K. R. JUSTIN THOMAS PHD, FRSC

PROFESOR | DEPARTMENT OF CHEMISTRY, INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, INDIA

HIGHLIGHTS

- Co-authored **160** research articles
- h-index: **43**
- Implemented eight sponsored research projects
- Authored 09 US patents
- CRSI bronze medal, 2018
- Fellow of Royal Society of Chemistry (**FRSC**)
- ORCID ID: 0000-0003-2424-5953

SELECTED ARTICLES

- ✓ *Adv. Energy Mater.,* **2019**, *9* 1802820
- ✓ *ACS Appl. Mater. Interfaces*, **2018**, *10*, 24013.
- ✓ *Chem. Commun.,* **2017**, *53*, 11802.
- ✓ *J. Mater. Chem. C,* **2017**, *5*, 709.
- ✓ *J. Org. Chem*., **2017**, *82,* 11512.
- ✓ *J. Mater. Chem. C*, **2016**, *4*, 4246.
- ✓ *J. Org. Chem.*, **2016**, *81*, 640.
- ✓ *J. Org. Chem.*, **2015**, *80*, 5812.
- ✓ *J. Mater. Chem. C*, **2015**, *3*, 2182.
- ✓ *ACS Appl. Mater. Interfaces*, **2015**, *7*, 2249.

PROFESSIONAL EXPERIENCE

HEAD • DEPARTMENT OF CHEMISTRY, INDIAN INSTITUTE OF TECHNOLOGY ROORKEE • APR 01, 2019 – TO PRESENT

PROFESSOR • INDIAN INSTITUTE OF TECHNOLOGY ROORKEE • DEC 21, 2018 – TO PRESENT

ASSOCIATE PROFESSOR • INDIAN INSTITUTE OF TECHNOLOGY ROORKEE • OCT 23, 2012 – DEC 21, 2018

ASSISTANT PROFESSOR • INDIAN INSTITUTE OF TECHNOLOGY ROORKEE • MAR 18, 2006 – OCT 22, 2012

POST-DOCTORAL FELLOW • ACADEMIA SINICA, TAIPEI, TAIWAN • OCT 1997 – APR 2003 & JUNE 2004 – FEB 2006

Mentor: Prof. J. T. Lin

POST-DOCTORAL FELLOW • UNIVERSITY OF MASSACHUSETTS, AMHERST, USA • MAY 2003–MAY 2004

Mentor: Prof. S. Thayumanavan

EDUCATION

Ph.D. • 1995 • INDIAN INSTITUTE OF TECHNOLOGY KANPUR

Specialization: Inorganic Heterocycles & Coordination Chemistry
Supervisor: Prof. V. Chandrasekhar

M.Sc. • 1990 • AMERICAN COLLEGE MADURAI

Specialization: Chemistry; Marks: 71%

B.Sc. • 1988 • MADURAI KAMARAJ UNIVERSITY

Specialization: Chemistry, Physics & Mathematics; Marks: 85.7%

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RESEARCH INTERESTS

Organic Materials

Triplet harvesting organic emitters (TADF & HLCT) for bright and stable OLEDs
Non-fullerene acceptors for OSC
Hybrid molecular materials for all-in-one OSC
Supramolecular structures & custom organization in solid state

