

## CURRICULUM VITAE



*Dr. Litty Mathew Irimpan*

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### **Official Address:**

Assistant Professor in Physics,  
St. Mary's College,  
Thrissur-20, Kerala, INDIA.

**Phone** : +91-487-2330767

**E-mail**: [littyirimpan@yahoo.co.in](mailto:littyirimpan@yahoo.co.in), [lit.irimpan@gmail.com](mailto:lit.irimpan@gmail.com)

### **Residential Address:**

Chazhoor House, Olari  
P O Pullazhi-680012,  
Thrissur, Kerala, INDIA.

**Phone** : +91-487-2260882

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### **OBJECTIVE**

I have a special flair for teaching and would love to devote my time in teaching students at various levels. I aim at establishing a research career in the specialized fields of Nanophotonics, Laser Physics, nonlinear optics and other related areas.

### **PRESENT POSITION**

I joined as Assistant Professor in Physics at St. Mary's College, Thrissur on 8<sup>th</sup> July 2009. I submitted my Ph D Thesis on 30<sup>th</sup> June 2008, defended thesis on 23<sup>rd</sup> January 2009 and awarded Ph D on 2<sup>nd</sup> February 2009. The research work deals with investigations on the spectral and nonlinear optical (NLO) properties of ZnO nanocomposites under the guidance of Prof. P Radhakrishnan and Prof. V P N Nampoori at the International School of Photonics, Cochin University of Science & Technology, Kochi.

## ACADEMIC RECORD

### ❖ **Doctor of Philosophy (Ph D) (2004-2008)**

Specialisation: Nanophotonics  
Thesis title: Spectral and nonlinear optical characterization of ZnO nanocomposites  
Affiliation: Cochin University of Science and Technology, Cochin, Kerala, India

### ❖ **Bachelors Degree in Physical Science (B.Ed) (2001-2002)**

Performance: 65.2 %  
Affiliation: Jesus Training College, Mala, Calicut University, Kerala, India

### ❖ **Masters Degree in Physics (M.Sc) (1999-2001)**

Specialisation: Electronics  
Performance: 71.71 %  
Affiliation: St Xaviers college for women, Aluva, Mahatma Gandhi University, Kerala, India

### ❖ **Bachelors Degree in Physics (B.Sc) (1996-1999)**

Subjects Studied: Physics, Mathematics & Chemistry  
Performance: 87.7 %  
Affiliation: St Xaviers college for women, Aluva, Mahatma Gandhi University, Kerala, India

### ❖ **Pre-Degree (1994-1996)**

Subjects Studied: Physics, Chemistry, Biology & Mathematics(optional)  
Performance: 69.2 % & Mathematics - 60 %  
Affiliation: St Xaviers college for women, Aluva, Mahatma Gandhi University, Kerala, India

## ❖ **S S L C (1993-1994)**

Performance: 90.5 % (aggregate)

Affiliation: St. Joseph's Girls High School, Poovathussery,  
Ernakulam Dist., Kerala, India

### **RESEARCH INTERESTS**

- Nanophotonics
- Laser Physics
- Nonlinear Optics
- Photonic Materials
- Biophotonics

### **RESEARCH SKILLS**

- ◆ Experience in the growth and characterization of several types of nanoparticles, thin films as well as single crystals
- ◆ Experience in operating various laser systems (Nd: YAG, MOPO, Ar<sup>+</sup> ion, He-Ne, Diode etc.), Digital Multimeter, Digital Storage Oscilloscope, Lock in amplifier, UV-VIS-IR Spectrophotometer, Vacuum units, CCD camera, High Temperature Furnaces, Crystal growth units.
- ◆ Know-how about computer interfacing of various electronic gadgets
- ◆ Working knowledge in computer packages: Microsoft Office, LATEX, Origin, Adobe Photoshop, etc; Operating systems: DOS, Windows.

