



P. A. Praveen

Post Doctoral Fellow

Department of Physics, Indian Institute of Science Education and Research,
Tirupati - 517 507, India

□ (+91) 96009-73793 | □ praveen@iisertirupati.ac.in | □ www.prvn.info

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Current Position

ERA CIPHR Chair Postdoctoral Fellow

UNIVERSITY OF TARTU

Mid-IR Holography

Starting Jun. 2022

Tartu, Estonia

Post Doctoral Fellow

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH (IISER) TIRUPATI

Device fabrication and analysis of OLETs and Organic x-ray sensors

Jun. 2019 - Present

Tirupati, India

Education

Doctoral Degree

BHARATHIDASAN UNIVERSITY

Metal organic nanostructures for thermo-optical applications

Jan. 2013 - Jun. 2019

Tiruchirappalli, India

Project Student

BHARATHIDASAN UNIVERSITY

Improvising organic medium by metal dopants for optical applications

Jun. 2010 - Jan. 2013

Tiruchirappalli, India

Post Graduation

BHARATHIDASAN UNIVERSITY

First Class with CGPA 7.5

Jul. 2009 - Apr. 2011

Tiruchirappalli, India

Under Graduation

PERIYAR UNIVERSITY

First Class with 80%

Jun. 2006 - Apr. 2009

Salem, India

Areas of Expertise

Incoherent Imaging and Holography - Current

- Design and fabrication of metasurfaces
- Design of indirect imaging systems with deterministic and non-deterministic fields

Hybrid organic semiconductors

- Crystal growth / thin film deposition of organic and metal-organic systems

Optoelectronic Devices

- Device fabrication of OFETs, OLETs and Organic x-ray sensors
- Prototypes of optical limiters and switches
- Utilization of the photonic devices towards biological applications

Computational materials science

- Materials analysis using DFT and semiempirical calculations

Hands-On Experience

Experimental Techniques

- **Crystal growth:** PVT, hydrothermal, low & high temperature solution growth
- **Thin films:** Thermal evaporation, CVD, spin coating & chemical processing
- **Structural:** PXRD, Raman, FTIR, SEM/TEM, AFM
- **Electrical:** Dielectric, Hall, Parametric analysis
- **Optical:** ASE spectrum, Z-Scan, SHG measurements

Molecular Packages	Gaussian, ORCA, MOPAC, Dalton, AutoDock
Imaging	ImageJ, Gwyddion
Programming	Python, Julia, R, C++, FORTRAN

List of Publications

14. Daniel Smith et al., (**one of the contributing author**), Non-linear Reconstruction of Information Modulated by Deterministic and Random Optical Fields - Concepts. **Journal of Imaging** (*Invited manuscript - Under preparation*).
13. **P. A. Praveen**, T. Kanagasekaran, Impact of Furan Substitution on the Optoelectronic Properties of Biphenyl-Thiophene for Light Emitting Transistor Applications. **The Journal of Physical Chemistry A** 126 (4) (2022) 600.
12. V. Lakshmi Vennila, **P. A. Praveen**, T. Kanagasekaran, N V L Narasimha Murty, Direct X-ray detection using thermally evaporated Pentacene Schottky diodes. **Journal of Instrumentation** 17 (2022) P02024.
11. **P. A. Praveen**, A. Bhattacharya, T. Kanagasekaran, A DFT Study on the Electronic and Photophysical Properties of Biphenyl-Thiophene Derivatives for Organic Light Emitting Transistors, **Materials Today Communications** 25 (2020) 101509.
10. **P. A. Praveen**, R. Ramesh Babu, Evaluation of nonlinear optical properties from molecular descriptors of benzimidazole metal complexes by principal component analysis, **Journal of Molecular Graphics and Modeling** 93 (2019) 107447.
9. **P. A. Praveen**, R. Ramesh Babu, P. Balaji, A. Murugadas, M.A. Akbarsha, Laser assisted anticancer activity of benzimidazole based metal organic nanoparticles, **Journal of Photochemistry & Photobiology, B: Biology** 180 (2018) 218.
8. **P. A. Praveen**, R. Ramesh Babu, K. Ramamurthi, Role of annealing on the structural and optical properties of nanostructured diaceto bis-benzimidazole Mn(II) complex thin films, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy** 173 (2017) 800.

7. **P. A. Praveen**, R. Ramesh Babu, Theoretical and experimental evaluation of structural and optical properties of novel zinc-benzimidazole metal complex doped in polystyrene matrices, *AIP Conference Proceedings* 1832 (2017) 140038.
6. **P. A. Praveen**, R. Ramesh Babu, K. Ramamurthi, Theoretical and experimental investigations on linear and non-linear optical response of metal complexes doped PMMA films, **Materials Research Express** 4 (2017) 025024.
5. **P. A. Praveen**, R. Ramesh Babu, Effect of substituents on polarizability and hyperpolarizability values of benzimidazole metal complexes, *AIP Conference Proceedings* 1731 (2016) 090013.
4. **P. A. Praveen**, R. Ramesh Babu, K. Jothivenkatachalam, K. Ramamurthi, Spectral, morphological, linear and non-linear optical properties of nanostructured benzimidazole metal complex thin films, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy** 150 (2015) 280.
3. **P. A. Praveen**, R. Ramesh Babu, K. Ramamurthi, Validation of PM6 and PM7 semiempirical methods on polarizability calculations, *AIP Conference Proceedings* 1665 (2015) 609.
2. **P. A. Praveen**, S. P. Prabhakaran, R. Ramesh Babu, K. Sethuraman, K. Ramamurthi, Low power optical limiting studies on nanocrystalline benzimidazole thin films prepared by modified liquid phase growth technique, **Bulletin of Materials Science** 38 (3) (2015) 645.
1. **P. A. Praveen**, R. Ramesh Babu, S. P. Prabhakaran, K. Ramamurthi, Linear and nonlinear optical properties of Mn doped benzimidazole thin films, *AIP Conference Proceedings* 1591 (1) (2014) 991.

