. Nagalakshmi, National Institute of Technology (NIT), Tiruchirappalli, Tamilnadu
Prof. Shiva Umapathy, Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore, Karnataka.
Prof. V.P. Mahadevan Pillai, Department of Optoelectronics University of Kerala, Kerala
Prof. Awadhesh Kumar Rai, Department of Physics, Allahabad University
Dr. A. R. Ganesan, Department of Physics, IIT Madras

Seminars/Conferences Organized:

One day Seminar on Sustainable Energy Resources, Dec 14, 2015.
National Symposium on X-Ray Diffraction and Recent Advances in Crystallography, Feb 27, 2015
Workshop on Project Writing Skills and Funding Agencies & Research Fellowships and Post Doc Positions, Feb 12 th , 2015
Recent Advances in New and Renewable Energy (RANRE-2014), Feb 27, 2014
Seminar on Materials for Advanced Technology (SMAT - 2014), Feb 21 st , 2014
Workshop on Scientific Usage of Electron Microscope: SEM and TEM, Jan 6, 2014
Workshop on Scientific Applications of Powder XRD, Feb 4 th , 2013
Workshop on Recent Advances in Physics Experiments, Mar 28, 2012
Seminar on Recent Trends in Superconductivity, Mar 22, 2012
Workshop on Functional Materials (WFM-2012), Mar 14, 2012
Special Lectures on Materials Science Programme, Feb 10, 2012
Energy Conservation Awareness Programme, Dec 20, 2010
Special Lectures on 50years of Laser, Dec 15, 2010
Workshop on Physics Experiments Through Computer Interfacing (WPECI-2010) Oct 9-10, 2010
Workshop on Recent Developments in Photonic Materials Research (RDPMR-2009) Mar 12, 2009
One day workshop on Recent Development in Nanomaterials Mar 31, 2008
Workshop on Electronics in Daily Life (WEDL-2008) Feb 27-28, 2008
National Conference on Recent Advances in Vibrational Spectroscopy (NCVS-2007) Jan 29-30, 2007
National Conference on Recent Advances in Material Science (NCMS-2006) Feb 16-17, 2006
Workshops on Recent Trends in Physical Sciences Research, Sponsored by Tamil Nadu State Council for Higher Education (TANSCH). Chennai, Aug 29-30, 2005

Symposium on Centenary of Einstein's Discoveries-Mar 28, 2005
National Conference on Recent Advances in Materials Science - NCMS 2002 - Sponsored by DRDO, UGC and CSIR December 11-12, 2002
National Conference on Recent Advances in Materials Science - NCMS 2000 - Sponsored by BRNS, DRDO, INSA, UGC and TNSCST, Sep. 29-30, 2000
National Seminar on Recent Trends in Vibrational Spectroscopy - Sponsored by UGC, CSIR, DST, DRDO and TNSCST, July 23-24, 1999
Several One Day workshops/Spl. Lectures on Various Topics of Physical Sciences were Organized for the Benefit of Research Scholars and Faculties
Science Exhibitions for School and College Students were Organized
Organized Science Quiz Programs in Tamil for School and College Students in All India Radio, Tiruchirappalli Station
Organized Science Jatha programs – Scientific Awareness for Village Peoples Through Cycle Rally by Ariviyal Eyakkam Programme

Reviewer to International Journals:

Name of the Journals

Publisher

CrystEngComm	Royal Society of Chemistry
Crystal Growth and Design	American Chemical Society
Journal of Raman Spectroscopy	Wiley Inter-Science
Chemical Physics	Elsevier
Materials Chemistry and Physics	Elsevier
Journal of Physics and Chemistry of Solids	Elsevier
Journal of Molecular Structure	Elsevier
Spectrochimica Acta Part A	Elsevier
Materials Letters	Elsevier
Physica B	Elsevier
Ionics	Springer
European Journal of Appl. Phys	Springer
Indian Journal of Pure and Applied Physics	NISCOM-CSIR

Project Review :

Reviewed 10 Major Research Project Proposals of various Universities Submitted to DST & CSIR

Membership/Expert in Professional Bodies :

- Member – Indian Spectro Physics Association.
- Member – Indian Physics Teachers Association.
- Chairman – PG Board of Studies, Periyar University.
- Chairman - PG Board of Energy studies, Periyar University.
- Chairman-Board of Research Studies, Periyar University.
- Member – PG Board of studies- Annamalai University, Gandhigram Rural Institute (Deemed University) and in few Autonomous Colleges.
- Member – UG Board of studies (Physics) – Bharathidasan University, Tirchirappalli.
- Member – PG Board of studies (Physics) – Bharathidasan University, Tirchirappalli.
- Academic Council Member in Periyar University, Sarada College for Women (Autonomous) and in few other Autonomous Colleges.
- Selection Committee Member – Faculty Recruitment in Various Universities and Colleges.
- Subject Expert in UGC – CAS Committees of various Universities.
- Member in UGC and NACC Committees (University level).
- Board of Examiner – Ph.D Thesis/Viva (Other Universities inside/outside the Tamilnadu).

Placement of Ph.D Scholars

Twenty two scholars obtained Ph.D under my supervision and they are employed in National Institutes, Government and Aided Colleges.

- ❖ One of my scholar Dr. R. Nagalakshmi carried out PostDoc in Osaka University, Osaka, Japan under Prof. Sasaki and worked as Research Scientist in Tata Institute of Fundamental Research (TIFR), Mumbai under Prof. S.K. Dhar

- ❖ Dr. S. Muthnatesan and Dr. S. Seshadhri had been to University of Missouri-Kansas City, U.S.A and worked under Prof. James R. Durig in a short term project.
- ❖ Dr. John Xavier visited Hungarian Academy of Sciences, Budapest, Hungary under bilateral programmes
- ❖ Dr. S. Manohar attended a short term programme in International Centre for Theoretical Physics (ICTP).
- ❖ Dr. L. Guru Prasad has carried out Post Doctoral research under Prof. Martti Kauranen in Tampere University of Technology, Tampere, Finland through Indo-Finnish Cultural Exchange Programme.
- ❖ Dr. M. Rajabopathi has carried out part of his research in Lappeenranta University of Technology, currently he is working as a post doc fellow in Lappeenranta University of Technology, Finland.
- ❖ Mr.G.Shanmugam working in the UGC project is selected for Post doc studies in US University under Indo –US programme.
- ❖ Mr. J. Jayaprakash working in the CSIR project is awaiting for full bright fellowship programme.



V.Krishnakumar

Professor and Head , Department of Physics,
Periyar University, Salem -636 011,India
Materials Science, Vibrational Spectroscopy

Citation indices

Citations
h-index
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Citations	2944	2292
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Title	1–20	Cited by	Year
Simulation of IR and Raman spectra based on scaled DFT force fields: a case study of 2-(methylthio) benzonitrile, with emphasis on band assignment		149	2004
V Krishnakumar, G Keresztury, T Sundius, R Ramasamy Journal of molecular structure 702 (1), 9-21			
Normal coordinate analysis of 2-mercapto and 4, 6-dihydroxy-2-mercapto pyrimidines		132	2003
V Krishnakumar, RJ Xavier Indian Journal of Pure and Applied Physics 41 (8), 597-601			
FT Raman and FT-IR spectral studies of 3-mercapto-1, 2, 4-triazole		112	2004
V Krishnakumar, RJ Xavier Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 60 (3 ...			
Density functional theory study of the FT-IR spectra of phthalimide and N-bromophthalimide		100	2005
V Krishnakumar, V Balachandran, T Chithambarathanu Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 62 (4 ...			
Density functional theory calculations and vibrational spectra of 3, 5-dibromopyridine and 3, 5-dichloro-2, 4, 6-trifluoropyridine		93	2005
V Krishnakumar, RJ Xavier Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 61 (1 ...			
Crystal growth and vibrational spectroscopic studies of the semiorganic non-linear optical crystal—bisthiourea zinc chloride		80	2005
V Krishnakumar, R Nagalakshmi Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 61 (3 ...			
Normal coordinate analysis of vibrational spectra of 2-methylindoline and 5-hydroxyindane.		79	2003
V Krishnakumar, RJ Xavier Indian Journal of Pure and Applied Physics 41 (2), 95-99			
Scaled quantum chemical studies on the vibrational spectra of 4-bromo benzonitrile		69	2009
V Krishnakumar, N Surumbarkuzhali, S Muthunatesan Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 71 (5 ...			

