Curriculum Vitae

Name
Dr. V. Ganapathy

Designation
Scientist

Qualification
M.Sc., Ph.D.

Research Experience
16 years

Education

2002-2005	B.Sc. (Chemistry) Madras University, India
2005-2007	M.Sc. (Material Science and Technology) Pondicherry University, India
2008- 2012	Ph.D (**Thesis: Electrocatalytic property of different carbon nanostructures and its effect on counter electrode for dye-sensitized solar cells**) Pohang University of Science and Technology (POSTECH), South Korea

Work

2021-Till date	Scientist Centre for Solar Energy Materials, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, India
2020-2020	SERB Research Scientist Centre for Solar Energy Materials, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, India
2015-2020	DST-INSPIRE Faculty Centre for Solar Energy Materials, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, India
2013- 2015	BK21 Research Fellow

School of Chemical Engineering,
Sungkyunkwan University (SKKU), South Korea

2012- 2013 Post-doctoral Fellow (SAINT)
SKKU Advanced Institute of Nanotechnology,
Sungkyunkwan University (SKKU), South Korea

2007- 2008 Researcher
Department of Chemical Engineering,
Pohang University of Science and Technology (POSTECH),
South Korea

Awards and Honors

1 2023 – **Best Poster presentation award at 2nd Indo-Japan workshop on Photovoltaics, at SSN Institutions, Chennai, Mar-9th, 2022, (Student presentation)**

2 2022 – **Best Paper presentation award at International conference of Advances in Energy Research (ICAER) at IIT Bombay, Dec-7th to 9th, 2022, (Student presentation)**

3 2020 – **Awarded SERB Research Scientist**

4 2018 – Selected as a Indian **Young Scientist representative** for the **BRICS Young Scientist Conclave** meet in Durban, South Africa

5 2018 – **Best Poster presentation award at National conference of Emerging Materials for Sustainable Future, Feb-09 to Feb 10, 2019, Coimbatore, India (Student presentation)**

6 2017 – **Outstanding Reviewer** for the journal **"Applied Surface Science" Nov. 2017**

7 2015 – **Awarded DST-INSPIRE Faculty Award**

8 2013/15 – **Awarded BK21 Postdoctoral Fellowship in Sungkyunkwan University, Suwon, S. Korea**

9 2012/13 – **Awarded Sungkyunkwan Advanced Institute Postdoctoral Fellowship, Suwon, S. Korea**

10 2009/10 – **Best Poster presentation award in 9th-Korea-Japan symposium on Materials & Interfaces in Ph.D., Oct-31 to Nov 3, 2010, Yeosu, S.Korea**

11 2006/07 – **Best Master Thesis Research Project award in M.Sc. (PG)**

12 2003/04 – **Second Prize in College Poster presentation in B.Sc. (UG)**

13 2003/04 – **First Prize in College Science day competition in B.Sc. (UG)**

Board of Studies Member

- ✓ JNTU Hyderabad, for M.Tech Nanotechnology

- ✓ SR University, for B.Tech & Ph.D in Department of Physics, Warangal

Chairperson for International Conference

- ✓ 3rd International Conference on Nanomaterials: Synthesis, Characterization and Applications, May 11-13, 2018, Kottayam, Kerala.

Research Areas of Interest

- ✓ Development of Opto-electronic materials and devices (Perovskites, Quantum dots and Wide band-gap semiconductors; Solar cells, Organic thin film transistors and LEDs).
- ✓ Organic-Inorganic perovskites for photodetector applications
- ✓ Green hydrogen generation from Renewable Energy
- ✓ Si/Perovskite tandem solar cells and PERC silicon solar cells.
- ✓ Low-cost and Large-scale Conducting ink development

Research Expertise

- ➢ Perovskite and Dye-sensitized solar cells from cell to module development
- ➢ Large-scale inorganic material synthesis for Photovoltaics, Hydrogen generation and Optoelectronics devices
- ➢ Development of portable indigenous instruments for large area coatings (**Automated bar coating, Automated spray coating etc.,**)
- ➢ Flexible optoelectronic devices, Metallic and Non-metallic conducting electrodes
- ➢ Study the degradation issues of perovskite solar cell
- ➢ Thin film developments by **PVD process** (ALD, CVD, Sputtering, Thermal evaporation) and **Solution process** (Screen printing, Slot-die coating, Bar coating, spray pyrolysis and dip coating)

Research Publications

- Publications: Research articles in International Journals- 63
- Book Chapters -06
- Patent -03
  - National and International conferences -30 plus

- Publications: **Total Impact Factors (IF)–435**
  Average IF/Paper-7.5

Total citation: -2195
h-index: -23

Sponsored Projects:

