Dr. G. Sathiyan
Assistant Professor (Sr.Gr)
Department of Chemistry
Email: gsn@psgias.ac.in

Phone: +91-8883737950
Address: Room No. 316., I-Block,
PSG Institute of Advanced Studies,
Peelamedu, Coimbatore-641004

BIOSKETCH

Dr. G. Sathiyan (GS) is currently working as an Assistant Professor (Sr. Gr) in the Department of Chemistry at PSG Institute of Advanced Studies, Coimbatore. He received his Ph.D. from VIT University in 2017 and has since gained 6.5 years of research experience as a postdoctoral fellow at prestigious institutions, including VISTEC, Thailand; Jiangsu University, China; and the Indian Institute of Technology (IIT), Kanpur, India. GS has authored over 40 articles in high-impact international journals and contributed to four book chapters. His research group develops new π-conjugated organic compounds for use in organic electronics, including organic solar cells, perovskite solar cells, organic light-emitting diodes (OLEDs), and fluorescence sensors. Beyond material synthesis, we fabricate solar cell devices to evaluate their photovoltaic properties and device stability.

Educational Profile

- **Doctor of Philosophy (Ph.D.) in Chemistry (2013-2017)**
  Thesis title: Synthesis and studies of carbazole based D-A type polymer and small molecules for fluorescence and organic solar cell applications''
  Thesis Supervisor: **Dr. P. Sakthivel**, Department of Chemistry, School of Advanced Studies, VIT University, Vellore.

- **Master of Science (M.Sc.) in Chemistry (2011-2013)**
  Bharathiar University, Coimbatore, Tamil Nadu, India.

- **Bachelor of Science (B.Sc.) in Chemistry (2008-2011)**
  Bharathiar University, Coimbatore, Tamil Nadu, India.

Work experiences

S. No.	Positions Held	Name of the Institute	From	To
1.	Assistant Professor (Sr. Gr)	PSG Institute of Advanced Studies, Coimbatore, Tamil Nadu, India.	Oct -2023	Present
2.	Postdoctoral Fellow	Vidyasirimedhi Institute of Science and Technology (***VISTEC***), Rayong, Thailand.	Jan-2023	Sep-2023
3.	Assistant Professor (Sr.Gr)	Saveetha School of Engineering, Saveetha University, Tamil Nadu, India.	Oct-2021	Dec-2022

4.	Postdoctoral Fellow	Jiangsu University, Zhenjiang, China.	July-2019	June-2021
5.	National Postdoctoral Fellow	Indian Institute of Technology Kanpur (**IITK**), Uttar Pradesh, India.	Aug- 2017	June-2019
6.	Project Scientist	Indian Institute of Technology Kanpur (**IITK**), Uttar Pradesh, India.	Feb-2017	Aug-2017

Research Areas:

- Organic Functional Materials
- Organic Solar Cell
- Perovskite Solar Cell
- Chemosensing
- Polymers

Awards & Achievements

S. No.	Name of Award/Fellowship	Awarding Agency	Year
1.	Research Award	VIT University	2013
2.	Best Poster presentation award	Thiruvalluvar university	2015
3.	Research Award	VIT University	2017
4.	National Postdoctoral Fellow	Science and Engineering Research Board (SERB)	2019
5.	Young Scientist Award	Royal Science Forum, Regd. Under MSME, Govt. of India.	2022

Research Scholars (Ongoing)

Student Name: Ms. K. Gayathri

Research Topic: Solar cell

E-mail: gayathrikumaresan027@gmail.com

Funded Projects

Ongoing

UGC-DAE Consortium for Scientific Research (CRS/2024-25/1858)**;** Title**:** Development of $CsPbI_3$ Quantum Dots with Short-chain Aromatic Ligands for Perovskite Quantum Dot Solar Cells.

Completed

DST funding SERB-NPDF (Ref. No. PDF/2017/001079), during 07/08/2017 to 30/06/2019, title: Synthesis and studies of novel carbazole donor linked with different acceptor hole transporting materials for efficient PSC applications.