### **PROFESSIONAL RECOGNITION, FELLOWSHIPS / AWARDS**

- ◆ “*Leading Scientists of the world 2012*” award by International Biographical Centre, UK
- ◆ Best research paper award in 2011 by ISI Web of Knowledge

- ◆ Editorial Board member of The World Scientific Journal in the subject area of nanotechnology
- ◆ Reviewer to AIP, Elsevier, Springerlink Journals
- ◆ Qualified National Eligibility Test (UGC-JRF+NET)
- ◆ Qualified State Eligibility Test (SET)
- ◆ *Research Fellowship* of UGC (UGC-JRF, SRF)

## TEACHING EXPERIENCE

- Served as a Lecturer in Physics for Higher secondary students at Soccorso Convent Girls Higher Secondary School, Kottakkal, Mala, Thrissur, Kerala from (June 2002 - January 2003) and at Government Samithy Higher Secondary School, Meladoor, Mala, Thrissur, Kerala (from June 2003-january 2004)
- Engaged Five year Integrated M.Sc (Photonics)classes at International School of Photonics, CUSAT (January – March 2004)
- Guided a few postgraduate students in their project work during Ph.D tenure.
- Guided an M.Phil student towards her project work titled “Study of light scattering from random media” in March 2005 at ISP, CUSAT.

## MEMBERSHIPS

- ◆ Life Member, Indian Laser Association (ILA) – LM 677
- ◆ Life Member, Photonic Society of India (PSI) – LM 059
- ◆ Life Member, Plasma Science Society of India (PSSI) – LM 536

## PERSONAL PROFILE

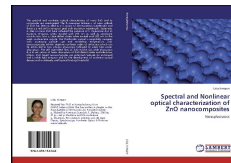
■ Date of birth                   :       23-09-1978  
 ■ Sex                                   :       Female

- Marital Status : Married  
 ■ Husband's Name : Er. Albino Chazhoor  
 ■ Nationality : Indian

## LIST OF PUBLICATIONS

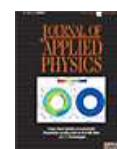
### Books:

- 1 **Litty Irimpan** “*Self Assembly in nanostructured ZnO*” Handbook of Functional Nanomaterials [Nova Science Publishers, Ltd. (New York – USA)] 2013 (in press)
- 2 **Litty Irimpan** “*Spectral and nonlinear optical characterization of nano ZnO*” *Encyclopedia of Semiconductor Nanotechnology* [American Scientific Publishers] 2010 (*in press*)
- 3 **Litty Irimpan**, V P N Nampoori and P Radhakrishnan; “*Spectral and nonlinear optical characterization of ZnO nanocomposites*” *LAP LAMBERT Academic Publishing GmbH & Co. KG, Germany*, ISBN No: 978-3-659-15434-8, June 2012.

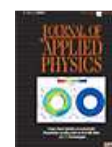
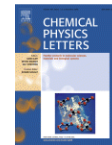
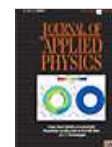
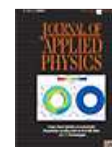
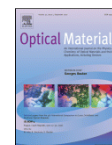


### Journals:

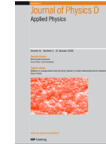
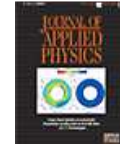
- 1 **Litty Irimpan**, V P N Nampoori and P Radhakrishnan; “*Optical engineering by the nanocomposites of ZnO-CdS/TiO<sub>2</sub>*” *Optical Engineering [SPIE]*, **50**(6), 069001 (2011)
- 2 **Litty Irimpan**, V P N Nampoori and P Radhakrishnan; “*Optical limiting in ZnO nanocomposites*” *Science of Advanced Materials [American Scientific Publishers]* **2**, 578–582 (2010)
- 3 **Litty Irimpan**, V P N Nampoori and P Radhakrishnan; “*Spectral and nonlinear optical characteristics of ZnO nanocomposites*” *Science of Advanced Materials [American Scientific Publishers]* **2**, 117-137 (2010)
- 4 **Litty Irimpan**, V P N Nampoori and P Radhakrishnan; “*Visible luminescence mechanism in nano ZnO under weak confinement regime*” *Journal of Applied Physics [American Institute of Physics]* **104**, 113112 (2008)