1. Large area perovskite solar cells, ***2015-2025***, **Department of Science and Technology** (DST)- (TRC project)- (***ongoing***)
2. Flexible Large Area and Stable Perovskite Solar Cells, ***2020-22***, **SERB Research Scientist** (SRS)- ***Completed*** **[Principal Investigator]**
3. Development of (perovskite) solar-powered autonomous road reflectors, ***2018-21***, **Scheme for Young Scientist & Technologist** (SYST)-***Completed*** **[Principal Investigator]**
4. Perovskite sensitizers and nanostructured metal oxide for next-generation solar cells, ***2015-20***, **Department of Science and Technology** (DST)-***Completed*** **[Principal Investigator]**
5. Atmospheric processing of large-area perovskite solar cells with >10% efficiency, ***2016-19***, **Clean Energy Research Initiative** (CERI)-***Completed*** **[As a Member]**
6. Development of semi-transparent, 100mm x 100mm perovskite solar cell modules for functional windows in energy efficient buildings, ***2015-2020***, **Department of Science and Technology** (DST)- (TRC project)-***Completed***
7. Structural stability studies of Organometal halide perovskite photovoltaic films under harsh environment conditions using Synchrotron in-situ x ray diffraction, ***2017***, **Photon Factory, KEK, Japan-*Completed*** [**As a Member]**

Prototypes Developed

1. Perovskite solar module powered road reflector
2. 50mm X 50mm Perovskite Solar Module
3. 100mm x 100mm Carbon perovskite solar module
4. 50mm X 50mm Dye-sensitized Solar Cell Module

Patent

1. Prashant M, Reshma Dileep K, **V. Ganapathy**, Easwaramoorthi. R, "**Opto-electronic device and method of fabricating optoelectronic device**", Indian Patent, Filled number: 202341027664, (14th April, 2023)
2. **V. Ganapathy**, Reshma Dileep, Easwaramoorthi R, S. Sakthivel, T. N. Rao, "**Method of producing highly crystalline TiO_2 nanoparticles suspension and its use in perovskite solar cell**", Indian Patent, Filled number: 202241 (22nd Sep, 2022)

3. Shi-Woo Rhee, Karunagaran Bojan, **Ganapathy Veerappan**, Hye-Min Ra, **"Dye-sensitized solar cell including metal oxide of core shell structure".** Granted Korean Patent No: 10-1079413 (**2011**).

Book Chapters

1. Ramya Krishna, Bhyrappa.P, Sudakar. C, Easwaramoorthi. R, **Ganapathy. V ***, "**Oxide free material for perovskite solar cells", Oxide free nanomaterials for energy storage and conversion applications**, Elsevier, **(2022)**, 287-306
2. S. Maniarasu, V. Manjunath, E. Ramasamy, **Ganapathy. V***, **"Hole Conductor Free Perovskite Solar Cells", Perovskite Photovoltaics-basic to advanced concepts and implementation.** Elsevier (**2018**), 289-321. **(Cited by-3)**
3. V. Manjunath, Ramya Krishna, S. Maniarasu, E. Ramasamy, S. Shanmugasundaram, **Ganapathy. V***, **"Perovskite Solar Cell Architectures" Perovskite Photovoltaics-basic to advanced concepts and implementation.** Elsevier (**2018**), 89-121. **(Cited by-1)**
4. V. Manjunath, S. Maniarasu, **Ganapathy. V**, E. Ramasamy, **"Flexible Perovskite Solar Cells" Perovskite Photovoltaics-basic to advanced concepts and implementation.** Elsevier (**2018**), 341-371. **(Cited by-5)**
5. **Ganapathy. V***, E. Ramasamy, B. Gowreeswari, **"Economical and Highly Efficient Non-Metal Counter Electrode Materials for Stable Dye-sensitized Solar Cells" Dye-sensitized Solar Cell Mathematical Modeling, Optimization and Design.** Elsevier (**2019**), 397-435. **(Cited by-6)**

List of Publications *(Total citation: 2153, h-index: 23)*

After joining in ARCI (2015-till now)

