

PUBLICATIONS:

Opto-electronics:

1. **Cavity-Suppressing Electrode Integrated with Multi-Quantum Well Emitter: A Universal Approach Toward High-Performance Blue TADF Top Emission OLED.**
IG Jang, Vignesh Murugadoss, T H Park, K R Son, H J Lee, W Ren, M. J. Yu, T. G. Kim
Nano-micro Letters 14, 60 (2022).
2. **Surface-modified ultra-thin indium tin oxide electrodes for efficient perovskite light-emitting diodes.**
K. R. Son, Y. –H. Kim, D. H. Kim, W. Ren, Vignesh Murugadoss, T. G. Kim
Applied Surface Science 575, 151783 (2022).
3. **Manipulation of blue TADF top-emission OLEDs by the first-order optical cavity design: toward a highly pure blue emission and balanced charge transport.**
W. Ren, K. R. Son, T. H. Park, Vignesh Murugadoss, T. G. Kim
Photonics Research 9, 1502-1512 (2021).
4. **Work Function-Tunable Amorphous Carbon–Silver Nanocomposite Hybrid Electrode for Optoelectronic Applications.**
A V Kesavan, B R Lee, K R Son, A C Khot, T D Dongale, Vignesh Murugadoss, P C Ramamurthy, T G Kim
ACS Applied Materials & Interfaces 13, 4284-4293 (2021).

Third Generation Solar Cells:

5. **Fluorine-induced surface modification to obtain stable and low energy loss zinc oxide/perovskite interface for photovoltaic application.**
Vignesh Murugadoss, D Y Kang, W J Lee, I G Jang, T G Kim
Advanced Composites and Hybrid Materials 5, 1385–1395 (2022).
6. **Preparation of compact TiO₂ thin film by artist spray gun-assisted pyrolysis method for lead-free perovskite solar cell.**
P Panneerselvam, Vignesh Murugadoss, S Angaiah, T G Kim
Journal of Materials Science: Materials in Electronics 32, 10412-10423 (2021).
7. **Development of MoSe₂/PANI composite nanofibers as an alternative to Pt counter electrode to boost the photoconversion efficiency of dye sensitized solar cell.**
S E Sheela, Vignesh Murugadoss, R Sittaramane, S Angaiah
Journal of Solid State Electrochemistry 24, 2289-2300 (2020).
8. **Influence of bifunctional linker on loading of Cu₂AgInS₄ QDs onto porous TiO₂ NFs to use as an effective photoanode to boost up the photoconversion efficiency of QDSC**
R Kottayi, P Panneerselvam, N Singh, Vignesh Murugadoss, R Sittaramane, S Angaiah
New Journal of Chemistry 44, 13148-13156 (2020).
9. **Development of tungsten diselenide/polyaniline composite nanofibers as an efficient electrocatalytic counter electrode material for dye-sensitized solar cell.**
S E Sheela, Vignesh Murugadoss, R Sittaramane, S Angaiah
Solar Energy 209, 508-546 (2020).
10. **Boosting Multiple Interfaces by Co-Doped Graphene Quantum Dots for High Efficiency and Durability Perovskite Solar Cells.**
H Chen, Q Luo, T Liu, M Tai, J Lin, Vignesh Murugadoss, H Lin, J Wang, Z Guo, N Wang
ACS Applied Materials & Interfaces 12, 13941-13949 (2020).
11. **Cu₂AgInSe₄ QDs sensitized electrospun porous TiO₂ nanofibers as an efficient photoanode for quantum dot sensitized solar cells.**
R Kottayi, P Panneerselvam, Vignesh Murugadoss, R Sittaramane, S Angaiah
Solar Energy 199, 317-325 (2020).
12. **Optimizing Graphene Content in NiSe/Graphene Nanohybrid Counter Electrode on Boosting Photovoltaic Performance of Dye-sensitized Solar Cells.**
Vignesh Murugadoss, J Lin, H Liu, X Mai, T Ding, Z. Guo, S. Angaiah
Nanoscale, 11, 17579-17589 (2019).
13. **A simple one-step hydrothermal synthesis of cobalt-nickel selenide/graphene nanohybrid as an advanced platinum-free counter electrode for dye sensitized solar cell.**
Vignesh Murugadoss, P. Panneerselvam, C. Yan, Z. Guo, S. Angaiah
Electrochimica Acta, 312, 157-167 (2019).
14. **A Facile Polyvinylpyrrolidone Assisted Solvothermal Synthesis of Zinc Oxide Nanowires and Nanoparticles and Their Influence on the Photovoltaic Performance of Dye Sensitized Solar Cell.**
S. Angaiah, S Arunachalam, Vignesh Murugadoss, G Vijayakumar
ES Energy & Environment, 4, 59-65 (2019).

