

## Mahesh Hariharan

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## Education

- **B.Sc.**, 1998, Mahatma Gandhi University, Kottayam, Kerala.
- **M.Sc.**, 2000, Mahatma Gandhi University, Kottayam, Kerala.
- **Ph.D.**, 2006, National Institute for Interdisciplinary Science and Technology, Trivandrum, Kerala (Title: *"Design of Photoactivated DNA Cleaving Agents: Synthesis and Study of Photophysical and Photobiological Properties of Bifunctional Organic Ligands"* Supervisor: Dr. Danaboyina Ramaiah).

## Appointments

Sept 2014-present	<b>Associate Professor</b> , IISER-TVM, Kerala, India
June 2014-Sept 2014	<b>Visiting Professor</b> , Montana State University, Montana, USA
May-July 2010, July 2013	<b>Visiting Fellow</b> , Northwestern University, Illinois, USA
July 2009-Sept 2014	<b>Assistant Professor</b> , IISER-TVM, Kerala, India
March 2007-July 2009	<b>Postdoctoral Fellow</b> , Northwestern University, Illinois, USA
	Mentor: Prof. Frederick D. Lewis

## Honors and Awards

- Chartered Chemist of the Royal Society of Chemistry, 2015
- Asian and Oceanian Photochemistry Association Young Scientist Prize, 2014
- Indo-US Science and Technology Forum Fellowship, 2014 to visit MSU, USA, Mentor: Prof. Bern Kohler
- Editorial Board Member, Dataset Papers in Science, Hindawi Publishing Corporation, 2014-present
- Editorial Board Member, Advances in Chemistry, Hindawi Publishing Corporation, 2014-present
- Kerala State Young Scientist Award, 2013
- DST-DAAD Fellowship, 2004 to visit University of Mainz, Germany, Mentor: Prof. Bernd Epe
- CSIR-Research Scholarship, 2001

## Research Interests

Photophysics of biomolecules; Artificial Photosynthesis; Photonic Crystals; Dihydrogen Interactions; Femtosecond Spectroscopy of Organised Donor-Acceptor Systems

## Ongoing Research Grants

1. Department of Science and Technology: *Synthesis, Structure and Electronic Properties of Natural and Non-Natural Nucleic Acid Sequences*, 24/05/2012-13/05/2015, Rs. 26,08,000 (USD 43400)
2. Department of Biotechnology: *Mechanistic Investigations on Light Induced Crosslinking of DNA Protein Nanostructures*, 15/02/2013-14/02/2016, Rs. 53,76,000 (USD 89600)

## Professional Service

Secretary, organising committee of Asian Photochemistry Conference 2014  
Organiser, IISER-TVM/American Chemical Society Mini-Symposium 2013  
Member, organising committee of 14<sup>th</sup> CRSI National Symposium in Chemistry 2012

**Current Graduate Students:** Graduated 1 (Dr. Rijo T. Cheriya); Ongoing 5

Shinaj K. Rajagopal, Ajith R. Mallia, Kalaivanan Nagarajan, Somadrita Deb, Abbey M. Philip

## Selected Publications (Total Publications: 36; Patents: 1)

1. "C-H•••H-C and C-H••• $\pi$  Contacts Aid Transformation of Dimeric to Monomeric Anthracene in the Solid State" K. Nagarajan, S. K. Rajagopal and **M. Hariharan\*** *CrystEngComm* **2014**, 16, 8946-8949
2. "Progressive Acylation of Pyrene Engineers Solid State Packing and Colour via C-H•••H-C, C-H•••O and  $\pi$ - $\pi$  Interactions" S. K. Rajagopal, A. M. Philip, K. Nagarajan and **M. Hariharan\*** *Chem. Commun.* **2014**, 50, 8644-8647 (Inside Frontispiece)
3. "Light Harvesting Vesicular Donor-Acceptor Scaffold Limits the Rate of Charge Recombination in the Presence of an Electron Donor" R. T. Cheriya, A. R. Mallia and **M. Hariharan\*** *Energy Environ. Sci.* **2014**, 7, 1661-1669 (Frontispiece; Hot Article)

4. "Non-natural G-quadruplex in a Non-natural Environment" S. K. Rajagopal and **M. Hariharan\*** *Photochem. Photobiol. Sci.* **2014**, *13*, 157-161 (Nick Turro's Special Issue)
5. "Perylene Polyimide Based Organic Electrode Materials for Rechargeable Lithium Batteries" P. Sharma, D. Damien, K. Nagarajan, M. M. Shaijumon,\* and **M. Hariharan\*** *J. Phys. Chem. Lett.*, **2013**, *4*, 3192–3197 (One of the most read articles)
6. "Breakdown of Exciton Splitting through Electron Donor–Acceptor Interaction: A Caveat for the Application of Exciton Chirality Method in Macromolecules" J. Joy, R. T. Cheriya, K. Nagarajan, A. Shaji, and **M. Hariharan\*** *J. Phys. Chem. C*, **2013**, *117*, 17927–17939
7. "Single Component Organic Light-Harvesting Red Luminescent Crystal" R. T. Cheriya, K. Nagarajan and **M. Hariharan\*** *J. Phys. Chem. C*, **2013**, *117*, 3240–3248
8. "DNA-Enforced Conformational Restriction of an Atropisomer" R. T. Cheriya, J. Joy, S. K. Rajagopal, K. Nagarajan and **M. Hariharan\*** *J. Phys. Chem. C*, **2012**, *116*, 22631–22636
9. "Effect of Temperature on Symmetry Breaking Excited State Charge Separation: Restoration of Symmetry at Elevated Temperature" H. Khandelwal, A. R. Mallia, R. T. Cheriya and **M. Hariharan\*** *Phys. Chem. Chem. Phys.*, **2012**, 15282–15285
10. "Energy Transfer in Near-Orthogonally Arranged Chromophores Separated through a Single Bond" R. T. Cheriya, J. Joy, A. P. Alex, A. Shaji and **M. Hariharan\*** *J. Phys. Chem. C*, **2012**, *116*, 12489–12498

#### Invited Seminar and Colloquium Presentations

50 invited lectures at universities and international conferences since 2009.

