# LAKSHMYKANTH T.M.

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## Education

2010-2018 Ph.D Chemistry
CSIR - National Institute for Interdisciplinary Science and Technology, India.

2006-2008 M.Sc Chemistry
Bharathiar University

2003-2006 B.Sc Chemistry
Govt College Chittur

## Work History

July 2009- Project fellow in Computational chemistry
Feb 2010 IISER, Trivandrum, India.

March 2010 - Junior Research Fellow
Feb 2012 CSIR - National Institute for Interdisciplinary Science and Technology, India.

Designed and carried out organic reactions on laboratory scale to provide useful organic materials for the applications of Dye sensitized solar cell. Experienced in separation and purification of organic compounds by using various chromatographic techniques such as LC, HPLC, GC etc. Obtained extensive knowledge in structural interpretation of organic molecules by using NMR, HRMS-FAB and FTIR. Fabricated and characterized dye sensitized solar cell.

March 2012- Senior Research Fellow
May 2014 CSIR - National Institute for Interdisciplinary Science and Technology, India.

Designed and carried out organic reactions on laboratory scale to provide useful organic materials for the applications of Dye sensitized solar cell and Bulk Heterojunction solar cell. Experienced in separation and purification of organic compounds by using various chromatographic techniques such as LC, HPLC, GC etc. Obtained extensive knowledge in structural interpretation of organic molecules by using NMR, HRMS-FAB and FTIR.

June 2014- July 2014 — Visiting Research student
Eindhoven Technical University, Netherlands.

Fabrication and characterization of bulk heterojunction solar cell using triphenylanime based small molecules and P3HT polymer with PC61BM.

August 2014- March 2015 — Senior Research Fellow
CSIR - National Institute for Interdisciplinary Science and Technology, India.

Design, Synthesis, Photophysical and Electrochemical studies of diketopyrrolopyrrole based small molecules.

April 2015- January 2018 — Project Fellow
CSIR - National Institute for Interdisciplinary Science and Technology, India.

Design, Synthesis, Photophysical and Electrochemical studies of diketopyrrolopyrrole based small molecules.

October 2015- Sept 2016 — Visiting Research Fellow
Eindhoven Technical University, Netherlands.

Design, Synthesis, Photophysical and Electrochemical studies of diketopyrrolopyrrole based small molecules. Fabrication and characterization of bulk heterojunction solar cell.

July 2018- March 2019 — Guest Lecturer in Chemistry
NSS College Nemmara, Palakkad, Kerala

July 2019 March 2021 — Assistant Professor on Contract basis
Calicut University, Kerala

## Research Summary

- Strong understanding of organic reactions and mechanisms.
- Synthesized and characterized Ruthenium bipyridine complexes for DSSC applications
- Worked on Indo-European collaborative solar cell project and focussed on the synthesis of small organic molecules for organic photovoltaic application.
- Expertise in structural characterization of unknown organic molecules from spectroscopic data including IR, HRMS and NMR.
- Supervised MSc students for fulfilling projects and practical's.

## Achievements and Fellowships

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|---|---|
| Feb 2009 | Qualified GATE All India Rank-475, GATE Score-424 |
| June 2009 | Qualified CSIR-JRF, CSIR-UGC (NET) |
| 2017 | Member of Waste to Energy Research Council and Technology. |

## Analytical Techniques: Hands on Instruments

1) 500 MHz NMR Spectrometer
2) HPLC
3) Flame AA, Particle Size Analyzer
4) Microwave reactor
5) UV-Visible spectrometer
6) Fluorescence spectrometer
7) IR Spectrometer
8) Glove box
9) GC-MS
10) Flash column
11) Ozonator
12) Photochemical reactor

## Publications

A detailed evaluation of charge recombination dynamics in dye solar cells based on starburst triphenylamine derivatives. M. V. Vinayak, M. Yoosuf, S. C. Pradhan, T
M. Lakshmykanth, S. Soman and K. R. Gopidas, *Sustainable Energy Fuels*, **2018**, *2*, 303-314.

Solution process small molecule bulk heterojunction solar cell based on tetraphenylethylene attached to diketopyrrolopyrrole.T. M. Lakshmykanth, K. R. Gopidas* Proceedings of the international workshop on Advanced functional materials and devices. January **2017** ISBN No. 978-93-81402-38-2, 72.

Effect of recombination and binding properties on the performance of dye sensitized solar cells based on propeller shaped triphenylamine dyes with multiple binding groups. M.V.Vinayak,T. M. Lakshmykanth. M. Yoosuf, S. Soman, K.R.Gopidas.*Solar energy* **2016** *124* 227-241.

Regio- andStereoselective Syntheis of Benzopyrano[2,3-b]pyrrolo[2,3-d]pyridines: A microwave-accelerated intramolecular [3+2]cycloaddition reaction of Azomethine Ylide.
Sourav Maiti, T.M.Lakshmykanth ,Suman Kalyan Panja, Ranjan Mukhopadhyay, Ayan Datta, Chandrakanta Bandyopadhyay. Journal of Heterocyclic Chemistry **2011** 48 763.

## References


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