15. **In situ grown cobalt selenide/graphene nanocomposite counter electrodes for enhanced dye-sensitized solar cell performance.**
Vignesh Murugadoss, N. Wang, S. Tadakamalla, B. Wang, Z. Guo, S. Angaiah
Journal of Materials Chemistry A, 5, 14583-14594 (2017).
16. **A wide solar spectrum light harvesting Ag₂Se quantum dot sensitized porous TiO₂ nanofibers as photoanode for high-performance QDSC.**
Nisha Singh, Vignesh Murugadoss, Jeniffa R, S. Angaiah
Journal of Nanoparticle Research, 21, 176 (2019).
17. **Constructing efficient mixed-ion perovskite solar cells based on TiO₂ nanorod array.**
L. Yang, X. Wang, X. Mai, T. Wang, C. Wang, X. Li, Vignesh Murugadoss, Q. Shao, S. Angaiah, Z. Guo
Journal of Colloid and Interface Science, 534, 459-468 (2019).
18. **Cu₂ZnSnSe₄ QDs sensitized electrospun porous TiO₂ nanofibers as photoanode for high-performance QDSC.**
N. Singh, Vignesh Murugadoss, S. Nemala, S. Mallick, S. Angaiah
Solar Energy, 171, 571-579 (2018).
19. **Influence of anti-reflecting nature of MgF₂ embedded electrospun TiO₂ nanofibers based photoanode to improve the photoconversion efficiency of DSSC.**
P. Panneerselvam, Vignesh Murugadoss, V. Elayappan, N. Lu, Z. Guo, S. Angaiah,
ES Energy & Environment, 1, 99-105 (2018).

Energy Storage Devices:

20. **2D MoSe₂-Ni(OH)₂ nanohybrid as an efficient electrode material with high rate capability for asymmetric supercapacitor applications.**
B. Kirubasankar, P. Palanisamy, S. Arunachalam, Vignesh Murugadoss, S. Angaiah
Chemical Engineering Journal, 355, 881-890 (2019).
21. **In situ grown nickel selenide on graphene nanohybrid electrodes for high energy density asymmetric supercapacitors.**
B. Kirubasankar, Vignesh Murugadoss, J. Lin, T. Ding, M. Dong, H. Liu, J. Zhang, T. Li, N. Wang, Z. Guo, S. Angaiah
Nanoscale, 10, 20414-20425 (2018).
22. **Facile synthesis of electrostatically anchored Nd(OH)₃ nanorods onto graphene nanosheets as a high capacitance electrode material for supercapacitors.**
S. Arunachalam, B. Kirubasankar, Vignesh Murugadoss, D. Vellasamy, S. Angaiah
New Journal of Chemistry, 42, 2923-2932 (2018).
23. **Enhanced Electrochemical Performance of Cu²⁺ doped TiO₂ Nanoparticles for Lithium-ion Battery.**
X -C Zhao, P Yang, L Yang, Y Cheng, H -Y Chen, H Liu, G Wang, Vignesh Murugadoss, S Angaiah, Z Guo
ES Materials & Manufacturing, 1, 67-71 (2018).
24. **Hydrothermal assisted in situ growth of CoSe onto graphene nanosheets as a nanohybrid positive electrode for asymmetric supercapacitors.**
B. Kirubasankar, Vignesh Murugadoss, S. Angaiah
RSC Advances, 7, 5853-5862 (2017).