Journal Publications

1. K. Chokchai, **G. Sathiyan**, H. David, C. Daniel, P. Pichaya, Insights into the synthesis of a semiconducting nickel bis(dithiolene) coordination polymer, *The Journal of Physical Chemistry Letters*, 2024, 15, 50, 12218-12227. **[IF: 4.9]**
2. V. Geetha, G. Sathiyan*, Recent trends in use of plant-derived carbon dot-based fluorescent probes for heavy metal ion detection and their biological applications, *Trends in Environmental Analytical Chemistry*, 2025, 46, e00259. **[IF: 11.1]**
3. M. Ravi, M. Zhai, C. Chen, H. Wang, Z. Xia, Y. Tian, D. Kumar, **G. Sathiyan**, Cheng*, Tuning Pyrrolo[3,2-*b*] pyrrole Core-based hole transport materials properties via Addition of fluorine for highly efficient and Stable planar perovskite solar cells, *Applied Surface Science*, 2025, 680, 161312. **[IF: 6.3]**
4. **G. Sathiyan***, V. Geetha, R. Selva Kumar, J. Lee, and S. Bharathi, Recent Progress in Triazine-Based Fluorescent Probes for Detecting Hazardous Nitroaromatic Compounds, *Journal of Environmental Chemical Engineering*, 2024, 12, 112804. **[IF: 7.7]**
5. R. Selvakumar, A. Chinnathambi V. Geetha S. A. Alharbi, A. Pugazhendhi and **G. Sathiyan***, Chelation-enhanced Fluorescence-enabled Coumarin-hydrazone Schiff Bases for the Detection of Al^{3+} Ions and Its Real-time Applications, *Journal of Molecular Structure,* 2024, 1302, 137411. **[IF: 3.8]**
6. P. Kar, **G. Sathiyan*,** K.E. Vivekanandan, V. Geetha, G. Siva, S. Ramesh and K. Sabariswaran*, A comprehensive review on tailoring factors of porous bismuth oxyhalide photocatalysts for wastewater treatment application, *Journal of the Taiwan Institute of Chemical Engineers,* 2023, 105234. **[IF: 5.7]**
7. **G. Sathiyan***, G. Dasi, R. Selvakumar, P. Kar, P. Sathiskumar, K. Thangaraju and P. Sakthivel, Stilbene-containing carbazole-based fullerene derivatives as alternative electron acceptor for efficient organic solar cells. *Applied Nanoscience*, 2023,13, 4101. **[IF: 3.86]**
8. B. Zhao, X. Song, H. Wang, S. Kandasamy, A. Chinnathambi, T. Alahmadi, **G. Sathiyan,** N. Thuy Lan Chi, R. Shanmuganathan, Effects of biohydrogen on premixed charge compression ignition engine operating at various inlet air temperatures. *Fuel*, 2023, 332, 125907. **[IF: 6.7]**

9. **G. Sathiyan**, H. Wang, C. Chen, Y. Miao, M. Zhai and M. Cheng*, Impact of fluorine substitution in organic functional materials for perovskite solar cell, *Dyes and Pigments*, 2022, 109, 110029. **[IF: 4.1]**
10. Y. Miao, **G. Sathiyan**, H. Wang, X. Ding, M. Zhai, C. Yang, L. Liu, Z. Xia, C. Chen, and M. Cheng*, Enhancing the performance of perovskite solar cells through simple bilateral active site molecule assisted surface defect passivation, *Chemical Engineering Journal*, 2022, 432, 134223. **[IF: 13.30]**
11. B. Wang, H. Wang, **G. Sathiyan**, C. Chen, Y. Xu and M. Cheng*, Constructing Efficient HoleTransporting Materials by Tuning Fluorine Substitution for Inverted Perovskite Solar Cells with Efficiency Exceeding 20%, *ACS Applied Energy Materials*, 2022, 5, 5901. **[IF: 5.5]**
12. Y. Miao[$], **G. Sathiyan**[$], H. Wang, Y. Tian, C. Chen, X. Ding, M. Zhai, X. Yang, and M. Cheng*, Construction of Efficient Perovskite Solar Cell Through Small-Molecule Synergistically Assisted Surface Defect Passivation and Fluorescence Resonance Energy Transfer, *Chemical Engineering Journal*, 2021, 426, 131358. **[IF: 13.30] (**$= Equal contribution)
13. **G. Sathiyan***, D. Mathivanan, B. Bhuvaneshwari, A. Garg, R. K. Gupta* and A. Singh*, Olefin-linked conjugated fluorescent oligomer: Design, synthesis, photophysical studies and detection of nitroaromatic compounds (NACs) in aqueous media, *Sensors and Actuators A: Physical*, 2021, 331, 113026. **[IF: 4.1]**
14. G. Dasi, T. Lavanya, **G. Sathiyan**, R.K. Gupta, A. Garg, P. Amaladass and K. Thangaraju*, Improved hole injection/extraction using PEDOT:PSS interlayer coated onto high temperature annealed ITO electrode for efficient device performances, *Superlattices and Microstructures*, 2021, 156, 106953. **[IF: 2.65]**
15. D. Mathivanan, K.S. Shalini Devi, **G. Sathiyan**, A. Tyagi, V.A.O.P. de Silva, B.C. Janegitz, J. Prakash*, and R.K. Gupta*, Novel polypyrrole-graphene oxide-gold nanocomposite for high performance hydrogen peroxide sensing application, *Sensors and Actuators A: Physical*, 2021, 328, 112769. **[IF: 4.1]**
11. P. Kar, K. Shukla, P. Jain, **G. Sathiyan** and R.K. Gupta*, Semiconductor based photocatalysts for detoxification of emerging pharmaceutical pollutants from aquatic systems: A critical review, *Nano Materials Science*, 2021, 3, 25-46. **[IF: 12.60]**
12. **G. Sathiyan,** A.S. Ali, C. Cheng, W. Cheng, T. Li, D. Xingdong, M. Yawei, L. Gongqiang, C. Ming* and D. Liming*, Dual effective dopant-based hole transport layer for stable and efficient perovskite solar cells, ***Nano Energy***, 2020, 72, 104673. **[IF: 16.80]**