SELECTED RECENT PUBLICATIONS

1. Fine tuning the absorption and photovoltaic properties of benzothiadiazole dyes by donor-acceptor interaction alternation via methyl position, A. Pathak, T. Tomer, K. R. J. Thomas, M.-S. Fan, K.-C. Ho, *Electrochim. Acta*, **2019**, *304*, 1-10. (DOI: 10.1016/j.electacta.2019.02.077)
2. Triazine-branched mono- and dianchoring organic dyes: Effect of acceptor arms on optical and photovoltaic properties, K.R.J. Thomas, A. Venkateswararao, R. Balasaravanan, C.-T. Li, K.-C. Ho, *Dyes Pigm*., **2019**, 165, 182-192. (DOI: 10.1016/j.dyepig.2019.02.013)
3. Design-to-Device Approach Affords Panchromatic Co-Sensitized Solar Cells, C. B. Cooper, E. J. Beard, Álvaro Vázquez-Mayagoitia, L. Stan, G. B. G. Stenning, D. W. Nye, J. A. Vigil, T. Tomar, J. Jia, G. B. Bodedla, S. Chen, L. Gallego, S. Franco, A. Carella, K. R. J. Thomas, S.Xue, X. Zhu, J. M. Cole, *Adv. Energy Mater.,* **2019**, *9* 1802820 (DOI: 10.1002/aenm.201802820)
4. Polarity tuning of fluorene derivatives by chromophores to achieve efficient blue electroluminescent materials, K. R. J. Thomas, A. Venkateswararao, V. Joseph, S. Kumar, J.-H. Jou, *Org. Electron*., **2019**, *64*, 266-273. (DOI: 10.1016/j.orgel.2018.10.029)
5. Effect of electron rich π-linkers on the functional properties of dyes featuring dithieno[3,2-b:2′,3′-d]pyrrole donor, S. Kumar, K. R. J. Thomas, C.-T. Li, K.-C. Ho, *Dyes Pigm*., **2019**, 160, 614-623. (DOI: 10.1016/j.dyepig.2018.08.035)
6. Tuning the photophysical and electroluminescence properties in asymmetrically tetrasubstituted bipolar carbazoles by functional group disposition, R. K. Konidena, K. R. J. Thomas, A. Pathak, D. K. Dubey, S. Sahoo, J.-H. Jou, *ACS Appl. Mater. Interfaces*, **2018**, *10*, 24013-24027. (DOI: 10.1021/acsami.8b04566)
7. Enabling a 6.5% external quantum efficiency deep-blue organic light-emitting diode with a solution-processable carbazole based emitter, J.-H. Jou, J.-L. Li, S. Sahoo, D. K. Dubey, R. A. K. Yadav, V. Joseph, K. R. J. Thomas, C.-W. Wang, J. Jayakumar, C.-H. Cheng, *J. Phys. Chem. C.*, **2018**, *42*, 24295-24303. (DOI: 10.1021/acs.jpcc.8b07641)
8. Cyano-functionalized carbazole substituted pyrene derivatives for promising organic light-emitting diodes, V. Joseph, K. R. J. Thomas, S. Sahoo, M. Singh, J.-H. Jou, *Dyes Pigm*., **2018**, *158*, 295-305. (DOI: 10.1016/j.dyepig.2018.05.038)
9. Simple carbazole based deep-blue emitters: The effect of spacer, linkage and end-capping cyano group on the photophysical and electroluminescent properties, V. Joseph, K. R. J. Thomas, S. Sahoo, M. Singh, J.-H. Jou, *Dyes Pigm.*, **2018**, *151*, 310-320. (DOI: 10.1016/j.dyepig.2017.12.061)
10. Fine-Tuning of Photophysical and Electroluminescence Properties of Benzothiadiazole-Based Emitters by Methyl Substitution, A. Pathak, K. R. J. Thomas, M. Singh, J.-H. Jou, *J. Org. Chem*., **2017**, *82,* 11512-11523. (DOI: 10.1021/acs.joc.7b02127)

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11. New Molecular Design Based on Hybridized Local and Charge Transfer Fluorescence for Highly Efficient (> 6%) Deep-Blue Organic Light Emitting Diodes, R. K. Konidena, K. R. J. Thomas, D. K. Dubey, S. Sahoo, J.-H. Jou, *Chem. Commun.*, **2017**, *53*, 11802-11805. (DOI: 10.1039/C7CC07139F)

12. Photophysics, electrochemistry, morphology and bioimaging applications of new 1,8-naphthalimide derivatives containing different chromophores, A. Saini, K. R. J. Thomas, A. Sachdev and P. Gopinath, *Chem. Asian J.* **2017**, *5*, 2612-2622. (DOI: 10.1002/asia.201700968)

13. Multi-substituted deep-blue emitting carbazoles: a comparative study on photophysical and electroluminescence characteristics, R. K. Konidena, K. R. J. Thomas, S. Sahoo, D. K. Dubey, J.-H. Jou, *J. Mater. Chem. C*, **2017**, *5*, 709-726. (DOI: 10.1039/C6TC04870F)