Polymer Membrane Electrolytes for Electrochemical Energy Devices:

25. **Designing Na₂Zn₂TeO₆-Embedded 3D-Nanofibrous Poly(vinylidene fluoride)-co-hexafluoropropylene-Based Nanohybrid Electrolyte via Electrospinning for Durable Sodium-Ion Capacitors.**
D K Maurya, Vignesh Murugadoss, Z Guo, S Angaiah
ACS Applied Energy Materials 4, 8475-8487 (2021).
26. **Influence of Polypyrrole Incorporated Electrospun Poly(vinylidene fluoride-co-hexafluoropropylene) Nanofibrous Composite Membrane Electrolyte on the Photovoltaic Performance of Dye Sensitized Solar Cell.**
V. Elayappan, Vignesh Murugadoss, Z. Fei, P J Dyson, S. Angaiah
Engineered Science, 25, 78-84 (2020).
27. **A fast Li-ion conducting Li_{7.1}La₃Sr_{0.05}Zr_{1.95}O₁₂ embedded electrospun PVDF-HFP nanohybrid membrane electrolyte for all-solid-state Li-ion capacitors.**
Dheeraj Kumar Maurya, Balakrishnan Balan, Vignesh Murugadoss, Chao Yan, S. Angaiah
Materials Today Communications, 25, 101497 (2020).
28. **All-Solid-State Electrospun PVDF-HFP /Li_{7.1}La₃Ba_{0.05}Zr_{1.95}O₁₂ Nanohybrid Membrane Electrolyte for High-Energy Li-Ion Capacitors.**
Dheeraj Kumar Maurya, Vignesh Murugadoss, S. Angaiah

- The Journal of Physical Chemistry C*, 123, 30145-30154 (2019).
29. **Development of electrospun PAN/CoS nanocomposite membrane electrolyte for high-performance DSSC.**
Vignesh Murugadoss, S. Arunachalam, V. Elayappan, S. Angaiah
Ionics, 24, 4071-4080 (2018).
 30. **Influence of various ionic liquids embedded electrospun polymer membrane electrolytes on the photovoltaic performance of DSSC.**
S. Angaiah, Vignesh Murugadoss, S. Arunachalam, S. Krishnan
Engineered Science, 4, 44-51 (2018).
 31. **High-performance electrospun PVdF- HFP/SiO₂ nanocomposite membrane electrolyte for Li- ion capacitors.**
A.K. Solarajan, Vignesh Murugadoss, S. Angaiah.
Journal of Applied Polymer Science, 134, 45177 (2017).
 32. **Dimensional stability and electrochemical behavior of ZrO₂ incorporated electrospun PVdF-HFP based nanocomposite polymer membrane electrolyte for Li-ion capacitors.**
A.K. Solarajan, Vignesh Murugadoss, S. Angaiah
Nature - Scientific Reports, 7, 45390 (2017).
 33. **Montmorillonite embedded electrospun PVdF-HFP nanocomposite membrane electrolyte for Li-ion capacitors.**
A.K. Solarajan, Vignesh Murugadoss, S. Angaiah
Applied Materials Today, 5, 33-40 (2016).
 34. **Development of conjugated polyaniline incorporated electrospun poly (vinylidene fluoride-co- hexafluoropropylene) composite membrane electrolyte for high performance dye-sensitized solar cells.**
V. Elayappan, Vignesh Murugadoss, S. Angaiah, Z. Fei, P.J. Dyson
Journal of Applied Polymer Science, 132, (2015), 42777.