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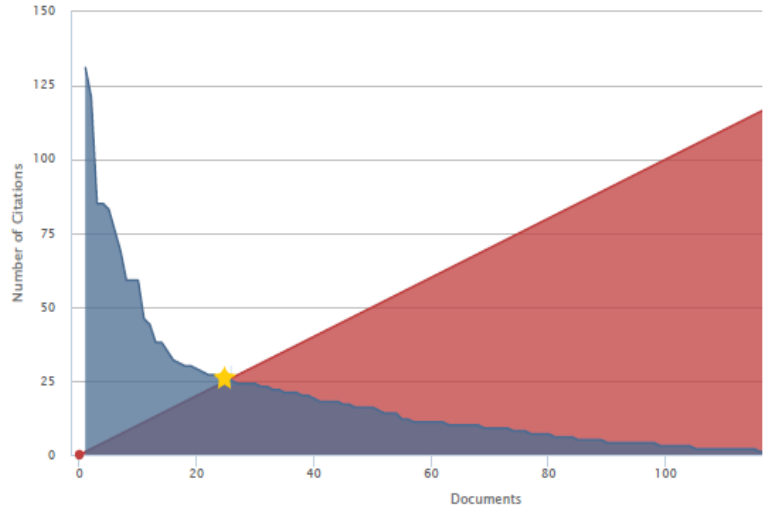
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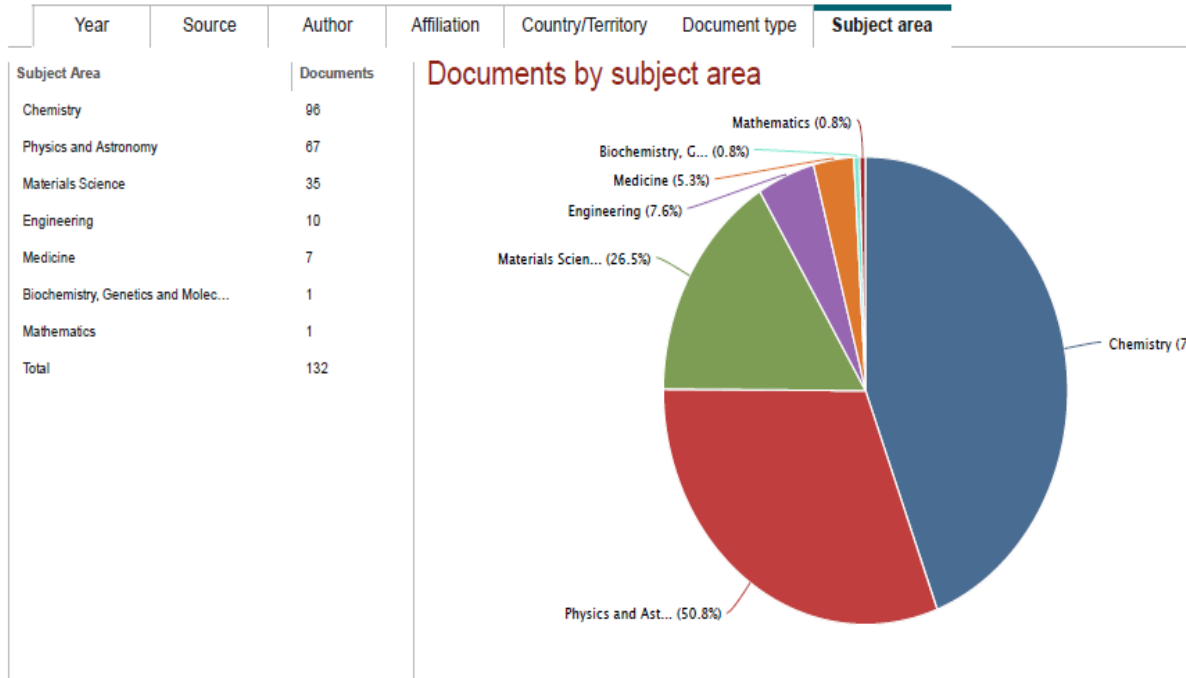
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Influence of Mg dopant on the third-order nonlinear optical properties of CdS-PVP nanocomposite films

Krishnakumar, V.; Shanmugam, G.

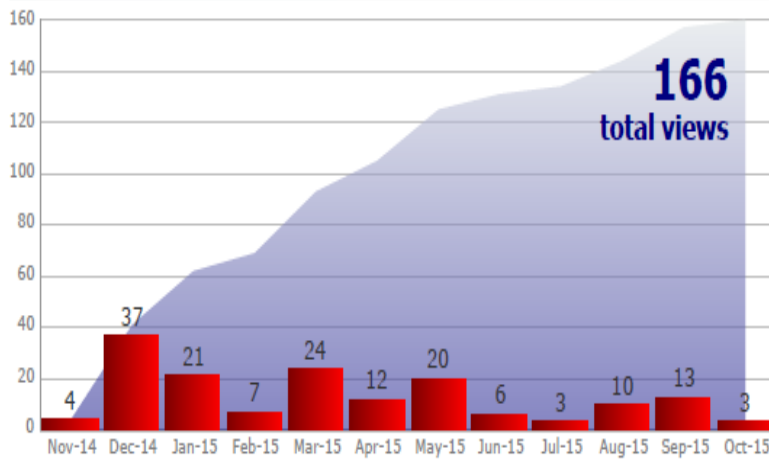
Materials Letters, Volume(s) 141, 26-Nov-2014, Pages 149-152

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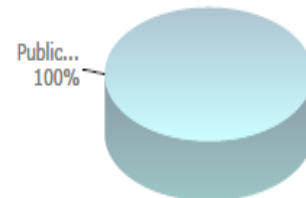
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India	2	20	12%
Saudi Arabia	3	17	10%
United States	4	14	8%
Turkey	5	5	3%

Trend and cumulative views



Corporate versus Public Sector



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List of Papers Published (Journals)

I. International Journals (Publishers: Elsevier, Springer, John Wiley, American Chemical Society, Institute of Physics, American Scientific Publishers, World Scientific Publishers, Taylor and Francis)

1. Density Functional Theory Calculations, Spectroscopic (FT-IR, FT-RAMAN), Frontier Molecular Orbital, Molecular Electrostatic Potential Analysis of 5-Fluoro-2-Methylbenzaldehyde, V. Krishnakumar et al, Z. Phys. Chem. (2016) DOI 10.1515/zpch-2016-0839
2. Bis (3-methoxy -4 - hydroxybenzaldehyde - 2,4,6 -trinitrophenol) organic cocystal: Synthesis and physico-chemical properties, V. Krishnakumar et al, Eur. Phys. J. Plus (2016) 131: 348, Impact factor: 1.52.
3. Intermolecular hydrogen bonding, structural and vibrational assignments of 2, 3, 4, 5-tetrafluorobenzoic acid using density functional theory, V. Krishnakumar et al, J Molecular Structure (2017) 1128: 534–543, Impact factor: 1.602.
4. Photoconductivity, dielectric, thermal and mechanical studies on nonlinear optical phasematchable single crystal: 2-amino-4-methylpyridinium 4-nitrobenzoate, V. Krishnakumar et al, J Mater Sci: Mater Electron (2016) (Article in press) Impact factor: 1.798.
5. Enhanced Visible Light Photocatalytic Activity of Ag and Zn Doped and Codoped TiO₂ Nanoparticles, V. Krishnakumar et al, J Clust Sci (2016) (Article in press) Impact factor: 1.664.
6. Effect of Cu doping on TiO₂ nanoparticles and its photocatalytic activity under visible light, V. Krishnakumar et al, J Mater Sci: Mater Electron (2016) (Article in press) Impact factor: 1.798.
7. Low temperature FTIR, Raman, NMR spectroscopic and theoretical study of hydroxyethylammonium picrate, V. Krishnakumar et al, J Molecular Structure (2016) 1104: 40–51, Impact factor: 1.602.
8. A systematic study of hydroxyethylammonium p-nitrophenolate single crystal exhibiting third order nonlinearity, V. Krishnakumar et al, J crys grow (2016) (Article in press) Impact factor: 1.698.
9. Enhanced third-order optical nonlinearity in Ce³⁺ ion-doped zinc sulfide–polyvinyl alcohol freestanding nanocomposite films, V. Krishnakumar et al, J Mater Sci (2016) 51:3241–3249, Impact factor: 2.371.

10. Molecular structure, vibration analysis (FT-IR, FT-Raman), NMR, UV, NBO and HOMO-LUMO analysis of N,N-Diphenyl Formamide based on DFT calculations, V. Krishnakumar et al, Spectrochim Acta -Part A 139 (2015) 521-532, Impact factor: 1.977.
11. Investigation of intermolecular hydrogen bonding in 2,3,4,5,6 pentafluorobenzoic acid through molecular structure and vibration analysis – A DFT approach, V.Krishnakumar et al., J.Mol.Struct 1083 (2015) 48-56, Impact factor: 1.634
12. Spectroscopic (FTIR, FT-Raman, UV and NMR) investigation and NLO, HOMO-LUMO, NBO analysis of 2-Benzylpyridine based quantum chemical calculations, V. Krishnakumar et al, Spectrochim Acta -Part A 137 (2015) 740-748, Impact factor: 1.977.
13. Fluorescence and physical properties of the organic salt 2-chloro-4-nitrobenzoate-3-ammonium-phenol, V. Krishnakumar et al, Chemical Physics 458 (2015) 52–61
14. Experimental and theoretical investigation of non-centrosymmetric 8-Hydroxyquinolinium dibenzoyl-(L)-tartrate methonal monohydrate single crystal, V. Krishnakumar et al, Materials Research Bulletin 61 (2015) 136 -145, Impact Factor: 1.968.
15. Influence of Mg dopant on the third – order non linear optical properties of Cds – PVP nanocomposite films, V. Krishnakumar et al, Materials Letters 141 (2015) 149-152, Impact Factor: 2.269.
16. Hydroxyethylammonium maleate (HEAM) single crystal for optical limiting applications, V.Krishnakumar et al, Applied Phy A 118(2015) 553-561
17. Anisotropic magnetic, transport and thermodynamic properties of novel tetragonal Ce_2RhGa_{12} compound, V. Krishnakumar et al, Journal of Alloys and Compounds 604(2014) 379- 383, Impact Factor: 2.726.
18. Synthesis, experimental and theoretical Studies of 8-hydroxyquinolinium 3,5-dinitrobenzoate single crystal, V. Krishnakumar et al, Journal of Crystal Growth 398(2014)45–57, Impact Factor:1.693.

