

Abstract

Name : Dr. J. Kalyana Sundar

Designation : Assistant Professor
Department of Physics
Periyar University
Salem-636 011
TamilNadu, India

E-mail : jksundar50@gmail.com

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

Experience : Research: 6 Years; Teaching: 2 Years

Post Doctoral experience : One Year at IISc, Bangalore, India

Areas of research : X-ray Crystallography, Crystal growth and
Characterization, Material Science &
Biophysics

Fellowship Awarded : DBT-IISc Research Associateship,
UGC-RFSMS Award & GATE-2008

Research Projects : Ongoing : One UGC Project- 6 Lakhs

Papers Published : National: 3 ; International: 20

Collaboration : International : 4 ; National: 8

Seminars/Conferences : Organized: 1 ; Attended:9

Membership in Professional Bodies : Life Member- Indian Crystallographic
Association (ICA)

Administrative Experience : Entrance Exam Coordinator, Admission
In-charge for M.Sc. and M.Phil., Courses
Coordinator for I M.Sc., Parent Teacher
Coordinator, Member of Inspection
Committee to Affiliated colleges

BIODATA

Name : **Dr. J. Kalyana Sundar** M.Sc., M.Phil., Ph.D.

Designation : Assistant Professor

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Research Interests

- Crystal structure determination of small and macro molecules relevant to the emerging and exciting field of crystal engineering
- Crystallization of plant protein and its structure determination
- Cloning, purification and crystallization of macromolecules
- Docking studies of drugs
- Growth and characterization of application oriented organic and inorganic materials
- Crystal growth of biologically important compounds using gel technique
- Development of new setup for the growth of bulk size crystals

Academic Qualifications

Post Doctorate : Biophysics: Worked with Prof. M. Vijayan, Molecular Biophysics Unit, Indian Institute of Science (IISc), Bangalore, India

Ph.D. : Physics: X-ray Crystallography, Madurai Kamaraj University, Madurai, TamilNadu, India

M.Phil. : Physics, Madurai Kamaraj University, Madurai, TamilNadu, India

M.Sc. : Physics, Manonmaniam Sundaranar University, Tirunelveli, TamilNadu, India

Teaching Experience

- Worked as Guest lecturer in School of Physics, Madurai Kamaraj University, Madurai: Aug. 2008-Oct.2008
- Assistant Professor in Sethu Institute of Technology, Kariapatti: Aug .2011-Dec.2011
- Assistant Professor in S.Vellaichamy Nadar College, Nagamalai, Madurai: March-Aug.2013

Research Experience

- Experience in solving complex crystal structures using single crystal X-ray diffraction techniques.
- X-ray intensity data collection and manipulation in different diffractometers
- Crystal growth of organic, semi organic compounds in bulk size
- Optical, electrical and thermal studies of crystals
- Macromolecule crystallization and structure solving

Fellowship and honors

- DBT-IISc Research Associateship: Jan-Dec, 2012
- UGC- Research Fellowship in Sciences for Meritorious Students: April, 2009 – July, 2011
- Project Fellow in DST-FIST programme during Nov. 2008-Apr, 2009
- Graduate Aptitude Test in Engineering (India), GATE-2008 with score of 269 and the all India Rank is 1474 (74.46 %)

Professional Training

- ❖ Undergone Orientation Course conducted by UGC-Academic Staff College, University of Madras, Chennai (20th May-16th June, 2014)
- ❖ National workshop on Theory and Practice of X-ray Diffraction Techniques (TPXRDT- 2009), held at Alagappa University, Karaikudi (13-17 July,2009)

Membership in Professional body

Life Member- Indian Crystallographic Association (ICA)

On going Research Project:

UGC sponsored project entitled “Synthesis, bulk size growth and characterization of Glycine based metal nitrates and sulphates”. 6 Lakhs (2014-2016).

Publications:

More than 20 research articles were published in reputed National and International Journals, which are deals with new crystal structures, bulk size crystal growth and novel NLO materials. Especially, the Simultaneous growth of several materials using a single experimental setup was developed by our group and the experimental setup in named as **MKN setup** (In which K stands for my name Kalyana Sundar). This novel experimental setup is made economically cheapest and very useful to grow bulk size materials with fast growth rate.