- 5 **Litty Irimpan**, V P N Nampoore and P Radhakrishnan; “*Enhanced luminescence and nonlinear optical properties of nanocomposites of ZnO-Cu*” Journal of Materials Research [Materials Research Society] **23** (11) 2836-2845 (2008)
- 6 **Litty Irimpan**, Bindu Krishnan, V P N Nampoore and P Radhakrishnan; “*Nonlinear optical characteristics of nanocomposites of ZnO-TiO<sub>2</sub>-SiO<sub>2</sub>*” Optical Materials [Elsevier] **31** [2], 361-365 (2008)
- 7 **Litty Irimpan**, Bindu Krishnan, V P N Nampoore and P Radhakrishnan; “*Linear and nonlinear optical characteristics of ZnO-SiO<sub>2</sub> nanocomposites*” Applied Optics [Optical Society of America] **47**, 4345-4351 (2008)
- 8 **Litty Irimpan**, D Ambika, V Kumar, V P N Nampoore and P Radhakrishnan; “*Effect of annealing on the spectral and nonlinear optical characteristics of thin films of nano ZnO*” Journal of Applied Physics [American Institute of Physics] **104**, 033118 (2008)
- 9 **Litty Irimpan**, Bindu Krishnan, V P N Nampoore and P Radhakrishnan; “*Luminescence tuning and enhanced nonlinear optical properties of nanocomposites of ZnO-TiO<sub>2</sub>*” Journal of Colloid and Interface Science [Elsevier] **324** (1-2), 99-104 (2008)
- 10 **Litty Irimpan**, V P N Nampoore and P Radhakrishnan; “*Spectral and nonlinear optical characteristics of nanocomposites of ZnO-CdS*” Journal of Applied Physics [American Institute of Physics] **103**, 094914 (2008)
- 11 **Litty Irimpan**, V P N Nampoore and P Radhakrishnan; “*Spectral and nonlinear optical characteristics of nanocomposites of ZnO-Ag*” Chemical Physics Letters [Elsevier] **455** (4-6), 265-269 (2008)
- 12 **Litty Irimpan**, A Deepthy, Bindu Krishnan, V P N Nampoore and P Radhakrishnan; “*Nonlinear optical characteristics of self assembled films of ZnO*” Applied Physics B: Lasers and Optics [Springer] **90** (3-4), 547-556 (2008)
- 13 **Litty Irimpan**, A Deepthy, Bindu Krishnan, L M Kukreja, V P N Nampoore and P Radhakrishnan; “*Effect of self assembly on the nonlinear optical characteristics of ZnO thin films*” Optics Communications [Elsevier] **281** (10), 2938-2943 (2008)
- 14 **Litty Irimpan**, Bindu Krishnan, A Deepthy, V P N Nampoore and P Radhakrishnan; “*Size dependent enhancement of nonlinear optical properties in nano colloids of ZnO*” Journal of Applied Physics [American Institute of Physics] **103**, 033105 (2008), Virtual Journal of Nanoscale Science & Technology, February 25 issue, 2008