19. Fluorescent Properties Reinforced by Proton Transfer in the salt 2,6 Diaminopyridinium Dihydrogen Phosphate, V. Krishnakumar et al, The Journal of Physical Chemistry A 118 34 (2014) 6883-6892, Impact Factor: 2.771.
20. Growth and characterization of 6-chloro-2, 4-dinitroaniline crystals in anti-solvent precipitation and reprecipitation method, V. Krishnakumar et al, Cryst. Eng. Comm 16(2014) 4183-4193, Impact Factor: 3.879.
21. Synthesis, experimental and theoretical Studies of 8-hydroxyquinolinium 3,5-dinitrobenzoate single crystal, V. Krishnakumar et al, Journal of Crystal Growth 398(2014)45–57, Impact Factor: 1.552.
22. Molecular structure, vibrational spectra, HOMO, LUMO and NMR studies of 2,3,4,5,6 -Penta Bromo Toluene and Bromo Durene based on Density functional calculations, V. Krishnakumar et al, Spectrochim Acta -Part A 125 (2014) 201-210, Impact factor: 1.977.
23. Experimental and theoretical studies of 2,5-dichloroanilinium picrate, V. Krishnakumar et al, Spectrochim Acta -Part A 121 (2014) 53-62, Impact factor: 1.977.
24. FT-IR, FT-Raman and DFT quantum chemical study on the molecular conformation, vibrational and electronic transitions of 1-(m-(trifluoromethyl) phenyl)piperazine, V. Krishnakumar et al, Spectrochim Acta -Part A 121 (2014) 483-493, Impact factor: 1.977.
25. Spectroscopic properties, NLO, HOMO-LUMO and NBO of maltol, V. Krishnakumar et al, Spectrochim Acta -Part A 121 (2014) 245-253, Impact factor: 1.977.
26. Spectroscopic (FT-IR, FT-Raman, UV and NMR) investigation, conformational stability, NLO properties, HOMO-LUMO and NBO analysis of hydroxyquinoline derivatives by density functional theory calculations, V. Krishnakumar et al, Spectrochim Acta -Part A 114 (2013) 449-474, Impact factor: 1.977.
27. Vibrational assignment of the spectral data, molecular dipole moment, polarizability, first hyperpolarizability, HOMO-LUMO and thermodynamic properties of 5-nitroindan using DFT quantum chemical calculations, V.Krishnakumar et al, Spectrochim Acta -Part A 118 24 (2014) 663-671, Impact factor: 1.977.

28. Molecular structure, Intramolecular hydrogen bonding and Vibrational spectral investigation of 2-fluoro benzamide - DFT approach, V.Krishnakumar et al, Spectrochim Acta -Part A 114 (2013) 410-420, Impact factor: 1.977
29. Vibrational spectroscopic (FT-IR and FT-Raman) studies, natural bond orbital analysis and molecular electrostatic potential surface of Isoxanthopterin, V.Krishnakumar et al, Spectrochim Acta -Part A 114 (2013) 101-113, Impact factor: 1.977
30. FTIR, FT-Raman and NMR studies on 2,6-dichlorotoluene and 2-chloro-6-fluorotoluene based on density functional theory, V.Krishnakumar et al, Spectrochim Acta -Part A 112 (2013) 429-439, Impact factor: 1.977
31. Growth and characterization of semi-organic nonlinear optical crystal: Sodium 2,4-dinitrophenolate monohydrate, V.Krishnakumar et al, Spectrochim Acta -Part A 110 (2013) 377-382, Impact factor: 1.977
32. Desired form of polymorphism of 6-chloro-2,4-dinitroaniline crystals grown by controlled growth temperature in melt growth, V.Krishnakumar et al, J. Therm. Anal. Calorim, (Article in press) (2013) 1-8, Impact factor: 1.982
33. Nonlinear optical analyses of organic N-(9-Anthrylmethylidene) methylamine Schiff base, Spectrochim Acta -Part A 109 (2013) 253-258, Impact factor: 1.977
34. Quantum mechanical study of the structure and spectroscopic (FT-IR, FT-Raman, ^{13}C , and ^1H) and HOMO-LUMO analysis of 2,4-dimethoxy benzaldehyde (DMBA) and 4-methoxy-3-methyl benzaldehyde (MMBA), V.Krishnakumar et al., J.Mol.Struct 1035 (2013) 145-146, Impact factor: 1.634
35. Oxygen and Gold ion irradiation effects on hydroxyethylammonium (L) tartrate monohydrate single crystals, V.Krishnakumar et al., Radiat.Meas 49 (2013) 88-94, Impact factor: 1.177
36. Density functional theory, comparative vibrational spectroscopic studies, HOMO- LUMO, first hyperpolarizability analyses of 2-fluoro 5-nitrotoluene and 2-bromo 5-nitrotoluene, V.Krishnakumar et al., Spectrochim Acta -Part A 104 (2013) 77-86 Impact factor: 2.098

37. Structural, optical and dielectric properties of PbS-PVA-PEG nanocomposite film, V. Krishnakumar et al., *Sci. Adv. Mater.* 4 (2012)1-7, Impact factor: 3.308.
38. Growth and characterization of anilinium hydrogen sulfate (AHS) single crystals: An organic nonlinear optical material, V.Krishnakumar et al., *Spectrochim Acta -Part A.* 97 (2012) 798-805. Impact factor: 2.098
39. Spectroscopic, electronic structure and natural bond analysis of 2-aminopyrimidine and 4-aminopyrazole [3,4-d] pyrimidine: A comparative study, V.Krishnakumar et al., *Spectrochim Acta -Part A.* 96 (2012) 226-241. Impact factor: 2.098
40. Quantum mechanical study of the structure and spectroscopic (FT-IR, FT-Raman, ^{13}C , ^1H and UV), NBO and HOMO-LUMO analysis of 2-quinoxaline carboxylic acid, V. Krishnakumar et al, *Spectrochim Acta - Part A:* 92 (2012) 325-335, Impact factor: 2.098.
41. Growth and characterization of hydroxyethylammonium picrate single crystals for third-order nonlinear optical applications, V. Krishnakumar et al., *Mater. Chem. Phys.* 134 (2012) 736-746. Impact factor: 2.234.
42. Large third-order optical nonlinearity of Mg-doped PbS/PVA free standing nanocomposite films, V. Krishnakumar et al., *J. Phys. D: Appl. Phys.* 45 (2012) 165102-165108. Impact factor: 2.544
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21. Normal Coordinate analysisi of some uracil derivatives,
V. Krishnakumar et al., Asian Journal of Physics 3 (1994)163-166
22. Fourier transform infrared and laser Raman spectral analysis of 5-
fluorouracil. Asian Journal of Physics V. Krishnakumar et al., 3 (1994)
167-169
23. Vibrational analysis of Phenyl Butazone, V. Krishnakumar et al., Asian
Journal of Chemistry 7(1995) 259-262
24. Molecular structure, spectroscopic (FT-IR, FT-RAMAN), HOMO-LUMO,
NMR, and MEP analysis of methyl-m-toluate, Asian Journal of Physics
V. Krishnakumar et al., Vol. 25, No 6 (2016)

Total Publications: International (154) + National (24) = 178
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Papers in AIP International conference proceedings (Published)

1. Studies on Novel Co-crystal of 2, 6-Diaminopyridinium 4-Nitrophenolate 4-Nitrophenol. V. Krishnakumar et al., AIP Conf. Proc. 1447(2012) 1329.
2. Vibrational and third-order nonlinear optical study on hydroxyethylammonium picrate (HEAP) single crystals , V.Krishnakumar et al, American Institute of Physics, AIP Conf. Proc., 1447 (2012) 1263-1264.
3. Vibrational studies of the nonlinear optical crystal – 2,4-dinitrophenol, V. Krishnakumar et al., American Institute of Physics - AIP Con. Proc. 1267 (2010) 1198-1199
4. Polarized Raman and Hyperpolarizability studies of Hydroxyethylammonium (L) tartrate monohydrate for quadratic nonlinear optics, V. Krishnakumar et al., American Institute of Physics - AIP Con. Proc. 1267 (2010) 1200-1201

List of papers presented in conferences (Last five years)

1. Growth and Characterization of 2 - amino - 4 - Methylpyridinium 4-Nitrobenzoate Single Crystal by Slow evaporation technique, National Conference on Solar Energy and its Application- 2015, E.R.K College of Arts and Science College for Women, Dharmapuri.
2. Preparation and optical Characterization of Ag doped TiO₂ nanoparticles, National Conference on Solar Energy and its Application- 2015, E.R.K College of Arts and Science College for Women, Dharmapuri.
3. Anion induced fluorescence of 2,6 diaminopyridinium dihydrogen phosphate crystals, National conference in Advanced Materials and its Applications (NCAMA-2014), Annamalai University, Annamalai Nagar.
4. Electrical conductivity studies of CdS-PVA-PEG nanocomposite film, National conference in Advanced Materials and its Applications (NCAMA-2014), Annamalai University, Annamalai Nagar.
5. Preparation and Optical Characterization of Zn doped TiO₂ Nanoparticles National conference in Advanced Materials and its Applications (NCAMA-2014), Annamalai University, Annamalai Nagar.