13. A.S. Ali, M. Yawei, **G. Sathiyan,** C. Cheng, M. Zheng, X. Yang, H.B. Ji, H. Li and C. Ming*, Bipolar organic material assisted surface and boundary defects passivation for highly efficient $MAPbI_3$-based inverted Perovskite solar cell, *Solar RRL*, 2020, 4, 2000369. [**IF: 6.0**]
14. B. Bhuvaneshwari*, S. Vivekananthan. **G. Sathiyan**, G. S. Palani, Nagesh R. Iyer, K. Prabhat, K. Mondal, and R.K Gupta*, Doping engineering of V-TiO_2 for its use as corrosion inhibitor, *Journal of Alloys and Compounds*, 2020, 816, 152545. **[IF: 5.80]**
15. **G. Sathiyan,** R. Rahul, R**.** Sudhir, A. Garg, R. K. Gupta* and A. Singh*, Dicyanovinylene and thiazolo[5,4-*d*]thiazole core containing D-A-D type hole-transporting materials for spiro-OMeTAD-free perovskite solar cell applications with superior atmospheric stability, *ACS Applied Energy Materials*, 2019, 2, 10, 7609-7618. **[IF: 5.5]**
16. **G. Sathiyan*,** S. Chatterjee, P. Sen, A. Garg, R.K. Gupta*, and A. Singh*, Thiazolothiazole-based fluorescence probe towards detection of copper and iron ions through formation of radical cations, *ChemistrySelect***,** 2019, 4, 11718-11725. **[IF: 2.30]**
17. **G. Sathiyan***, B. Balasubramaniam, S. Ranjan, S. Chatterjee, P. Sen, A. Garg, R.K. Gupta*, and A. Singh*, A Novel star-shaped triazine-triphenylamine based star shape fluorescent chemosensor for selective detection of picric acid, *Materials Today Chemistry*, 2019, 12, 178. [**IF: 6.70]**
18. K. Ramki, N. Venkatesh, **G. Sathiyan**, R. Thangamuthu, and P. Sakthivel*, A comprehensive review on the reasons behind low power conversion efficiency of dibenzo derivatives-based donors in bulk heterojunction organic solar cells, *Organic Electronics*, 2019, 73, 182-204. **[IF: 3.86]**
19. V. Geetha, R. Vijayaraghavan*, S.N. Chakravarthula and **G. Sathiyan**, Fluorescent zinc oxide nanoparticles of Boswellia ovalifoliolata for selective detection of picric acid, *Frontier Research Today*, 2019, 2, 2002.
20. **G. Sathiyan**, G. Siva, J. Prakash, H.C. Swart* and P. Sakthivel*, Design and chemical engineering of carbazole based donor small molecules for organic solar cell applications, *Journal of Materials Science: Materials in Electronics*, 2018, 29, 14842. **[IF: 2.77]**
21. **G. Sathiyan***, G. Siva, E.K.T. Sivakumar, J. Prakash, H.C. Swart* and P. Sakthivel*, Synthesis and studies of carbazole based donor polymer for organic solar cell applications, *Colloid and Polymer Science*, 2018, 296, 1193. **[IF: 2.43]**
22. J. Prakash, A. Singh, **G. Sathiyan**, R. Ranjan, A. Singh., A. Garg* and R. K. Gupta*, Progress in tailoring perovskite based solar cells through compositional engineering:

materials properties, photovoltaic performance and critical issues, *Materials Today Energy*, 2018, 9, 1-47. **[IF: 9.25]**