- 15 **Litty Irimpan**, A Deepthy, Bindu Krishnan, V P N Nampoore and P Radhakrishnan, “*Size dependent fluorescence spectroscopy of nanocolloids of ZnO*” Journal of Applied Physics [American Institute of Physics] **102**, 063524 (2007)
- 16 **Litty Irimpan**, Bindu Krishnan, A Deepthy, V P N Nampoore and P Radhakrishnan; “*Excitation wavelength dependent fluorescence behaviour of nano colloids of ZnO*” Journal of Physics D: Applied Physics [Institute of Physics] **40**, 5670 (2007)
- 17 **Litty Irimpan**, V J Dann, Bindu Krishnan, A Deepthy, V P N Nampoore and P Radhakrishnan; “*Backscattering of laser light from colloidal silica*” Laser Physics [Springer] **18** (7), 882-885 (2008)
- 18 Bindu Krishnan, **Litty Irimpan**, V. P. N. Nampoore and V. Kumar; “*Synthesis and nonlinear optical studies of nano ZnO colloids*” Physica E: Low-dimensional Systems and Nanostructures [Elsevier] **40**, 2787-2790 (2008)
- 19 Annieta Philip K, Lyjo K. Joseph, **Litty M. Irimpan**, Bindu Krishnan, P. Radhakrishnan, V. P. N. Nampoore and Raghu Natarajan “*Thermal Characterization of Ceramic Tapes using Photoacoustic Effect*” Physica Status Solidi (a) [Wiley InterScience] **204** (3), 737 (2007)
- 20 Bindu Krishnan, A Deepthy, **Litty Irimpan**, V J Dann and V P N Nampoore; “*Back scattering from nano-sized ZnO colloids*” Physica E: Low-dimensional Systems and Nanostructures [Elsevier] **35**, 23-26 (2006)
- 21 Annieta Philip K, Lyjo K Joseph, **Litty Mathew Irimpan**, P. Radhakrishnan and V.P.N Nampoore; “*Photoacoustic study on the photostability of polymethyl methacrylate (PMMA) films doped with Rhodamine 6G-Rhodamine B dye mixture systems*” Journal of Physics D: Applied Physics [Institute of Physics] **38**,16 2904–2909 (2005)



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- 2 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Nonlinear optical characteristics of ZnO-Ag nanocomposites*” Proceedings of ninth National Laser Symposium, NLS-09, BARC, Mumbai, January 13-16, 2010
- 3 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Luminescence enhancement in nanocomposites of ZnO-Ag*” Proceedings of Eighth National Laser Symposium, NLS-08, LASTEC, Delhi, January 7-10, 2009

- 4 **Litty Irimpan**, Mathew S, D Ambika, V Kumar, V P N Nampoore and P Radhakrishnan; “*Annealing effect on the NLO characteristics of thin films of nano ZnO*” Proceedings of Eighth National Laser Symposium, NLS-08, LASTEC, Delhi, January 7-10, 2009
- 5 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Nonlinear optical characteristics of ZnO-Cu nanocomposites*” Proceedings of Eighth National Laser Symposium, NLS-08, LASTEC, Delhi, January 7-10, 2009
- 6 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Effect of self assembly on the NLO characteristics of ZnO thin films*”, Proceedings of Second International Conference on Frontiers in Nanoscience and Technology, CUSAT, Cochin, January 3-6, 2009, P 132
- 7 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Luminescence enhancement in nanocomposites of ZnO-Cu*”, Proceedings of Second International Conference on Frontiers in Nanoscience and Technology, CUSAT, Cochin, January 3-6, 2009, P 133
- 8 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Nonlinear optical characteristics of nanocomposites of ZnO-TiO<sub>2</sub>-SiO<sub>2</sub>*” Proceedings of National Conference on Nanophotonic Materials, NCNM-2008, Kochi, Kerala, October 10-12, 2008, O6, pp33.
- 9 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Luminescence tuning in nanocomposites of ZnO-CdS and ZnO-TiO<sub>2</sub>*” Proceedings of National Conference on Nanophotonic Materials, NCNM-2008, Kochi, Kerala, October 10-12, 2008, P5, pp55.  
*(second best poster award)*
- 10 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Optical limiting in ZnO nanocomposites*” Proceedings of National Conference on Nanophotonic Materials, NCNM-2008, Kochi, Kerala, October 10-12, 2008, P9, pp64.
- 11 **Litty Irimpan**, Mathew S, V P N Nampoore and P Radhakrishnan; “*Luminescence mechanism in nano ZnO under weak confinement regime*” Proceedings of National Conference on Nanophotonic Materials, NCNM-2008, Kochi, Kerala, October 10-12, 2008, P19-pp 78.
- 12 **Litty Irimpan**, Bindu Krishnan, A Deepthy, V P N Nampoore and P Radhakrishnan; “*Excitation wavelength dependent fluorescence behaviour of nano colloids of ZnO*” Proceedings of national conference on Current Trends in Chemistry, CTriC-2008, Cochin, India, 18-19 January, 2008, OP-26, P 21
- 13 **Litty Irimpan**, A Deepthy, Bindu Krishnan, V P N Nampoore and P Radhakrishnan; “*Size dependent fluorescence spectroscopy of nano ZnO colloids*” Proceedings of International Conference on Materials for the Millennium, *MatCon 2007*, Cochin, India, 1-3 March, 2007, P 115
- 14 **Litty Irimpan**, Bindu Krishnan, A Deepthy, V P N Nampoore and P Radhakrishnan; “*Size dependent enhancement in nonlinear optical properties of nano ZnO colloids using z-scan technique*” Proceedings of Eighth International Conference on Optoelectronics, Fiber Optics and Photonics, *Photonics 2006*, Hyderabad, 13-16 December 2006, NLO 5, P 188.