6. Synthesis and Characterization of CdSe Nanoparticles, National conference in Advanced Materials and its Applications (NCAMA-2014), Annamalai University, Annamalai Nagar.
7. Morphology and conductivity studies of PVA/PEG:CdS nanocomposite films, National Symposium on Nanosciences and Nanotechnology (NSNN-2013), Karunya University, Coimbatore
8. 6-chloro, 2, 4, dinitroaniline crystallized by melt, International Conference on Advanced Materials-2012, held at Singapore.
9. Synthesis and physical properties of CdS:PVA/PEG nanocomposite film, National Seminar on Recent Trends in Material Science-2012, Department of Science and Humanities, Kumarasamy Engineering College, Karur
10. Nonlinear Optical crystal for Terahertz generation, National conference on Emerging Trends in Spectroscopy-Spectrum-2012, Department of Physics, Mar Thoma College, Thiruvalla, Kerala
11. Synthesis and characterization of polyvinyl composite based on polyvinyl alcohol-polyethylene glycol-PbS system. National conference on Advanced Nanomaterial 2012, Centre for Nano science and Nanotechnology, Periyar University, Salem
12. Photoluminescence and ac electrical conductivity studies of PbS nanocomposites films in the composite polymers, International Conference on Nano Science and Nano Technology -2011, Coimbatore Institute of technology, Coimbatore
13. Structural and optical properties of CdS/polymer nano composites films, International Conference on Advanced materials and its Applications-2010, Kalasalingam University, Virudhunagar
14. Synthesis and characterization of CdS/poly(vinyl-alcohol-b-ethylene glycol) copolymer nanocomposites films, National Conference on nanomaterials-2010, Karunya University, Coimbatore
15. Effect of Magnesium chloride on TGS single crystal, National Laser Symposium-19 (NLS-19), 2010, Raja Ramanna Centre for Advanced Technology, Indore
16. Studies on the charge transfer nonlinear optical crystal for optoelectronic applications: 2,4-dinitrophenol, National Laser Symposium-19 (NLS-19), 2010, Raja Ramanna Centre for Advanced Technology, Indore

17. Crystal growth, structural, thermal, optical and electrical studies of nonlinear optical tribismuthnonakisthioureaonochloride dihydrate, Ninth DAE-BRNS National Laser Symposium (NLS-09) 2010, Bhabha Atomic Research Centre & Tata Institute of Fundamental Research, Mumbai

Books published

1. V. Krishnakumar, Condensed Matter Physics, Tice Education, Salem, ISBN: 978-81-909447-5-5
2. V. Krishnakumar, Mechanics and Sound, Tice Education, Salem, ISBN:978-81-909447-9-3
3. V. Krishnakumar, Thermal Physics and Properties of Matter, Tice Education, Salem, ISBN: 978-81-909447-7-9

Participation in Conferences/workshops/seminars/symposia

1. Participated in the International Conference on Nanomaterials and Nanotechnology, Dec 7-10, 2015
2. Participated in the National Symposium on X-Ray Diffraction and Recent Advances in Crystallography, Feb 27, 2015
3. Participated in one day work shop on Advanced Characterization Techniques (ACT 2015) organized by Department of Chemistry, Periyar University, Salem, Feb 04, 2015.
4. Participated in the National conference in Advanced Materials and its Applications (NCAMA-2014) organized by Engineering Physics, Annamalai University, 4th and 5th April 2014.
5. Participated in the Seminar on Materials for Advanced Technology (SMAT -2014), PU, Salem, 21st Feb 2014.
6. Participated in the Workshop on Powder X ray diffraction – Analysis and Instrumentation organized by CIMF, PU, Salem, Feb 04, 2013.
7. Participated in National Science Academies Lecture Workshop on ‘Modern Trends in Chemistry’ organized by Center for Nano Science and Nano Technology, PU, Salem, August 13-14, 2012
8. Participated in the Workshop on Convergence – 2012 , (Advanced Materials Research) held at National Institute of Technology, Tiruchirapaili , Dec 21- 22, 2012
9. Participated in the National conference on Advanced Nano Materials ANM 2012 held during Feb 6-7, 2012 organised by Center for Nano Science and Nano Technology, Periyar University, Salem
10. Participated in National Workshop on X-Ray Diffraction Technique and Application, Saurashtra University, Rajkot, Gujarat. On 17-19 March 2010.
11. Participated in National Seminar on Crystal Growth-XIV, VIT University, On 10-12 March 2010.
12. Participated in National Seminar & Exhibition on Non Destructive Evaluation-NDE 2009, BHEL & NIT, Tiruchirapalli, India. On 10-12 Dec 2009.

13. Participated in Workshop on recent developments in photonic materials research (RDPMR), Department of Physics, Periyar University, Salem, 12th Mar, 2009
14. Participated in Accelerator User Workshop, Inter University Accelerator Centre (IUAC), New Delhi, Dec 17-18, 2009
15. Participated in national seminar & exhibition on non destructive evaluation – NDE 2009, National Institute of Technology, Tiruchirappalli, Dec 10-12, 2009
16. Participated in One day workshop on recent developments in nanomaterials research, Department of Physics, Periyar University, Salem, 31st Mar 2008
17. Participated in the workshop on optics and Photonics-WOOP 2005, National Institute of Technology, August 18-19, 2005
18. Participated in Accelerator User Workshop, Inter University Accelerator Centre (IUAC), New Delhi, July 6-7, 2005
19. Participated in the National symposium on chemical structures and Dynamics, Indian Institute of Madras, Chennai, April 23, 2005
20. Participated and delivered invited talk in the National conference on Crystal growth and modelling, Anna University, Chennai Feb 28- March 01, 2005
21. Participated in the International conference on Spectro Physics and presented papers Sponsored by UGC, DST and TNTSCST held in Pachaiyappa's College, Chennai, Feb 09-12, 2005
22. Presented a paper in the National Laser Symposium sponsored by DAE-BRNS, BARC, Mumbai, Jan10-12, 2005
23. Presented a paper in the 49th DAE-Solid State Physics Symposium, Guru Nanak Dev University, Amritsar, Dec 26-30, 2004
24. Participated in the Indo-Japan workshop on crystal growth and applications of advanced materials for Opto-electronics, Anna University, Chennai, Dec 7-10, 2004

25. Participated and Presented a paper in the regional conference on Photo acoustics and Condensed matter Physics, Madurai Kamaraj University, Madurai, March 7- 8, 2004
26. Participated in the UGC sponsored course on Analytical Instrumentation organized by RSIC, IIT Madras, Chennai, Feb 17-28, 2003
27. Participated and delivered an Invited Talk on ion irradiation effects on solids - National Symposium on Photonics, Pondicherry University, Pondicherry, 2001
28. Participated and delivered an Invited Talk in the National conference on crystal growth, Sponsored by UGC, Anna University, Chennai, 2000
29. Participated in the UGC Sponsored National Seminar on Condensed Matter Physics, Kerala, 1999
30. Participated in the XXIX National Seminar on Crystallography, sponsored by INSA, Chennai, 1999
31. Participated in the XII National Conference on Atomic and Molecular Physics, MLS University, Udaipur, 1999
32. Participated in the National Seminar on Materials Science and Indian scene conducted by Department of Physics, BARD and TNSCST, Jan. 1998
33. Participated in the research workshop on Condensed matter Physics held at International Center for Theoretical Physics (ICTP), Italy from June 30- July 11 at ICTP, Trieste, Italy 1997
34. Participated in the Symposium on Laser applications in Material Science and Industry sponsored by the Indira Gandhi Center for Atomic Research, Kalpakkam, Tamil Nadu, February 1997
35. Participated in the National Conference on Spectrophysics, sponsored by the Post Graduate and Research Department of Physics, Pachaiyappa's College, Chennai, February 1997

36. Participated in the seminar on Remote Sensing and its application organized by St. Joseph's College (Autonomous) Tiruchirappalli and Center for Remote sensing Bharathidasan University, Tiruchirappalli, Tamil Nadu, 1996
37. Participated in the National Conference on Science and Technology, sponsored by the Tamil Nadu Science Forum and TNAU, Coimbatore, 1996
38. Participated in the Workshop on Radiation Ecology sponsored by the Department of Atomic Energy, Government of India, and New Delhi, 1996
39. Participated in the National Conference on Recent trends in Vibrational Spectroscopy sponsored by the Department of Science and Technology, Government of India, New Delhi, 1996
40. Participated in the Workshop on Advanced Laser Spectroscopy conducted by the Department of Physics and Center for Laser Technology, Indian Institute of Technology, Kanpur, 1995
41. Participated in the conference on Pollution prevention and the Technology for the future sponsored by the University Grants Commission, New Delhi, 1994

Invited Talks delivered (Recently)

1. Talk on Generation of Terahertz Radiation from Organic Crystals held at KSR College of Engineering, Tiruchengode, January 07-08, 2016
2. Talk on Generation of Terahertz Radiation held at KSR College of Technology, December 07-10, 2015
3. Talk on THz Spectroscopy – National Conference in Advanced Materials and its Applications held in Annamalai University, Annamalainagar, April 04 - 05, 2014
4. Delivered inaugural address in the UGC sponsored National seminar on Environment and Atmospheric Sciences held in S.T. Hindu College, Nagercoil, Feb 07-08, 2013.