1. Synthesis and crystal structure of (4E)-4-(2-carbamothioylhydrazinylidene)-4-phenylbutanoic acid, **J. Kalyana Sundar**, S. Sivakumar, S. Sivakolunthu and S. Natarajan, Sacred Heart Journal of Science and Humanities, Vol.4(July-Dec):96-103(2013)
2. Synthesis and structural characterization of a calcium coordination polymer based on a μ_3 -bridging tetradentate binding mode of glycine: Subramanian Natarajan, Bikshandarkoil R. Srinivasan, **J. Kalyana Sundar**, K. Ravikumar, R. V. Krishnakumar and J. Suresh, Journal of Chemical Sciences, 124 (Number 4(781-790), 1-10 (2012).
3. Structural, vibrational and thermal studies of a new nonlinear optical material: L-Asparagine-L-tartaric acid, K. Moovendaran, Bikshandarkoil R. Srinivasan, **J. Kalyana Sundar**, S.A. Martin Britto Dhas, S. Natarajan, Spectrochimica Acta Part A 92, 388-391 (2012).
4. Crystal structure of L-Histidinium 2-Nitrobenzoate, S. Natarajan, K. Moovendaran, **J. Kalyana Sundar**, K. Ravikumar, J. Amino acids, Article ID 463183:1-6. doi:10.1155/2012/463183 (2012).

5. Synthesis and structural characterization of bis(μ 2-aqua)tetrakis(aqua)dilithium(I) bis(4-nitrobenzoate): Bikshandarkoil R. Srinivasan, Santosh Y. Shetgaonkar, Kiran T. Dhavskar, **J. Kalyana Sundar** and Subramanian Natarajan, Indian Journal of Chemistry , 51 A, 564-570 (2012).
6. Simultaneous growth of several materials using a single experimental setup, K. Moovendaran, **J. Kalyana Sundar**, S. Natarajan, J. Crystal Growth, 334,1-3 (2011)
7. Influence of picric acid on the SHG efficiency of L- Prolinium tartrate crystals: S. Natarajan, K. Moovendaran, **J. Kalyana Sundar**, G. Bhagavannarayana and S. A. Martin Britto Dhas, Journal of Minerals & Materials Characterization Engineering, 10, 913-921 (2011).
8. Crystal Growth, Thermal, Mechanical and Optical Properties of a New Organic Nonlinear Optical Material : Ethyl P-Dimethylamino benzoate (EDMAB): V. Natarajan, **J. Kalyana Sundar**, P. Selvarajan, M. Arivanandhan, K.Sankaranarayanan, S. Natarajan and Y. Hayakawa, Journal of Minerals & Material Characterization & Engineering, 10, 1-11 (2011).
9. Studies on growth, crystal structure and characterization of novel organic nicotinium trifluoroacetate single crystals : Dhanaraj, N.P. Rajesh, **J. Kalyana Sundar**, S. Natarajan and Vinitha, Materials Chemistry and Physics, 129, 457-463 (2011).
10. Synthesis, growth, crystal structure and characterization of a new organic material: Glycine glutaric acid: B. Riscob, Mohd. Shakir, **J. Kalyana Sundar**, S. Natarajan, M. A. Wahab and G. Bhagavannarayana, Spectrochimica Acta Part A, 78, 543–548 (2011).
11. Synthesis and crystal structures of 5'-phenylspiro[indoline-3,2'-pyrrolidin]-2 one derivatives : **J. Kalyana Sundar**, S. Michael Rajesh, J. Sivamani, S. Perumal and S. Natarajan, Chemistry Central Journal,5(1),1-5, (2011).
12. Synthesis and characterization of a new strontium(II) coordination polymer based on a μ 2 –tridentate bridging zwitterionic glycine, S. Natarajan, **J. Kalyana Sundar**, S. Athimoolam and Bikshandarkoil R. Srinivasan, J. Coord. Chem., 64, 2274-2283 (2011).
13. Spectral analysis and crystal structures of 4-(4-methylphenyl)-6-phenyl-2,3,3a,4-tetrahydro-1H-pyrido [3,2,1-jk] carbazole and 4-(4-methoxyphenyl)-6-phenyl-2,3,3a,4-tetrahydro-1H-pyrido[3,2,1-jk] carbazole : **J. Kalyana Sundar**, S. Natarajan, S. Chitra, Nidhin Paul, P. Manisankar, S. Muthusubramanian and J. Suresh, ISRN Organic Chemistry, Article ID 541082, 1-7, DOI:10.5402/2011/541082 (2011).