#### Invited Lectures

- Tuning the Solid State Packing and Optical Properties of Organic Crystals 'Pacifichem 2015', Honolulu, Hawaii, USA, December 15-20, 2015
- Tuning the Solid State Packing and Optical Properties of Organic Crystals 'Shape Responsive Fluorophores', Telluride, Colorado, USA, June 23-27, 2015
- Tuning the Solid State Packing and Optical Properties of Organic Crystals 'Department of Chemistry, University of Durham', Durham, UK, February 19, 2015
- Strategies to Reduce the Rate of Charge Recombination '24<sup>th</sup> Winter I-APS Conference' Florida, USA, January 1-4, 2015
- Exciton Interactions in DNA and Superstructured Organic Materials '8<sup>th</sup> Asian Photochemistry Conference' Trivandrum, India, November 9-13, 2014
- Light Harvesting Vesicular Donor-Acceptor Scaffold Limits the Rate of Charge Recombination 'Department of Chemistry, Montana State University', Montana, US, June 12, 2014
- Ultrafast Dynamics of Charge Carriers in Superstructured Organic Materials 'The State Key Laboratory of Molecular Reaction Dynamics', ICCAS, Beijing, China, April 18, 2014
- Light Harvesting Vesicular Donor-Acceptor Scaffold Limits the Rate of Charge Recombination '2<sup>nd</sup> International Conference on Clean Energy Science' Qingdao, China, April 13-16, 2014
- Conformational and Excited State Dynamics of Near-Orthogonal Donor-Acceptor Bichromophores 'Photochemistry Gordon Research Conference' Stonehill College, Easton, MA, July 14-19, 2013
- Light Harvesting Vesicular Donor-Acceptor Scaffold Limits the Rate of Charge Recombination 'International Symposium on Fundamental and Applied Chemistry' Northwestern University, IL, July 12-13, 2013

#### Invited Lectures (International Conferences Organised/Held in India)

- Light Harvesting Vesicular Donor–Acceptor Scaffold Limits the Rate of Charge Recombination 'India-Israel Meeting on Materials Science and Nanoscience' M. G. University, Kerala, India, Jan 31-Feb 01, 2013
- DNA Donor-Acceptor Conjugates: Towards Understanding Biological Processes in Femtosecond Timescale 'IISER-American Chemical Society Mini-Symposium' IISER-TVM, Kerala, India, November 28, 2013
- DNA Donor-Acceptor Conjugates: Towards Understanding Biological Processes in Femtosecond Timescale 'International Conference on Frontiers of Mass Spectrometry 2013' M. G. University, Kerala, September 6-9, 2013
- Ultrafast Dynamics of Charge Carriers in Superstructured Organic Materials 'Organic Devices: The Future Ahead' Bhabha Atomic Research Center, Mumbai, March 3-6, 2014

- Ultrafast Dynamics of Charge Carriers in DNA and Superstructured Organic Materials '*Light in Chemistry, Materials and Biology*' Indian Institute of Technology, Kharagpur, February 24-25, 2014
- Ultrafast Dynamics of Charge Carriers in DNA and Superstructured Organic Materials '*International Conference on Advanced Functional Materials*' CSIR-NIIST, Kerala, India, February 19-21, 2014
- Light Harvesting Vesicular Donor–Acceptor Scaffold Limits the Rate of Charge Recombination '*India-Japan Workshop on Biomolecular Electronics & Organic Nanotechnology for Environment Preservation*' Delhi Technological University, Delhi, India, December 13-15, 2013

#### **Arranged Lectures**

- Ultrafast Dynamics of Charge Carriers in Superstructured Organic Materials 'Indo-UK Scientific Seminar', University of Leeds, UK, February 16-18, 2015

#### **Member of Professional Societies**

Royal Society of Chemistry; American Chemical Society; Asian and Oceanian Photochemistry Association; Inter-American Photochemical Society; European Photochemistry Association; Chemical Research Society of India; Materials Research Society of India; Photosciences Research Society of India; Kerala Academy of Sciences, India

#### **Journal Referee**

Energy Environ. Sci.; Chem. Commun.; J. Mater. Chem.; Phys. Chem. Chem. Phys.; Photochem. Photobiol. Sci.; ACS Nano; ACS Appl. Mater. Interfaces; J. Phys. Chem. Lett./A/B/C; Cryst. Growth Des.; Photochem. Photobiol.; J. Photochem. Photobiol.; Curr. Org. Chem.; Appl. Biochem. Biotechnol.; Bull. Mater. Sci.; Stud. Nat. Prod. Chem.  
(Also serve as adjudicator reviewer for the above journals)