5. Recent advancement in nano scale research Anna University of Technology, Madurai, Tamilnadu, Aug 2012
6. NLO materials for electro optic applications, Adhiyamaan College of Engineering, Hosur, Tamilnadu, July 2012
7. Nonlinear optical materials, Czestochowa University of Technology, Poland, June 2011
8. Raman spectroscopy of nano materials, Jan Dlugosz University, Al.Armiu Krajowej Czestochowa, Poland, April 2011
9. Swift heavy ions irradiation for materials modifications, University of Geneva, Geneva, Switzerland, Jan 2010
10. Delivered Prof. K. Rangadhama Rao Centenary Celebrations Endowment lectures On seeing at nanoscale with Raman Spectroscopy & Prediction of vibrational and electronic property by computational methods – Andhra University, Visakhapatnam, 2010
11. Delivered lectures in the refresher courses organized by various Academic staff colleges inside and outside Tamil Nadu for Physical Sciences
12. Talk on Ion irradiation for Materials Modifications- State level seminar on Physical Sciences Research, Sarada College for Women, Salem, 2008
13. Talk on Nonlinear optical Crystals and their applications- National conference on Materials Science, Cauvery College, Tiruchirapalli, 2008
14. Talk on THz Spectroscopy – National conference on opto electronic materials, University of Kerala, Thiruvananthapuram, 2007
15. Ion irradiation a novel tool for Materials Science Research, Anna University, Chennai, 2006

DST INSPIRE Mentor

Many Motivating lectures are delivered in various Institutions in and outside Tamil Nadu to the students to take up scientific research as carrier.

Popular Programmes in Television Channels and Radio

Science Quiz Programmes for College students in All India Radio, Tiruchirapalli

Aritathum Ariyathatum programme in All India Radio, Tiruchirapalli

Kelviyum Pathilum programme on various opportunities of higher studies in Indian Universities - All India Radio, Tiruchirapalli

Valarum Kalvi programme in POTHIGAI TV

Ulagam Aliyuma – Mayan Calendar Myth and Scientific facts – Live programme in POLYMER TV

E-Resources

Open access E-learning materials are provided to the academics, they are available in my homepage and also in youtube. The links are appended

http://vkrish.page.tl/e_Resources.htm

<http://youtu.be/c604KHB6faA>

<http://youtu.be/UnxVn94paMk>

<http://youtu.be/rvUOFQUUFAA>

<http://youtu.be/Tagr38IkO-0>

<http://youtu.be/C2bmoWf0y1Q>

<http://youtu.be/hDmt5EFJ4Io>

<http://youtu.be/hDmt5EFJ4Io>

Significant Contribution to Science/Technology development

The research experience gained in the field of Condensed Matter Physics, Materials Science and Vibrational spectroscopy has led to sanction of many projects by the various funding agencies which helped to establish a research laboratory for Materials fabrication and characterization besides computational laboratory for advanced theoretical calculations using sophisticated scientific packages. Using this facility technologically important crystals were grown and characterized. The analytical data of the crystals obtained recommends the materials for opto-electronic devices and applications. More specifically we proposed theoretical calculations of first order hyperpolarizability and orbital calculations for charge transfer mechanism for molecules and thereby designing of molecules to obtain the enhanced optical properties such as second, third and higher order harmonics. These theoretical results favour the synthesis of materials can be undertaken experimentally only when the physical parameters obtained by way of computations are optimum or higher. This could save time, energy and money towards chemicals. This work is being exclusively carried out by our group in Tamil Nadu. This has led to the publication of numerous scientific papers which will be an added literature and database to the scientific community. Besides these, based on the expertise and contacts gained in this area five national conferences (with international participants) have been organized to stimulate the scientific discussions among the young scientists and research scholars.

To our surprise, we observed generation of Terahertz (THz) waves from our NLO crystal 3 - nitroaniline and we report it for the first time in literature. Now the material scientists are looking forward to develop new THz emitters which could serve the purpose of fabricating an imaging device based on THz waves could not only give information about the structure of an object (geometrical properties) but could also help in determining its composition and electromagnetic properties as well in a non invasive way and find its applications in defence, security and for the studies of carrier dynamics and intermolecular dynamics of light. Very recently America banned X rays in scanning the humans for security reasons due to violation of human right commission and WHO norms and they are using THz rays for that purpose.

Most Significant work

The quadratic nonlinear applications such as frequency conversion, electro optic modulation and parametric interactions are exhibited greatly by organic material possessing hyperpolarizable chromophores. Ideally, NLO chromophores should assemble in a noncentrosymmetric structure in such a way that a complete additive contribution of hyperpolarizability tensors values result in high macroscopic components. One needs to improve many physicochemical properties such as mechanical behavior (robustness), optical damage threshold and linear optical properties (refractive indices and birefringence). Hence, we are working towards the crystal engineering strategy essentially based on ionic interactions, cocrystallization, protonation with an aim to get more entities that are favourable for NLO effects. One particularly, valuable aspect of the effort to design more efficient materials is the computational work on the potential molecules. By modeling it is possible to eliminate the high costs associated with the hit and miss synthetic approach. This also offers the materials scientists the added advantage of quick feedback on a compounds potential usefulness. Computational approach based on quantum chemical calculations using Gaussian Package allows the determination of molecular NLO properties as an inexpensive way to design molecules by analyzing their potential. They are providing fresh first hand information about the source of nonlinearity in the molecules and vibrational (IR and Raman activities). In addition to that, the molecular orbital calculations for determining the charge transfer taking place in the molecule and assessment of various thermodynamical parameters suggests the prospective application of materials for NLO devices. Owing to the development of ultra short-pulsed laser techniques, one can readily generate and detect terahertz radiation if good nonlinear optical crystals having enough macroscopic second order nonlinearity are available. In that aspect the terahertz emission from the 3-nitroaniline, a versatile NLO crystal has been reported by our group for the first time in literature.

References :

Prof. T. Balakrishnan (Former Vice Chancellor, Periyar University, Salem) 1/224, IV Main road, VGP layout Palavakkam, Chennai – 600 041 Ph: 09445392496 (M)	Prof. C. Swaminathan Vice Chancellor Periyar University Salem – 636 011 Ph: 09443713913 (M)
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Contribution to the College Development (Nehru Memorial College (Autonomous) Govt. Aided Puthanampatti, Tiruchirappalli) [1983-2004]

- Joined in the collegiate service in 1983 and handled UG and PG classes for Physics students until Nov 2004. During this period (21 years), I had an opportunity to teach various topics in the branch of Physics and guided numerous projects to PG students.
- Contributed to elevate the Department of Physics of Nehru Memorial College (Autonomous) Puthanampatti, Tiruchirappalli as Research Department by obtaining research projects from UGC, CSIR and DRDO.
- Significantly contributed to get the autonomous status.

Contribution to the University Department [2004-Till date]

- The Department of Physics, Periyar University was established only in Dec 2004 with seven faculty members and I am the founder Professor and Head.
- Honestly speaking we started the Department of Physics, Periyar University from the scratch.
- Designed the curriculum for P.G and M.Phil courses.
- Established the well-equipped laboratories for P.G practicals.
- Established a computer center with all necessary softwares for Research Scholars.
- Motivated the faculty members to apply for projects.

- During the short span of 10 years more than 30 research projects obtained by the Department to the tune of Rs. 5.0 Crores.
- During the last 10 years the Department mobilized funds to tune of Rs. 7.5 Crores from funding agencies under various schemes.
- NAAC visiting committee has given more grade points to the Department of Physics and appreciated the Department publications, research and academic endeavours.
- Ours is the First DST-FIST sponsored Department.
- Ours is the UGC Non-SAP sponsored Department.
- **Recently T.N Govt recognized our Departmental research contributions and sanctioned Rs 2.5 Crores to establish a high tech research center with sophisticated instrumentation facilities wide G.O.(MS) No 80 dated 25.05.2012**
- Defended the proposal of the Department of Physics for Skill oriented programme under TANII (TamilNadu Innovation Initiatives).
- Motivated the students and research scholars to apply /obtain the fellowships/scholarships.
- Motivated many Postgraduate students to undergo summer training/refresher courses conducted in many established National Institutes and Universities.

Placement of students

Out of my sincere efforts the students (Alumini) of our department are well placed in prestigious institutes. Some of them are listed below

- Dr. M. Navaneetham, Post-Doctoral Fellow, Shizuoka University, Japan.
- Dr. L. Guruprasad, Indo Finnish Fellow, Tampere University of Technology, Tampere Finland.
- Dr. M. Rajaboopathy, Post Doctoral Fellow, Lappeenranta University of Technology, Finland.
- Dr. P. Kanchana, Research Associate (CSIR), Alagappa University, Karaikudi.
- Mr. M. Shivakumar, Research Scholar, National Taiwan University, Taiwan.

- Dr. N. Prabhavathy, Head, Department of Physics, Sri Sarada College for Women (Autonomous), Salem.
- Dr. N. Surumbarkuzhali, Assistant Professor, Government Arts College (Autonomous), Salem.
- Dr. R. Parimaladevi, Assistant Professor, Mother Teresa Women's University, Kodaikanal.
- Major. Dr. R. Rengaiyan, Associate Professor, Kanchi Mamunivar PG Center, Pondicherry University, Pondicherry
- Dr. P. Selvaraj, Head, Department of Physics, Kandasamy Kenders College, Velur.