23. J. Prakash*, V. Kumar, L.J.B. Erasmus, M.M. Duvenhage, **G. Sathiyan,** S. Bellucci, S. Sun and H. C. Swart*, Phosphor Polymer Nanocomposite: ZnO:Tb^{3+} Embedded Polystyrene Nanocomposite Thin Films for Solid-State Lighting Applications, *ACS Applied Nano Materials*, 2018, 2, 977. **[IF: 6.14]**
24. R. Ganesamoorthy, **G. Sathiyan,** and P. Sakthivel*, Review of fullerene-based acceptors for bulk heterojunction organic solar cell applications. *Solar Energy Materials and Solar Cells*, 2017, 161, 102. [**IF: 7.35]**
25. **G. Sathiyan**, and P. Sakthivel*, Synthesis and characterization of triazine linked carbazole derivatives green-light-emitting molecules, *Dyes and Pigments*, 2017, 143, 444. **[IF: 4.1]**
26. **G. Sathiyan**, R. Thangamuthu, and P. Sakthivel*, Synthesis of carbazole-based copolymer containing a carbazole-thiazolo[5,4-*d*]thiazole groups with different dopants and their fluorescence, electrical conductivity applications. *RSC Advances*, 2016, 6, 69196. **[IF: 3.9]**
27. **G. Sathiyan***, and P. Sakthivel*, Multibranched carbazole linked triazine based fluorescent molecules for selective detection of picric acid. *RSC Advances*, 2016, 6, 106705. **[IF: 3.9]**
28. **G. Sathiyan**, E.K.T. Sivakumar, R. Ganesamoorthy, R. Thangamuthu, and P. Sakthivel*, Review of carbazole based conjugated molecules for highly efficient organic solar cell application. *Tetrahedron Letters*, 2016, 57, 243-252. **[IF: 2.03]**

Book Chapters

1. P. Kar, **G. Sathiyan,** and R. K. Gupta, Reaction intermediates during the photocatalytic degradation of emerging contaminants under visible or solar light, Book Chapter-Visible Light Active Structure Photocatalysts for the Removal of Emerging Contaminants, Elsevier, Science and Engineering, 2020, 163.
2. B. Bhuvaneshwari, G. **Sathiyan,** G. S. Palani, N. R. Iyer and R. K. Gupta, Book ChapterAdvanced fiber reinforced polymer nanocomposites for structural engineering applications. Materials Science and Technology (2018).
3. **G. Sathiyan,** J. Prakash**,** R. Ranjan, A. Singh, A. Garg and R.K. Gupta, Chapter 9 - Recent Progress on Hole-Transporting Materials for Perovskite-Sensitized Solar Cells A2 - Bhanvase, Bharat A. In Nanomaterials for Green Energy, Pawade, V. B.; Dhoble, S. J.; Sonawane, S. H.; Ashokkumar, M., Eds. Elsevier: 2018; pp 279-324.

4. R. Ganesamoorthy, **G. Sathiyan,** R. Thangamuthu and P. Sakthivel, Synthesis and Characterization of bay substituted perylene diimide small molecule for organic solar cell application. Recent Trends in Materials Science and Applications Nanomaterials, Crystal Growth, Thin films, Quantum Dots, & Spectroscopy (Proceedings ICRTMSA 2016), Springer Proceedings in Physics, ISSN: 0930-8989.

Invited Talks and Guest Lectures

- **Invited Talk** on National conference on Empowerment of rural communities through innovations in science and technology held at Kongunadu Arts and Science College (KASC), Coimbatore on Feb.21, 2020.
- **Invited Talk** on International conference on structured approach of methods & techniques behind research methodology in chemical science (SAMTRMC-2020) held at Bon Secours college for women, Oct. 27, 2020.
- **Guest Lecture** on Faculty Development program on Smart materials and sensor: current updates and future perspectives held at Stella Mary's College of Engineering, Kanyakumari, July 14, 2020.
- **Guest Lecture** on Faculty Development program on organic materials for solar cell applications, organized by Narasu's Sarathy Institute of Technology, Salem, June 3,2020**.**

Total Number of Conference Papers/Proceedings: 13