14. 5''-(4-chlorobenzylidene)-4''-(4-chlorophenyl)-5-fluoro-1' 1''- dimethylindoline-3-spiro-2'-pyrrolidine-3'-spiro-3''-piperidine-2,4''-dione: **J. Kalyana Sundar**, B. Devi Bala, S. Natarajan, J. Suresh and P. L. Nilantha Lakshman, *Acta Cryst.*, E66, o801-o802 (2011).
15. (E)-1,1,4,4-tetraphenylbut-2-yne-1,4-diol, **J. Kalyana Sundar**, K. Mohan Kumar, V. Vijayakumar, J. Suresh, S. Natarajan and P. L. Nilantha Lakshman, *Acta Cryst.*, E66, o679-o680 (2011).
16. 1,1'-[4- (2,4- dichlorophenyl)- 2,6-di-methyl -1,4- dihydropyridine -3,5- diyl] diethanone : **J. Kalyana Sundar**, B. Palakshi Reddy, V. VijayaKumar, S. Natarajan, J. Suresh and P. L. Nilantha Lakshman, *Acta Cryst.*, E67, o380-o381 (2011).
17. Structural, spectroscopic and nonlinear optical studies on a new efficient organic donor-acceptor crystal for second harmonic generation : 1-Threoninium picrate : S. Natarajan, M. Umamaheswaran, **J. Kalyana Sundar**, J. Suresh and S. A. Martin Britto Dhas, *Spectrochimica Acta Part A*, 77, 160-163 (2010).
18. Rac -2- Hydroxy -2- (2-oxocyclopentyl) -1H - indene-1,3(2H)-dione : **J. Kalyana Sundar**, S. Maharani, R. Ranjith Kumar, S. Natarajan, J. Suresh and P. L. Nilantha Lakshman, *Acta Cryst.*, E66, o2967-o2968 (2010).
19. L-Asparagine-L-tartaric acid (1/1): S. Natarajan, V. Hema, **J. Kalyana Sundar**, J. Suresh and P. L. Nilantha Lakshman, *Acta Cryst.*, E66, o2239-o2240 (2010).
20. Ethyl 4-(dimethylamino) benzoate: **J. Kalyana Sundar**, V. Natarajan, M. Arivanandhan, Y. Hayakawa and S. Natarajan, *Acta Cryst.*, E66, o355-o356 (2010).
21. 3-Acetyl-6-chloro-4phenylquinolin- 2(1H)-one: **J. Kalyana Sundar**, S. Natarajan, S. Sarveswari, V. Vijayakumar and P. L. Nilantha Lakshman, *Acta Cryst.*, E66, o228-o229 (2010).
22. Methyl 6-chloro-2-methyl-4-phenyl-quinoline-3-carboxylate: **J. Kalyana Sundar**, S. Natarajan, S. Sarveswari, V. Vijayakumar, J. Suresh and P. L. Nilantha Lakshman, *Acta Cryst.*, E66, o169-o170 (2010).
23. Glycinium hydrogen fumarate glycine solvate monohydrate, S. Natarajan, **J. Kalyanasundar**, J. Suresh, S. A. Martin Britto Dhas and P. L. Nilantha Lakshman, *Acta Cryst.*, E65, o462-o463 (2009).

Paper Presented in Conferences

- [1] Structural, vibrational and thermal studies of a new nonlinear optical material: L-Asparagine-L-tartaric acid: K. Moovendaran, Bikshandarkoil R. Srinivasan, **J. Kalyana Sundar**, S.A. Martin Britto Dhas, S. Natarajan, National seminar on Advanced materials : Processing and applications(NSAMPA-2012), Bharathiar University, Coimbatore, March.29-30, 2012.
- [2] Crystal structure of (4E)-4-(2-carbamothioylhydrazinylidene)-4-phenylbutanoic acid: **J. Kalyana Sundar**, S. Sivakumar, S. Sivakolunthu and S. Natarajan, 40th National Seminar on Crystallography Osmania University, Hyderabad, Nov. 26 to 28, 2011.
- [3] Crystal structure of 1-(4-chlorophenyl)-2-(piperidin-1-yl)-2-thioxoethanone: **J. Kalyana Sundar**, Nidhin Paul, S. Muthusubramanian and S. Natarajan, 40th National Seminar on Crystallography Osmania University, Hyderabad, Nov. 26 to 28, 2011.
- [4] 40th NSC 2011, organized by the Department of Physics, Crystal structure of L-Histidine 2-Nitrobenzoic acid: K.Moovendaran, **J. Kalyana Sundar** and S. Natarajan, 40th National Seminar on Crystallography Osmania University, Hyderabad, Nov. 26 to 28, 2011.
- [5] L-Asparagine-L-tartaric acid: S. Natarajan, V. Hema, **J. Kalyana Sundar** and J. Suresh, 39th National Seminar on Crystallography, University of Jammu, Oct.25-27, 2010
- [6] Crystal Structures of 4-(4-Methylphenyl)-6-Phenyl-2,3,3a,4-Tetrahydro-1H-Pyrido [3,2,1-jk]Carbazole and 4-(4-Methoxyphenyl)-6-Phenyl-2,3,3a,4-Tetrahydro-1H-Pyrido[3,2,1-jk]Carbazole : **J. Kalyan Sundar**, S. Natarajan, S. Chitra, Nidhin Paul, P. Manisankar, S. Muthusubramanian and J. Suresh, 39th National Seminar on Crystallography, University of Jammu, Oct.25-27, 2010
- [7] Crystal structure of 4-(4-Ethyl 2-methyl-5-oxo-4-(3,4,5-trimethoxyphenyl)-1,4,5,6,7,8 hexahydroquinoline-3-carboxylate: S. Natarajan, P. Indumathi, **J. Kalyana Sundar**, B. Palakshi Reddy, Vijaya kumar and J. Suresh, 39th National Seminar on Crystallography, University of Jammu, Oct.,25-27, 2010
- [8] Crystal structures of 4'-Nitro-3',5' diphenylspiro[indoline-3,2'-pyrrolidin]-2-one and 3'-(4-methoxyphenyl)- 4'-Nitro -5'-phenylspiro[indoline-3,2'-pyrrolidin]-2-one: **J. Kalyana Sundar**, S. Michael Rajesh, S. Perumal, J. Suresh and S. Natarajan, 39th National Seminar on Crystallography, University of Jammu, Oct.,25-27, 2010