Head i/c Department of Energy Studies

- The Department of Energy Studies offering M.Sc (Energy studies) from this academic year.
- Framed the curriculum for M.Sc (Energy studies).
- Established the lab for M.Sc (Energy studies).
- Proposals submitted to the Tamilnadu government and Central government for grants to establish solar power plants in the Department of Energy Studies

Contribution to the University

- Preparation of UGC X, XI Plan Proposals
- Convener of the NAAC Proposal preparation committee (Self Study Report)
- As a Coordinator of Planning and Development cell of Periyar University the following activities are coordinated :
 - UGC plan proposals and merged schemes
 - Sponsored projects from the funding agencies for various Departments
 - Distribution and utilization of grants
 - Preparation of building proposals to the building committee and to funding agencies
 - Stipend for research scholars working in the projects

- DST-FIST, UGC Non-SAP, UGC-SAP grants to the Departments
- As a Member Secretary, Internal Quality Assurance Cell (IQAC) of Periyar University the followings activities have been initiated :
 - Workshops were organized for the young faculty members about project proposals writing and funding agencies
 - Professional Development Motivation programmes were organized
 - Preparation of Annual Quality Assurance Report to NAAC/UGC.
- Students awareness programs were conducted
- Represented the Syndicate , Senate and SCAA
- Served as a member in various Syndicate sub-committees
- As Dean, School of Sciences coordinating with science departments for promoting academic and research activities.

Administrative Experience:

S No	Designation & Office address	Period	
		From	To
1	Vice-Chancellor In-Charge Periyar University, Salem	09.06.2007	19.07.2007
		12.06.2009	19.06.2009
		18.07.2010	07.09.2010
2	Registrar In-Charge Periyar University, Salem	04.03.2008	22.07.2008
		23.03.2016	23.03.2016
		19.05.2016	19.05.2016
		23.05.2016	09.06.2016
		30.08.2016	30.08.2016
3	Finance Officer i/c Periyar University, Salem	19.05.2016	19.05.2016
		23.05.2016	09.06.2016
4	Head of the Department of Physics, Head i/c of the Department of Energy studies	01.12.2004	Till date
		12.02.2015	
5	Member of the Syndicate	21.07.2007	21.07.2011
6	Member of the Senate	2005	Till date
7	Member of the Standing Committee on Academic Affairs (SCAA)	2005	Till date
8	Coordinator, Planning & Development cell	01.10.2010	27.06.2012
9	Member Secretary, Internal Quality Assurance Cell- IQAC and NAAC Coordinator	31.05.2010	27.06.2012
10	Chairman, Board of Research Studies - Physics	25.07.2012	Till date
11	Chairman, Board of Studies - M.Sc Energy Studies	12.02.2015	Till date
12	Dean, School of Sciences	02.01.2015	Till date
12	Dean i/c, College Development Council	03.12.2015	Till date

**Activities Carried out
(Annexure – I)**

Annexure – I

Laboratories Established

Post Graduate level

The Postgraduate laboratories of Department of Physics in Periyar University were established after I joined as Professor and Head. Innovative experiments are introduced and hands on training is given to the P.G students

- ❖ Geiger Muller Counter, Lasers (He-Ne, Ar⁺), G.P Thompson setup
- ❖ Fiber optical setup for nonlinear optical experiments.
- ❖ Hall effect (4 probe method), Ultrasonic interferometer with R.F oscillator
- ❖ Michelson interferometer with Laser source, Guoy's apparatus
- ❖ Zeeman effect setup, Microprocessor and Microcontroller based experiments, Solar studies apparatuses
- ❖ Colour Television demonstrator, Computer assembling and trouble shooter

Research laboratories

Faculty members of our Department are given individual research laboratory to carryout quality research and I coordinated with them to provide all the basic amenities (purified water supply, 3 phase electrical connections, UPS, chillers, internet, etc...) required for their laboratory.

With due consultation and discussions with eminent Professors from Institutes of excellence and other Universities, I have established the following research laboratories for the benefit of research scholars and members of the faculty.

(i)Material synthesis laboratory

In order to fabricate good quality materials (single crystals, poly crystals, thin films) materials synthesis laboratory was established with the following facilities

- Multi-zone furnace with nitrogen plugging, Muffle furnaces
- Tubular furnaces, Spin coater, Czochralski crystal growth unit
- Vertical Bridgeman Setup for melt growth

(ii) Biomaterials laboratory

Faculties included for synthesis of biomaterials are

- Distillation Unit, Lyophiliser, Vertical deep freezer, Laminar flow, immiscible stirrer, Deep freezer, Incubator, Hot air oven, Millipore water system

(iii) Laser laboratory

He-Ne, Ar ion and Nd:YAG lasers and optical bench with fibers of different parameters are available for the PG students and research scholars.

(iv) Major facility for analytical studies

By way of obtaining grants from UGC, DST, DRDO and CSIR projects and from DST-FIST, UGC-SAP programmes a major facility for analytical studies are created by my efforts. Some of the analytical instruments available with us are

- Photoluminescence Spectrometer (PerkinElmer)
- UV-VIS spectrophotometer (PerkinElmer)
- IR spectrometer Spectrum RX1 (PerkinElmer)
- Powder X-ray Diffractometer (Rigaku)
- Pulse Echo Ultrasonic interferometer, spin coater, Centrifuge
- Optical microscope with computer interface
- FT-IR spectrometer – Tensor 27 (Brucker)
- Phase Sensitive Multimeter interfaced with Impedance Analyser for electrical studies
- Vickers Hardness tester – Mechanical studies
- Vertical Bridgmann set up for synthesizing Rare earth doped materials.
- Czochralski set up for single Crystal growth.

(v) Computer Center

- A computing facility with 30 terminals is established with sophisticated scientific software's and graphical packages connected by LAN with 24 hrs BSNL 10 Mbps internet connectivity apart from centralized 1 Gbps connectivity from the administration.

Center for Nano Science and Nano technology

Government of Tamilnadu has sanctioned Rs. 1.0 crore for the establishment of a center for Nano Science and Technology in Department of Physics, based on the proposal submitted by our group. Dr A.P.J Abdul Kalam inaugurated the center and I am coordinating with the team and overseeing the activities. We have also planned to establish a sophisticated laboratory for nano materials synthesis and characterizations and this will be useful to the other Science Departments and Colleges.

Solar lamps in the campus

Cost effective solar lamps were installed in our University campus by the efforts taken by our group and I played a vital role in putting these lamps in the hostels, Departments and University campus. Now I am coordinating with the University for implementing a project to use the solar panels for hostels (Men's and Women's) and Guest house of our University.

Member Secretary - Internal Quality Assurance Cell (IQAC)

Being the member secretary of this body I arranged awareness programmes to our faculty members in accordance with UGC and NAAC guidelines for the quality enhancement. AQAR reports were prepared by obtaining informations from all stake holders for the last five years and submitted to NAAC.

NAAC Coordinator:

Coordinated with NAAC Peer team and cleared the various questions raised by the committee. Played a key role to get 'A' Grade to Periyar University.

Planning and Development Cell Coordinator:

I have given the additional charge to coordinate Planning and Development cell of our University. After assuming this responsibility I ensured the payment of stipend to the research scholars working in various projects/scholars on the first day of every month.

Arranged a workshop to young faculty members of the Science and Arts Departments for project proposal writing and motivated them to submit proposals. Nearly 30 proposals were sent to various funding agencies by my efforts. UGC XI plan period grants allotted under the merged scheme is also monitored by Planning and Development cell and I am overseeing these activities.

New building proposals for Science block III & IV, second floor to Boy's and Girl's hostel were prepared by the Planning and Development cell under my supervision and UGC has approved Science block III and second floor in hostels and released grants in July 2011.

Dean School of Sciences

- ❖ As a Dean, School of Sciences I am coordinating with various Schools of Physics Sciences, Biosciences, Mathematics and Life Sciences for accelerating the academic and research activities.
- ❖ Organizing programmes for Project Writing Skills and Funding Agencies for the young faculty and research scholars.
- ❖ Preparing the project proposals to the State and Central funding agencies under various schemes

Vision

Introduction

Higher education plays a vital role in the overall development and growth of a country. It imparts in-depth knowledge and underlying so as to expose the students to new frontiers of knowledge in different walks of life. Delegation of certain administrative responsibilities to Heads of the Department, Deans and Registrar may be a better solution to Vice chancellors to concentrate on the overall Development of University and colleges. Academic excellence will be achieved by giving enough support and academic freedom to teachers.

Funding Agencies

Faculty members will be motivated to apply for more projects and special schemes to the funding agencies and thereby funds will be generated for research and development activities

Social Oriented programmes

Institute for Entrepreneurship and Career development - a community college of excellence will be made effective functional with financial assistance from the state and central Governments for the benefit of schools and colleges dropouts, self help groups (SHG), differently abled persons. This institute will also look after the placement of University and College students. University-Industry collaborative programmes will be launched in order to disseminate research findings. This endeavour will certainly make the university systems more useful to the society and to the poor sections of the society. The various skill based Certificate, Diploma, Postgraduate Diploma and B.Voc programmes will be offered in this Institute in tune with NSDC (National Skill Developed Corporation) Curriculum.

Research and Development

Science and Technology is tremendously advancing with the advent of sophisticated analytical instruments and user friendly software packages. As the country is gearing up for the new initiatives and plans more programmes are going to be announced by the Department of Science and Technology (DST),

Department of Biotechnology (DBT), Council of Scientific and Industrial Research (CSIR), Indian National Science Academy (INSA) etc.

In order to ensure optimum utilisation of resources in the Science departments, intra-departments and inter-university programmes/research activities will be planned and implemented which is a long time objective of MHRD. To achieve this, the Departments of similar interests will be clustered and advised to offer joint programmes.

