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

Updated on *May 8, 2022*

Current Position

ERA CIPHR Chair Postdoctoral Fellow — *Starting Jun. 2022*

University of Tartu — *Tartu, Estonia*

Mid-IR Holography

Post Doctoral Fellow — *Jun. 2019 - Present*

Indian Institute of Science Education and Research (IISER) Tirupati — *Tirupati, India*

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

Education

Doctoral Degree — *Jan. 2013 - Jun. 2019*

Bharathidasan University — *Tiruchirappalli, India*

Metal organic nanostructures for thermo-optical applications

Project Student — *Jun. 2010 - Jan. 2013*

Bharathidasan University — *Tiruchirappalli, India*

Improvising organic medium by metal dopants for optical applications

Post Graduation — *Jul. 2009 - Apr. 2011*

Bharathidasan University — *Tiruchirappalli, India*

First Class with CGPA 7.5

Under Graduation — *Jun. 2006 - Apr. 2009*

Periyar University — *Salem, India*

First Class with 80%

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 semiemiprical calcualtions

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 Biphenylyl/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 Biphenylyl/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 transistion 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 nanoparticels 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**, 21^{st} 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 LaTeX

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 LaTeX

Academic Activities

Reviewer — *Elsevier Publications*

Spectrochimica Acta Part A — *Nov. 2018 - Present*

Reviewer — *IOP Publications*

Physica Scripta — *Oct. 2021 - Present*

Joint Secretary & Joint Treasurer — *Bharathidasan University*

University Physics Forum — *Jun. 2018 - Apr. 2019*

Organizing Committee Member — *Bharathidasan University*

International Conference On Sustainable Energy Technologies — *Jun. 2018*

Organizing Secretary *Bharathidasan University*

National Science Day Celebrations *Feb. 2018*

Organizing Committee Member *Bharathidasan University*

National Science Day Celebrations *Feb. 2017*

Secretary *Kandasami Kandars College*

College Physics Association *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 *Post-Doc 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