14. Bi-anchoring organic dyes that contain benzimidazole branches for dye-sensitized solar cells: effects of π spacer and peripheral donor groups, G. B. Bodedla, K. R. J. Thomas, M.-S. Fan, K.-C. Ho, *Chem. Asian J.*, **2016**, 11, 2564-2577. (DOI: 10.1002/asia.201600766)

15. Synthesis, characterization and electroluminescence of carbazole-benzimidazole hybrids with thiophene/phenyl linker, D. Karthik, K.R. J. Thomas, J.-H. Jou, Y.-L. Chen, *Dyes Pigm.*, **2016**, *133*, 132-142. (DOI: 10.1016/j.dyepig.2016.05.046)

16. Thienylphenothiazine Integrated Pyrenes: An Account on the Influence of Substitution Pattern on Optical and Electroluminescent Properties, R. K. Konidena, K. R. J. Thomas, M. Singh and J.-H. Jou, *J. Mater. Chem. C*, **2016**, **4**, 4246-4258. (DOI: 10.1039/C6TC00354K)

17. Synthesis and characterization of thieno[3,4-d]imidazole-based organic sensitizers for photoelectrochemical cells, D. Karthik, V. Kumar, K. R. J. Thomas, C.-T. Li and K.-C. Ho, *Dyes Pigm.*, **2016**, *129*, 60-70. (DOI: 10.1016/j.dyepig.2016.02.009)

18. Benzimidazole-Branched Isomeric Dyes: Effect of Molecular Constitution on Photophysical, Electrochemical and Photovoltaic Properties, G. B. Bodedla, K. R. J. Thomas, M.-S. Fan, K.-C. Ho, *J. Org. Chem.*, **2016**, *81*, 640-653. (DOI: 10.1021/acs.joc.5b02590)

19. Organic dyes containing fluoreneamine donor and carbazole π-linker for dye-sensitized solar cells, K. R. J. Thomas, A. Venkateswararao, C.-P.Lee and K.-C. Ho, *Dyes Pigm.*, **2015**, *126*, 154-165. (DOI: 10.1016/j.dyepig.2015.07.034)

20. Synthesis and photovoltaic properties of organic dyes containing *N*-fluoren-2-yl dithieno[3,2-b:2′,3′-d]pyrrole and different donors, S. Kumar, K. R. J. Thomas, C.-T. Li, K.-C. Ho, *Org. Electron.*, **2015**, *26*, 109-116. (DOI: 10.1016/j.orgel.2015.07.019)

21. Phenothiazine Decorated Carbazoles: Effect of Substitution Pattern on the Optical and Electroluminescent Characteristics, R. K. Konidena, K. R. J. Thomas, S. Kumar, Y.-C. Wang, C.-J. Li, J.-H. Jou, *J. Org. Chem.*, **2015**, *80*, 5812-5823. (DOI: 10.1021/acs.joc.5b00787)

22. Highly efficient ultra-deep blue organic light-emitting diodes with a wet- and dry-process feasible cyanofluorene acetylene based emitter, J.-H. Jou, S. Kumar, P.-H. Fang, A. Venkateswararao, K. R. J. Thomas, J.-J. Shyue, Y.-C. Wang, T.-H. Li and H.-H. Yu, *J. Mater. Chem. C*, **2015**, *3*, 2182-2194. (DOI: 10.1039/C4TC02547D)

23. Fluorene-Based Sensitizers with a Phenothiazine Donor: Effect of Mode of Donor Tethering on the Performance of Dye-Sensitized Solar Cells, A. Baheti, K. R. J. Thomas, C.-T. Li, C.-P. Lee, K.-C. Ho, *ACS Appl. Mater. Interfaces*, **2015**, *7*, 2249-2262. (DOI: 10.1021/am506149q)

24. Synthesis, optical, electrochemical and photovoltaic properties of organic dyes containing trifluorenylamine donors, A. Baheti, S. R. Gajjela, P. Balaya, K. R. J. Thomas, *Dyes Pigm.*, **2015**, *113*, 78-86. (DOI: 10.1016/j.dyepig.2014.07.036)




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