To promote the R&D activities of the Science Departments, proper coordination committees will be constituted with senior faculties and motivated research groups to submit proposals to the various funding agencies to develop the infrastructure of the research laboratories in order to carry out Hi-Tech research

Attempts will be made to obtain the following prestigious programmes to the various Science Departments

- (i) Funds for improvement of Science and Technology infrastructure in Universities and higher educational institution (FIST-DST)
- (ii) Promotion of University Research and Scientific Excellence (PURSE-DST)
- (iii) Solar energy research initiatives in collaboration with energy development authorities of state and central governments
- (iv) Funds from Nano technology Mission (DST) to establish centre and to conduct courses
- (v) Proposals for Special Assistant Programme (SAP) and Center for Advanced Studies (CAS) status to the Department.

General Development

- The infrastructure facilities in hostels, staff quarters, library, students amenity centers etc will be improved by obtaining grants
- Centralized computer center for the students and research scholars will be established with 1 Gbps internet connectivity. Scientific and statistical software's will also be made available

- Centralized Instrumentation Facility will be created for Characterization of samples and maintenance of Equipment's.
- Distance Education programmes will be modernized and more attractive courses will be introduced
- Technological advances will be incorporated in the Distance education to offer online programmes.
- Periodical meetings of the coordinators of the study centers will be arranged to redress their complaints.

Grievances of teaching, non-teaching staff and students

- Grievances of the teaching and non-teaching staff will be addressed by patient listening and by giving speedy disposal.
- Utmost care will be given to the various issues pertaining to the boys and girls studying in the University Departments and affiliated colleges.

Affiliated Colleges and Constituent colleges

The issues related to affiliated colleges like introduction of new courses, framing syllabus, students intake, examinations related complaints will be addressed more democratically by constituting committees, consulting the statutory bodies and strictly following the University Act and UGC, T.N government guidelines. Funds will be raised from UGC to run the constituent colleges and to construct buildings so that University funds will be saved. Also, Members of the Parliament funds will be requested to provide amenities to the constituent colleges.

Examinations Reforms

The Management Information System is effectively applied in some central Universities and IIT's, NIT's. Using the internet and intranet facilities internal and practical marks will be uploaded by the respective colleges in the dedicated website to ensure transparency. Speeds publication of results will be ensured and the results will be send by sms to the students besides uploading in the website. Cooperation of all sections of staff will be ensured to speed up the central valuation and the student's interest will be protected. Supplementary examinations will be conducted immediately for the students failed in one or two

subjects in the final semester enable them to join higher studies in the same academic year. Certificates and provisional to the final year students will be issued within two week of the publication of results to enable them to join in other institutes for further studies and to go abroad.

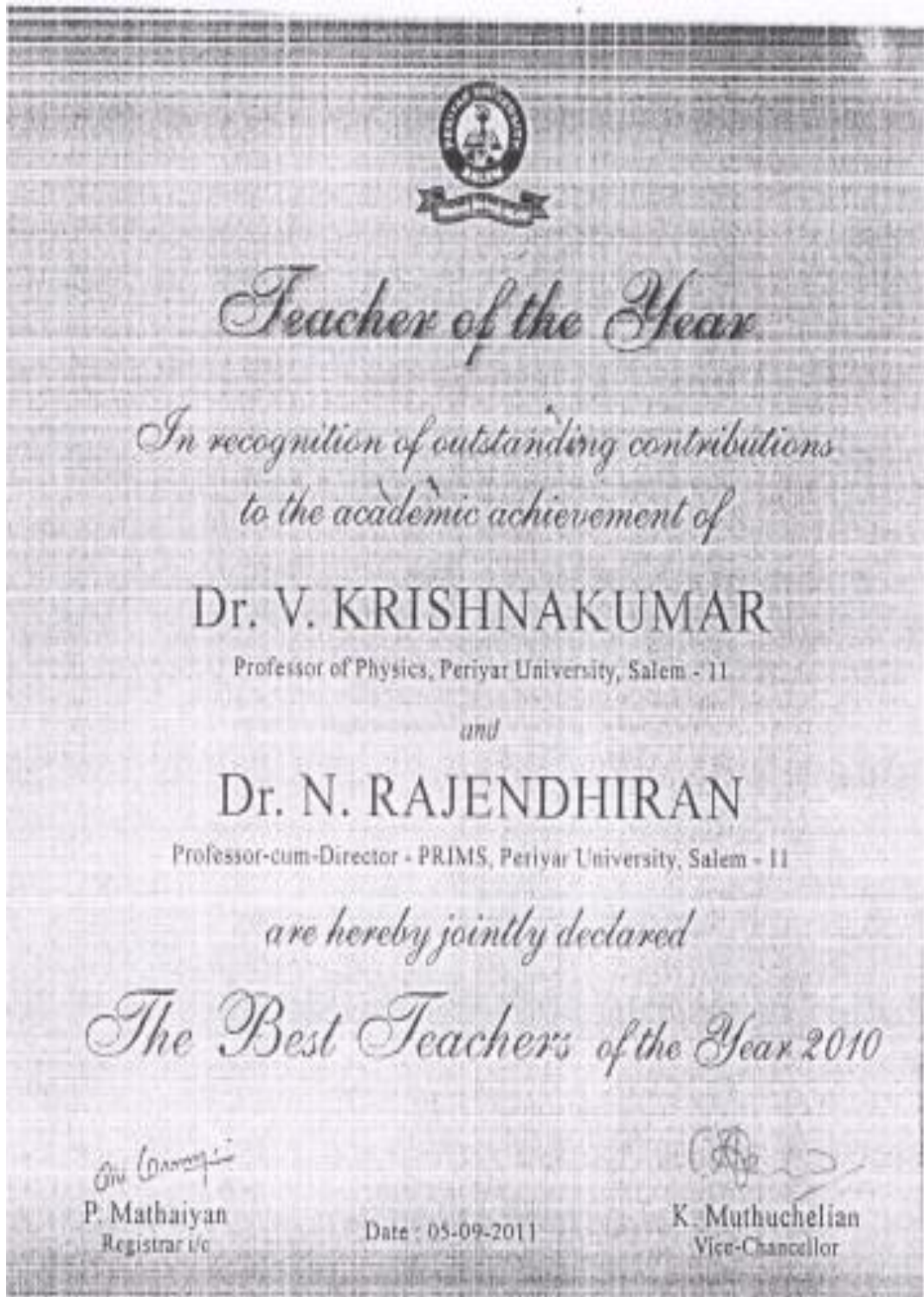
Conclusion

In a nutshell, honest, transparent and efficient administration will be ensured in the University system. Utmost care will be given in utilising the university funds to avoid wasteful expenditure.

Achievements of Academic, Research and overall developments of the University will be my prime endeavour and I am sure with the cooperation and support of Government of Tamilnadu this target will be realized.

Awards received

(a) Best Teacher of the year-2010



(b) Best Academic Researcher

RE: Letter of Intimation - ASDF & ICCA '12 Awards - Yahoo! Mail

<http://us.mc365.mail.yahoo.com/mc/showMessage?sMid=36&fid=%405...>

YAHOO! MAIL
Classic

RE: Letter of Intimation - ASDF & ICCA '12 Awards Saturday, January 14, 2012 6:51 AM

From: "Desikan, Srinivasan (Strategy Capability Mgmt - Testing)" <srinivasan.desikan@hp.com>

To: "Krishna Kumar" <vkrishna_kumar@yahoo.com>

Cc: "Krishna Kumar" <vkrishna_kumar@yahoo.com>

1 File (68KB)



KK_prof_n.j

Your photo during interview!

You are shortlisted and please visit Pondy and receive the award on 31st. Please reply to the email sent by ICCA.

From: ICCA '12 Administrator [<mailto:info@icca.org.in>]

Sent: Saturday, January 14, 2012 1:01 AM

To: Desikan, Srinivasan (Strategy Capability Mgmt - Testing)

Cc: Krishna Kumar

Subject: Letter of Intimation - ASDF & ICCA '12 Awards

Importance: High

Sensitivity: Confidential

Hi V. Krishna kumar,
Greetings!

With the trail of the nomination submission, document verification, individual ascertaining of the said documents and others, we would like to inform you that you are in the "Finalist" for the ASDF & ICCA '12 Awards. The final results will be informed on 31st January, 2012 at the dais.

You have been nominated for the Award of Best Academic Researcher and we are happy to inform you that you are in the top 3 nominations received. Standing ahead of others competing almost 900+ nominations is a proud thing which analyzes and broadcasts your efficiency and knowledge in midst of 900+ nominees. To state with only these 900+ nominees are proud and confident about their ability.

Almost most of the finalists have given their presence on 31st January, 2012 at Pondicherry by 12 noon for the press meet at The Board Room, Jipmer Auditorium, Pondicherry. Those who haven't kindly give the travel confirmation so that the necessary protocols will be arranged. You and your family are whole heartily welcomed by me on behalf of the entire group.

As you would be surely aware about the souvenir which is about to be brought by us as a part of this Awards, we request you to give a paragraph of 300 words which should briefly comprise of your name, present position, educational qualification and other such.

We would like to have the travel confirmation by 15th January, 2012 and the paragraph by 18th January, 2012. The awards ceremony will take place between 1700 and 2200 [IST].

--

Dr. A. Manikandan, B.E., MBA(IT-M), Ph.D., PDF

Convener – ICCA2012,

Chief Human Resources Officer,

Techno Forum Group, Pondicherry, India, Asia

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a.mani@icca.org.in || www.icca.org.in



Analytical Instruments in our laboratory Procured through projects and special schemes of funding agencies.