Photocatalysis:

35. **Sandwich structured WO₃ nanoplatelets for highly efficient photoelectrochemical water splitting.**
G. Zheng, J. Wang, G. Zu, H. Che, C. Lai, H. Li, Vignesh Murugadoss, Chao Yan, J Fan, Z Guo
Journal of Materials Chemistry A, 7, 26077-26088 (2019).
36. **Synthesis and characterization of ZnNiIn layered double hydroxides derived mixed metal oxides with highly efficient photoelectrocatalytic activities.**
D. Pan, S. Ge, X. Mai, T. Wu, Vignesh Murugadoss, H. Liu, Z. Guo, S. Angaiah,
Industrial & Engineering Chemistry Research, 58, 836-848 (2018).

Review articles

37. **The impact of electrode with carbon materials on safety performance of lithium-ion batteries: A review.**
X Jiang, Y Chen, X Meng, W Cao, C Liu, Q Huang, N Naik, Vignesh Murugadoss, M Huang, Z Guo
Carbon 191, 448-470 (2022).
38. **An Overview of Oxygen Reduction Electrocatalysts for Rechargeable Zinc-Air Batteries Enabled by Carbon and Carbon Composites.**
J Zhao, D Wei, C Zhang, Q Shao, Vignesh Murugadoss, Z Guo, Q Jiang, X Yang
Engineered Science 15, 1-19 (2021).
39. **Recent Advances in Co₃O₄ as Anode Materials for High-Performance Lithium-Ion Batteries.**
C. Hou, B. Wang, Vignesh Murugadoss, S. Vupputuri, Y. Chao, Z. Guo, C. Wang, W. Du.
Engineered Science, 11, 19-30 (2020).
40. **Tungsten oxide nanostructures and nanocomposites for photoelectrochemical water splitting.**
G Zheng, J Wang, H Liu, Vignesh Murugadoss, G Zu, H Che, C Lai, H Li, T Ding, Q Gao, Z Guo
Nanoscale, 11, 18968-18994 (2019).
41. **Progress on the photocatalytic reduction removal of chromium contamination.**
Z. Zhao, H. An, J. Lin, Vignesh Murugadoss, T. Ding, H. Liu, Q. Shao, X. Mai, N. Wang, S. Angaiah
The Chemical Record, 19, 873-882 (2019).
42. **Electromagnetic interference shielding polymers and nanocomposites -A review.**
D. Jiang, Vignesh Murugadoss, Y. Wang, J. Lin, T. Ding, C. Wang, H. Liu, N. Lu, S. Angaiah, Z. Guo
Polymer Reviews, 59, 280-337 (2019).
43. **Overview of carbon nanostructures and nanocomposites for electromagnetic wave shielding.**

C. Wang, **Vignesh Murugadoss**, Z. He, X. Mai, L. Guo, C. Liu, S. Angaiah, Z. Guo
Carbon, **140**, 696-733 (2018).

CONFERENCE PRESENTATIONS:

Oral Presentations:

- Influence of high-shear exfoliation processing parameters and stabilizer on the formation of exfoliated graphene nanosheets and its supercapacitor performance.**
Vignesh Murugadoss, S. N. Reddy, Ashok Kumar S, A. Subramania
Presented in the *National Conference on New Avenues and Advancements in Material Science (NAAMS-2022)*, held on 26 September 2022, Organized by Department of Chemistry, SRM University (Ramapuram campus), Chennai, Tamil Nadu, India.
- Effect of various ionic liquids on the performance of electrospun polymer membrane electrolyte based DSSC.**
K. Sarath Kumar, **Vignesh Murugadoss**, A. Subramania
Presented in the *International Conference on Nanoscience and Nanotechnology (ICONN - 2017)*, held on 9-11 September 2017, Organized by Department of Physics and Nanotechnology, SRM University, Chennai, Tamil Nadu, India.
- Development of electrospun PVdF-HFP/PTh nanocomposite membrane electrolyte for high-performance DSSCs.**
Vignesh Murugadoss, Binod Kumar, K. Sarath kumar, A. Subramania
Presented in the *International Conference on Membrane Technology and its Application (MemSep - 2017)*, held on 21-23 February 2017, Organized by Department of Chemical Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu, India.
- Polypyrrole Incorporated Electrospun PVdF-HFP Nanofibrous Membrane for High Photovoltaic Performance DSSCs.**
E. Vijayakumar, **Vignesh Murugadoss**, A. Subramania
Presented in the *International Conference on Nanomaterials and Nanotechnology (NANO-15)*, held on 7-10 December 2015, Organized by K.S. Rangasamy College of Technology, Tiruchengode, Tamilnadu, India.
- Thermal and Dimensional Stabilities of Electrospun PVdF-HFP/PI Nanofibrous Composite Membrane Electrolyte for High-Performance Asymmetric Supercapacitors.**
S. Arunkumar, **Vignesh Murugadoss**, A. Subramania
Presented in the *International Conference on Nanostructured Polymeric Materials and Polymer Nanocomposites (ICNPM-2015)*, held on 13-15 November 2015, Organized by Mahatma Gandhi University, Kottayam, Kerala, India.
- Graphene Nanosheets Incorporated Electrospun Polyacrylonitrile Nanofibrous Membrane for High Photovoltaic Performance Dye-Sensitized Solar Cells.**
Vignesh Murugadoss, E. Vijayakumar, A. Subramania
Presented in the *International Conference on Nanostructured Polymeric Materials and Polymer Nanocomposites (ICNPM-2015)*, held on 13-15 November 2015, Organized by Mahatma Gandhi University, Kottayam, Kerala, India.
- High-performance dye sensitized solar cell based on electrospun poly(vinylidene fluoride-co-hexafluoropropylene) / Cobalt sulfide nanocomposite membrane electrolyte.**
E. Vijayakumar, **Vignesh Murugadoss**, A. Subramania
Presented in the *International Conference on Materials for Advanced Technology (ICMAT-2015)*, held on 28th June - 3rd July 2015, Organized by NUS, Singapore.
- Preparation, characterization and photovoltaic performance of electrospun PAN/CoS polymer membrane electrolyte for DSSC applications.**
Vignesh Murugadoss, E. Vijayakumar, A. Subramania
Presented in the *National Conference on Advanced Materials for Energy and Environmental Applications (AMEEA -2015)*, held on 18-20 March 2015, Organized by Bharathiar University, Coimbatore, Tamilnadu, India.

Poster Presentations:

- Surface modification induced stable zinc oxide/perovskite interfaces with reduced energy loss for highly efficient solar cells.**
Vignesh Murugadoss, W J Lee, D Y Kang, T G Kim
Presented in the *6th International conference on advanced electromaterials*, held on 09th November - 12th November 2021, Organized by The Korean Institute of Electrical and Electronic Material Engineers, Jeju, South Korea.