- [9] Crystal Structure of glycine glycinium fumarate monohydrate: **J. Kalyana Sundar**, S. Natarajan, S. A. Martin Britto Dhas and J. Suresh, 38th National Seminar on Crystallography, University of Mysore Feb., 11-13, 2009

Seminars/Workshops attended

- [1] UGC Sponsored National Seminar on Recent Advances in Materials Science (RAMS-2014), Department of Physics, Bharathidasan University, Tiruchirappalli – 620 024, February, 3-4, 2014
- [2] National seminar on Nanostructured Materials and Applications (NSNMA-2011), Department of Physical Chemistry, Madurai Kamaraj University, Madurai, March 04-05, 2011
- [3] Workshop on Recent Trends in Astrophysics, School of Physics, Madurai Kamaraj University, Madurai, January 28-29, 2010
- [4] National workshop and conference on Monte Carlo Simulation, School of Physics, Madurai Kamaraj University, Madurai, August 9-13, 2010
- [5] National workshop on Theory and Practice of X-ray Diffraction Techniques (TPXRDT- 2009), July 13-17, 2009
- [6] National Seminar on Advanced Material Science (NSAMS), Department of Physics, Manonmaniam Sundaranar University, Tirunelveli. 2007
- [7] Attended One day Seminar on Advances in Physics conducted by Department of Physics, Manonmaniam Sundaranar University, Tirunelveli, 2007
- [8] Won the first prize for the project **Automatic rain detector and shielding machine** in the competition held in G.V.N College, Kovilpatti. 2005

Conferences Organized

- ❖ National level Seminar on materials for Advanced Technology (SMAT-2014), held at Department of Physics, Periyar University, Salem-636 011, TamilNadu on 21st February 2014

Collaborators :

International

- ❖ Arivanandhan, Mukannan, Shizuoka University, Japan
- ❖ Hayakawa, Yasuhiro, Shizuoka University, Japan
- ❖ Rajesh, Stephen Michael, University of Wisconsin, USA

National

- ❖ Srinivasan, Bikshandarkoil R., Goa University, Goa
- ❖ Bhagavannarayana, Godavarthi, NPL, New Delhi
- ❖ Ravikumar, Krishnan R., IICT, Hyderabad
- ❖ Vijayakumar, V. , VIT, Vellore, TamilNadu
- ❖ Sarveswari, Sundaramoorthy, VIT, Vellore, TamilNadu
- ❖ Athimoolam, Shanmuganarayanan, Anna University, Nagercoil, TamilNadu
- ❖ Perumal, Subbu, Madurai Kamaraj University, Madurai, TamilNadu
- ❖ Rajesh, Narayana Perumal , SSN College of Engineering, Chennai, TamilNadu

Administrative Experience :

- Entrance Exam Coordinator for 2013-2014 and 2014-2015
- Admission In charge for M.Sc. 2013-2014
- Admission In charge for M.Sc. and M.Phil. 2014-2015
- Parent Teacher Coordinator, 2014-2015
- Member - Inspection Committee to Bharathiyar College of Arts and Science for Women, Deviakurichi
- Member - Inspection Committee member to Vivekananda College of Arts and Science for Women, Tiruchengodu.
- Strengthening and developing M.Sc. laboratory
- Courses Coordinator for I M.Sc. course

On Student Corner:

- M.Sc. Students project: Five
- M.Phil. Students project : Four
- Motivated students to attend Summer Training Program in Physics. Two students were participated in STIPP- 2014 held in University of Madras, Chennai.