- 15 **Litty Irimpan**, A Deepthy, Bindu Krishnan, V P N Nampoore and P Radhakrishnan; “*Nonlinear optical characterization of self-assembled 3D photonic crystals from ZnO colloidal spheres*” Proceedings of Eighth International Conference on Optoelectronics, Fiber Optics and Photonics, *Photonics 2006*, Hyderabad, 13-16 December 2006, NLO 18, P 346.
- 16 **Litty Irimpan**, Deepthy A, Nampoore V.P.N, Radhakrishnan P; “*Optical nonlinearities in silicon quantum dots*”; Proceedings of International Conference on Optics & Optoelectronics, *ICOL-2005*, Dehradun, Uttaranchal, India, 12-15 December 2005, NLO 17, P260.
- 17 **Litty Irimpan**, V.J Dann, Bindu Krishnan, A. Deepthy, V.P.N Nampoore and P. Radhakrishnan; “*Studies on backscattering of laser light in colloidal silica*”; Proceedings of Seventh International conference on Optoelectronics, Fiber optics and Photonics, *Photonics 2004*, Cochin, India, 9-11 December 2004, LTW P10, P207.
- 18 Mathew S, **Litty Mathew Irimpan**, John Thomas, Lyjo K Joseph, M N Muralidharan, V P N Nampoore and C P G Vallabhan; “*Excitation wavelength dependent fluorescence behaviour of CdS nanoparticles*”, Proceedings of international conference on Fiber Optics and Photonics, *Photonics 2008*, IIT Delhi, December 15-17, 2008, P 26.
- 19 Bindu Krishnan, **Litty Irimpan** and V. P. N. Nampoore; “*Nonlinear optical studies in PEI-capped ZnO colloids*”, National conference on photonics for advanced technology (NCPAT 2007), Thanjavur, Tamil Nadu, March 22-25, 2007
- 20 Ritty J Nedumpara, Thomas K J, **Litty Mathew**, V P N Nampoore and P Radhakrishnan; “*Nonlinear absorption in dye doped polymer matrices*”; Proceedings of Eighth International Conference on Optoelectronics, Fiber Optics and Photonics, *Photonics 2006*, Hyderabad, 13-16 December 2006, NLO 21, P 349.
- 21 Bindu Krishnan, **Litty Irimpan** and V P N Nampoore; “*Flexible nanocomposite films with selective optical filtering*”; Proceedings of International Conference on Optoelectronic Materials and Thin films for Advanced Technology, *OMTAT 2005*, Cochin, India, 24-27 October 2005, NT020, P 63.
- 22 Bindu Krishnan, **Litty Irimpan**, V. P. N Nampoore and V.Kumar; “*Stable nano ZnO colloid using a novel capping agent*” Proceedings of First National Conference on Nanoscience and Technology, NPL, Pune, March 2005
- 23 Lyjo K Joseph, **Litty Mathew Irimpan**, Dann V J, Radhakrishnan P and V P N Nampoore; “*Fluorescence Study of Lanthanum Titanate*”; Proceedings of DAE- BRNS NLS-5, Vellore, P181-2 (2005)
- 24 Bindu Krishnan, **Litty Irimpan**, Deepthy A, Dann V.J and V.P.N. Nampoore; “*Non linear optical properties of nano-ZnO colloids using z-scan technique*”; Proceedings of National Laser Symposium, *NLS-4*, BARC, Mumbai, 10-13 January 2005, F7, P-418
- 25 Annieta Philip K, Lyjo K Joseph, **Litty M. Irimpan**, P. Radhakrishnan and V.P.N Nampoore; “*Concentration dependent photostability of dye doped olymer films- A PA*