10. **In-situ Grown Metal Selenide Nanoparticles onto Graphene Nanosheets as Newer Counter Electrodes for Dye-sensitized Solar Cell.**
Vignesh Murugadoss, A. Subramania
Presented in the *DST-INSPIRE Fellowship Review Meet - 2019*, held on 27th June - 29th June 2019, Organized by the Department of Science and Technology, New Delhi and SSN College of Engineering, Kalavakkam, Chennai.
11. **Development of Cobalt-Nickel Selenide nanoparticles decorated graphene to improve the photo-electrochemical behavior of DSSC.**
Vignesh Murugadoss, Zhanhu Guo, A. Subramania
2018 CNMS User Meeting, held on 13th November - 15th August 2018, Organized by The Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.
12. **In-situ Grown Nickel Selenide onto Graphene as an Efficient Hybrid Counter Electrode for High-Performance Dye Sensitized Solar Cell.**
Vignesh Murugadoss, A. Subramania
Presented in the *School on Clean and Renewable Energy Technologies via Chemical Route*, held on 27th November – 2nd December 2017, Organized by Jawaharlal Centre for Advanced Scientific Research (JNCASR), Bengaluru in association with the International Institute for Complex Adaptive Matter (I2CAM) at University of California, Davis.
13. **Hydrothermal assisted in-situ growth of nickel selenide onto graphene as an innovative nanohybrid counter electrode material for DSSC**
Vignesh Murugadoss, A. Subramania
Presented in the *International Conference on Advanced Materials (SCICON - 2016)*, held on 19-21 December 2016, Organized by Department of Sciences, Amrita Vishwa Vidyapeetham, Coimbatore, India.
14. **In-situ growth of Cobalt Selenide onto graphene as a counter electrode for DSSC**
Vignesh Murugadoss, Binod Kumar, A. Subramania
Presented in the *First Symposium on Advanced Functional Materials (FUNMAT - 2016)*, held on 26-28 May 2016, Organized by Functional Materials Division, CSIR-Central Electrochemical Research Institute (CECRI), Karaikudi, India.
15. **Development of Conjugated Polyaniline Incorporated Electrospun Poly (Vinylidene Fluoride-Co-Hexafluoropropylene) Composite Membrane Electrolyte for High-Performance Dye sensitized solar cells.**
E. Vijayakumar, Vignesh Murugadoss, A. Subramania
Second National Conference on Materials for Energy Conversion and Storage (MECS-2016), held on 11-13 March 2016, Organized by Pondicherry University, Puducherry, India.

SCHOOL/WORKSHOP/INTERNSHIPS/CONFERENCES ATTENDED:

1. **2020 Virtual MRS FALL Meeting & Exhibit** organized by **Materials Research Society, USA.**
2. **Indo-US Bhaskara Advanced Solar Energy (BASE) Internship** at Department of Chemical and Biomolecular Engineering, **University of Tennessee, Knoxville, Tennessee, USA (From April 2018 to October 2018).**
3. **Seminar on Familiarization of HRTEM and XPS** organized under DST-PURSE phase II by Central Instrumentation Facility (CIF), **Pondicherry University, Puducherry.**
4. **National workshop on Theory and Practice of Powder X-Ray Diffraction Analysis (NWPXRD-2017)** organized by Centre for Nanoscience and Technology, **Pondicherry University, Puducherry.**
5. **School on Clean and Renewable Energy Technologies via Chemical Route** organized by **Jawaharlal Centre for Advanced Scientific Research (JNCASR), Bengaluru** in association with the International Institute for Complex Adaptive Matter (I2CAM) at University of California, Davis.
6. **School and Hands-on Training on Photovoltaics for Solar Energy Harvesting** organized by Society of Advancement of Electrochemical Science and Technology (SAEST) in association with **CSIR- Central Electrochemical Research Institute (CECRI), Karaikudi.**
7. **Workshop on Crystal and Molecular Structure Determination from X-ray Diffraction Measurements** organized by Centre for Instrumentation and Maintenance Facility (CIMF), **Periyar University, Salem.**
8. **Workshop on Nanoscience and Nanotechnology (NWNST-2016)** organized by Centre for Nanoscience and Technology, **Pondicherry University, Puducherry.**
9. **Seminar on Structural analysis through X-ray diffraction** organized by Department of Physics, **Pondicherry University, Puducherry.**

10. **Workshop on Materials for Energy Conversion and Storage (MECS-2014)** organized by Centre for Green Energy Technology, **Pondicherry University, Puducherry.**
11. **EFFICYCLE' 2012** at **Dayananda Sagar College of Engineering, Bengaluru.**
12. **3D-Design** contest held at **National Institute of Technology, Tiruchirappalli.**
13. **Short term training** at **Tamilnadu State Transport Corporation (Ltd), Villupuram (From 09th June 2011 to 21st June 2011).**