Supervision of Graduate Students

- 2021 **BSMS Vth year Project**, Fabrication of organic photodetectors for broadband detection
- 2019 **BSMS Vth year Project**, Effect of different dielectric layers on the mobility of OSCs
- 2018 **M. Sc., Project**, Theoretical analysis of transition metal substituted ZIF structures
- 2017 **M. Phil., Project**, Copper based metal organic frameworks for nonlinear optical applications
- 2017 **M. Sc., Project**, Theoretical & experimental analysis of cadmium based ZIF structures
- 2016 **M. Sc., Project**, ZIF-8 thin films for nonlinear optical applications
- 2015 **M. Sc., Project**, Pd doped ZnO nanoparticles for nonlinear optical applications
- 2014 **M. Sc., Project**, Synthesis of new quinoline derivative for nonlinear optical applications

Teaching

- 2021 **Tutor**, BSMS - Physics UG Lab: Mechanics & Optics
- 2020 **Tutor**, BSMS - Physics UG Lab: Mechanics & Optics
- 2019 **Tutor**, BSMS - Advanced Physics Lab: Optics
- 2019 **Tutor**, BSMS - Physics UG Lab: Mechanics & Optics
- 2018 **Tutor**, M. Sc., (II Year) - Materials Science
- 2017 **Tutor**, M. Sc., (II Year) - Materials Science

Awards

- 2019 **Research Fellowship Award**, Post Doctoral Research, IISER Tirupati, India
- 2017 **Best Paper Award**, 21st National Seminar on Crystal Growth and Applications, National College, Tiruchirapalli
- 2016 **Research Fellowship for Meritorious Students in Science**, SRF, UGC, India
- 2016 **Best Paper Award**, National Conference on Computational and Experimental Physics of Functional Materials, K.S.R College, Tiruchengode
- 2014 **Third Prize**, DST SERB School on DFT and Beyond, M. S. University, Vadodara
- 2014 **Research Fellowship for Meritorious Students in Science**, JRF, UGC, India

Invited Talks

JUN, 2021

Sri Krishna College of Technology, Coimbatore

Roadmap for Research Writing

JUL, 2020

Jamal Mohamed College (Autonomous), Tiruchirappalli

Skill Development using Learning Assistance Tools

JUN, 2020

Jamal Mohamed College (Autonomous), Tiruchirappalli

Summer Online Traning on L^AT_EX

JUN, 2020

Hindustan College of Engineering & Technology, Coimbatore

Unveiling Molecules: A Computational Materials Science Perspective

MAY, 2020

Karpagam College of Engineering, Coimbatore

Methods and Tools for Qualitative Research Writing

FEB, 2018

Dr. SNSR College of Arts & Science, Coimbatore

One Day Workshop on L^AT_EX

Academic Activities

Reviewer

SPECTROCHIMICA ACTA PART A

*Elsevier Publications
Nov. 2018 - Present*

Reviewer

PHISICA SCRIPTA

*IOP Publications
Oct. 2021 - Present*

Joint Secretary & Joint Treasurer

UNIVERSITY PHYSICS FORUM

*Bharathidasan University
Jun. 2018 - Apr. 2019*

Organizing Committee Member

INTERNATIONAL CONFERENCE ON SUSTAINABLE ENERGY TECHNOLOGIES

*Bharathidasan University
Jun. 2018*

Organizing Secretary

NATIONAL SCIENCE DAY CELEBRATIONS

Bharathidasan University

Feb. 2018

Organizing Committee Member

NATIONAL SCIENCE DAY CELEBRATIONS

Bharathidasan University

Feb. 2017

Secretary

COLLEGE PHYSICS ASSOCIATION

Kandasami Kandars College

Jul. 2008 - Mar. 2009

Personal Details

Gender : Male

D.O.B : June 11, 1989

Marital status : Married

Nationality : Indian

Permanent Address : 42/59 Kolandanur, Karur - 639 004, India

Reference

Dr. R. Ramesh Babu*Ph.D. Supervisor**rampap2k@yahoo.co.in*

Associate Professor

School of Physics

Bharathidasan University

Tiruchirappalli, India

Dr. T. Kanagasekaran*PostDoc PI**kanagasekaran@iisertirupati.ac.in*

Assistant Professor

Department of Physics

Indian Institute of Science Education & Research

Tirupati, India

Collaborations

Prof. Vijayakumar Anand*Coordinator**vijayakumar.anand@ut.ee*

ERA CIPHR Chair and Associate Professor

Institute of Physics

University of Tartu

Tartu, Estonia

Declaration

I hereby declare that all the details furnished above are true to the best of my knowledge and belief.

P. A. Praveen