Powder X-ray Diffractometer



Phase Sensitive Multimeter interfaced with Impedance analyzer for studying the electrical properties solids and films (RT to 400°C)



UV-VIS-NIR spectrophotometer for studying the optical and electronic properties liquids, solids and films



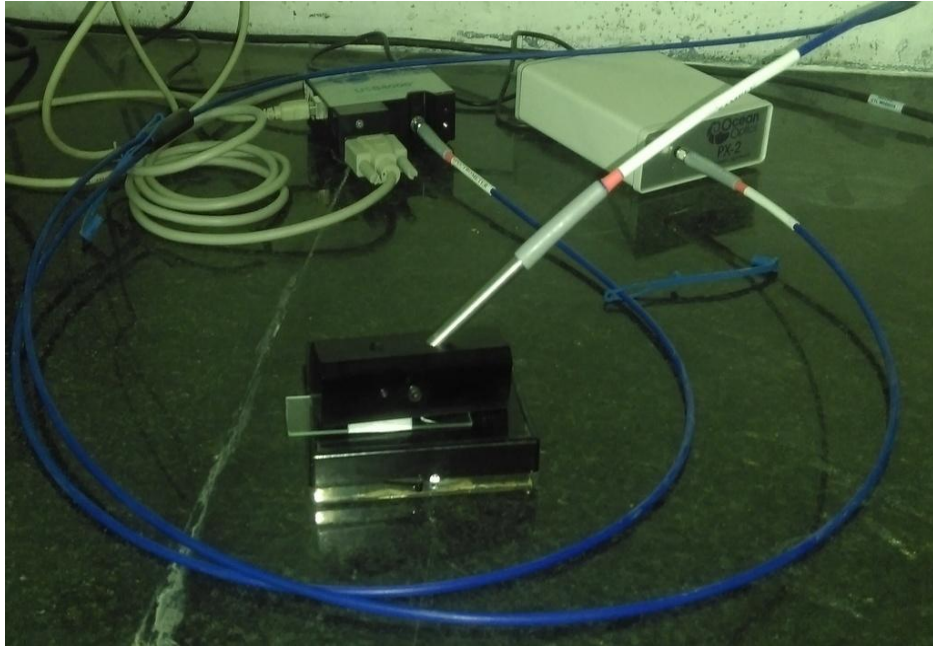
Bruker Tensor 27 FTIR Spectrometer



Photoluminescence spectrophotometer for studying Luminescence properties liquids, solids and films



Czochralski set up for metallic single crystal growth – Temp 1400°C



Spectrometer for studying optical properties of Solid and liquid materials



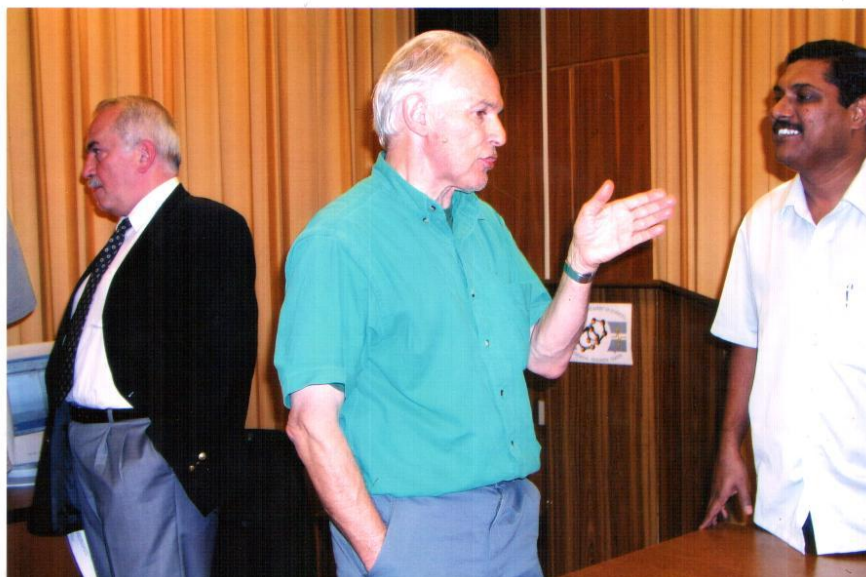
Vertical Bridgmann set up for single Crystal growth – Temp 1400°C



Apparatus to study Zeeman Effect



Other minor equipments



Discussion with Nobel laureate Prof. Harry Kroto (The 1996 Nobel Prize for Chemistry, Fullerene – C₆₀ Molecule) during the visit to his laboratory



National seminar on Recent Trends in Vibrational Spectroscopy, July, 1999



National conference on Recent Advances in Materials Science, Dec 2002



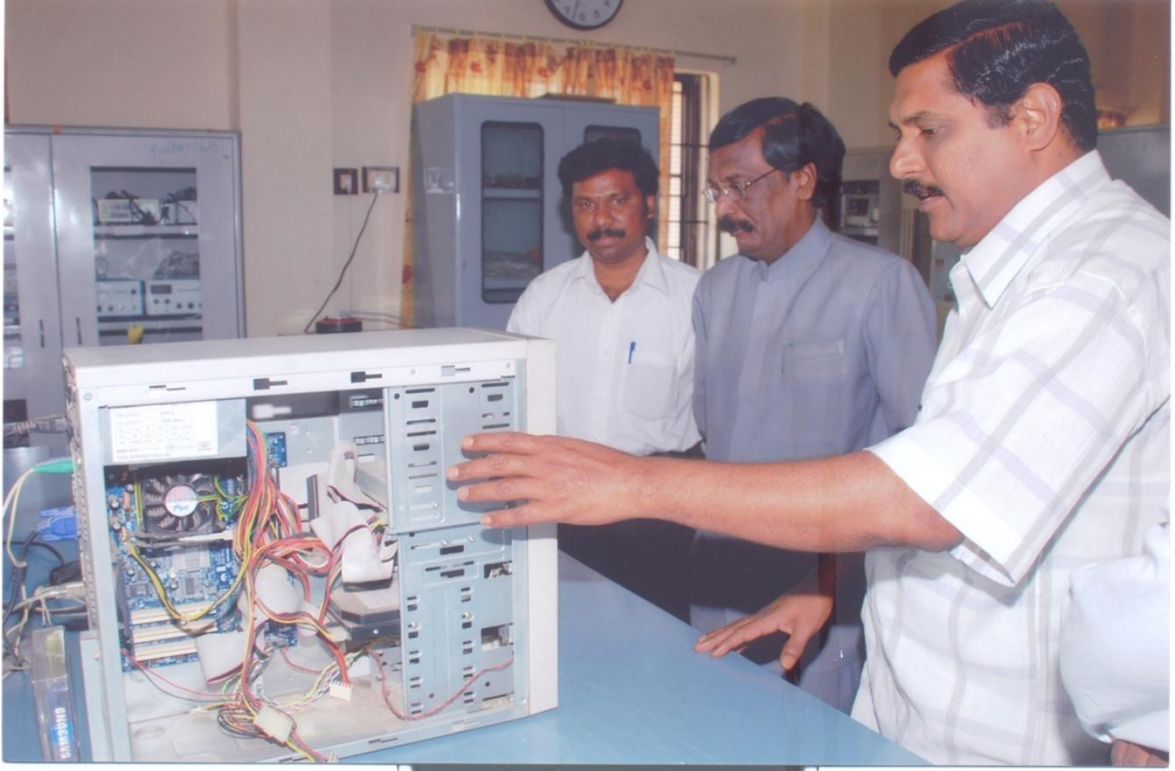
Workshop on Recent Trends in Physical Sciences Research, Aug, 2005



Workshop on Recent Trends in Physical Sciences Research, Aug, 2005



National Conference on Recent Advances in Materials Science, Feb, 2006



Workshop-2007 for M.Sc Physics students



**Visiting Scientist under DST Indo-Swiss Joint Research Program,
University of Geneva, Switzerland-2010**



**Collaboration with Prof. Takayoshi Kobayashi, Professor & Director,
Advanced Ultrafast Laser Research Center, University of Electro
Communications, Tokyo, Japan 2012 under INSA-JSPS International
Bilateral Exchange Programme**



**Workshop on Project writing skill and Funding Agencies
&
Research Fellowships and Post Doc Positions - 2015**

THE HINDU

Online edition of India's National Newspaper
Monday, Aug 10, 2009

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Education Plus



CAMPUS CONNECT



V. Krishnakumar, Head, Department of Physics, Periyar University, Salem, addressing the inaugural function of the Physics Association at National College in Tiruchi.

V. Krishnakumar, Head, Department of Physics, Periyar University, Salem, inaugurated the activities of the Physics Association of National College recently with a lecture on 'Tera Hertz Spectroscopy'.

Elaborating on its applications, he termed the topic an emerging field for testing and drawing inferences for specimens. Principal K. Anbarasu presided.

Earlier, M. Narasimhan, Assistant General Manager, State Bank of India, Tiruchi, inaugurated the Commerce Association. Tracing the growth of SBI, he provided an insight into the ample employment opportunities in the banking sector.

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Lectures/talks delivered in various institutions



Award and Citation given by Dr.A. P. J Abdul Kalam, Former President of India for the Best Academic and Research performance for the last 5 years.



Department of Physics, Center for Excellence-Hi Tech Research Laboratory inaugurated by Dr. A. P. J Abdul Kalam, Former President of India.