- study*”, Proceedings of National Laser Symposium, *NLS-4*, BARC, Mumbai, 10-13 January 2005, C3, P-300
- 26 Annieta Philip K, Lyjo K. Joseph, **Litty M. Irimpan**, Bindu Krishnan, P. Radhakrishnan, V. P. N. Nampoori and Raghu Natarajan “*Thermal characterization of zirconia and alumina-zirconia ceramic tapes using photoacoustic technique*”; Proceedings of National Laser Symposium, *NLS-4*, BARC, Mumbai, 10-13 January 2005, D5, P-342
- 27 P. Nandi, **Litty Irimpan**, P. Radhakrishnan, V.P.N. Nampoori and G. Jose; “*Spectroscopic properties of Ag-Na ion exchanged, Er-Yb codoped phosphate glasses*”; Proceedings of National Laser Symposium, *NLS-4*, BARC, Mumbai, 10-13 January 2005, G28, P515
- 28 Bindu Krishnan, A. Deepthy, **Litty Irimpan**, Dann V.J and V.P.N Nampoori; “*Coherent backscattering from nano-sized ZnO suspensions*”; Proceedings of Seventh International conference on Optoelectronics, Fiber optics and Photonics, *Photonics 2004*, Cochin, India, 9-11 December 2004, LTW P10, P208
- 29 Annieta Philip K, Lyjo K Joseph, **Litty Irimpan**, P. Radhakrishnan and V.P.N Nampoori; “*Photosensitivity of Laser Dye Mixtures in Polymer Matrix-A Photoacoustic Study*”; Proceedings of Seventh International conference on Optoelectronics, Fiber optics and Photonics, *Photonics 2004*, Cochin, India, 9-11 December 2004, PMR P7, P440

## REFERENCES

Letters of Reference are available upon request from:

<p style="text-align: center;"><b>Dr. P Radhakrishnan</b> Professor, International School of Photonics, Cochin University of Science and Technology, Cochin-682022. Kerala, India.</p> <p style="text-align: center;"><i>E-mail:</i> radhak@cusat.ac.in <i>Phone:</i> (+91) 484 2575848</p>	<p style="text-align: center;"><b>Dr. V P N Nampoori</b> Professor &amp; Director, International School of Photonics, Cochin University of Science and Technology, Cochin-682022. Kerala, India.</p> <p style="text-align: center;"><i>E-mail:</i> nampoori@gmail.com <i>Phone:</i> (+91) 484 2575848</p>
<p style="text-align: center;"><b>Dr. Sr. Rani George</b> Principal, St. Mary’s College, Thrissur-680020. Kerala, India.</p> <p style="text-align: center;"><i>E-mail:</i> smctsr@gmail.com <i>Phone:</i> (+91) 487 2333485</p>	<p style="text-align: center;"><b>Dr. C.P.Girijavallabhan</b> Professor &amp; Director (CELOS) International School of Photonics Cochin University of Science and Technology, Cochin-682022. Kerala, India.</p> <p style="text-align: center;"><i>E-mail:</i> vallabhan@cusat.ac.in <i>Phone:</i> (+91) 484 2575848 (+91) 484 2577540</p>