1. R. K. Dileep, N. Maticiuc, F. Mathies, Igal Levine, J. Dagar, G. Paramasivam, S. Mallick, T. N. Rao, E. Unger, **Ganapathy. V* Hybrid aromatic fluoro amine-modified SnO_2 electron transport layers in Perovskite solar cells for enhanced efficiency and stability**, Solar RRL (**2024**), **(IF: 9.2) accepted, doi.org/10.1002/solr.202300921**
2. R. K. Dileep, Igal Levine, O. Karalis, H. Hempel, E. Ramasamy, S. Mallick, T. N. Rao, E. Unger, **Ganapathy. V* Charge carrier dynamics at Carbon/perovskite interface: Implications on Carbon-based HTM-free solar cell stability**, Solar RRL (**2024**), 8, 2300960 **(IF: 9.2)**
3. R. K. Dileep, Thulasi Raman, E. Ramasamy, S. Mallick, T. N. Rao, **Ganapathy. V* Low temperature curable TiO_2 sol for Separator, HTM free Carbon-based perovskite solar cells**, Materials Advances (**2024**),4, 539-548 **(IF: 5) [Selected as cover article]**
4. Kumar Swamy Reddy, Smrutiranjan Panda, E. Ramasamy, **Ganapathy. V*,** P. H. Borse, S. Badhulika, **Exploring the impact of electron transport layer thickness and morphology on perovskite infiltration and photoresponse in HTM-free self-powered photodetector**, Solar Energy (**2023**), 265, 112106 **(IF: 7.1)**

5. Kumar Swamy Reddy, Smrutiranjan Panda, E. Ramasamy, S. Badhulika, **Ganapathy. V*,** P. H, Borse, **Fabrication of self-powered broadband photodetector by 50% replacement of Pb by Mg in $CH_3NH_3Pb_{0.5}Mg_{0.5}Cl_2I$ perovskite lattice**, Materials Advances (**2023**), 4, 6552. **(IF: 5.0) [Selected as cover article]**
6. A. Jagadeesh, **G. Veerappan,** P. S. Devi, K. N. N. Unni, S. Suraj, **Synergetic effect of TiO_2/ZnO bilayer photoanodes realizing exceptionally high V_{OC} for dye-sensitized solar cells under outdoor and indoor illumination,** Journal of Material Chemistry A (**2023**), 884, 161061. **(IF: 11.9)**
7. K. V. Seshaiah, R. K. Dileep, E. Ramasamy, **Ganapathy. V**, * S. S. K. Raavi, **Deciphering the role of (Er^{3+}/Nd^{3+}) co-doping effect on TiO_2 as an inmproved electron transport layer in perovskite solar cells,** Solar Energy (**2023**), 262, 111801. **(IF: 7.2)**
8. Maithili K. Rao, M. Selvakumar, M. G. Mahesha, S. Paramasivam, R. K. Dileep, N. S. Prabhu, **Ganapathy. V***, S. Senthilkumar, S. D. Kamath, **Pyrrolidinium induced templated growth of 1D-3D halide perovskite heterostructure for solar cell applications,** Materials Chemistry and Physics (**2023**), 303, 127668 **(IF: 4.7)**
9. Ramya Krishna, Bhyrappa.P, Sudakar. C, **Ganapathy. V**, Easwaramoorthi. R**, $MAPbI_3$ single crystal derived precursor ink for stable and efficient Perovskite Solar Cells**, Journal of Alloys and Compounds (**2023**), 944, 169082 **(IF: 6.3)**
10. S. Mandati, Ramya Krishna, **Ganapathy. V**, E. Ramasamy, **A promising Scalable Bar coating approach using Single Crystalline derived Precursor Ink for High performance Large area Perovskite Solar Cells,** Materials Today Chemistry (**2023**), 29, 101415 **(IF: 7.6)**
11. R. K. Dileep, E. Ramasamy, K. Suresh, S. Mallick, T. N. Rao, **Ganapathy. V* Compositional engineering and surface passivation for carbon-based perovskite solar cells with superior thermal and moisture stability,** Journal of Power sources (**2023**), 559, 232645. **(IF: 9.8)**
12. Ramya Krishna, **Ganapathy. V**, Bhyrappa.P, Sudakar. C, Easwaramoorthi. R**, Growth of single-crystalline $MAPbI_3$ perovskite film by a modified space-confined inverse temperature crystallization method**, Surfaces and Interfaces (**2023**), 36, 102475. **(IF: 6.1)**
13. S. Supraja, R. K. Dileep, E. Ramasamy, S. Shanmugasundaram, **Ganapathy. V***, **Influence of bi-phasic TiO_2 as Low-temperature curable Electron transport layer for efficient perovskite solar cells,** Solar Energy (**2022**), 247, 308-314. **(IF: 7.1)**
14. Ramya Krishna, **Ganapathy. V**, Bhyrappa.P, Sudakar. C, Easwaramoorthi. R**, Single crystal hybrid lead halide perovskites: Growth, properties, and device integration for solar cell application**, Crystal Growth & Design, (**2022**), 22, 6338-6362. **(IF: 4.0)**
15. R. Munniramaiah, J. M. Fernandes, M. Manivel Raja, D. B. Padmanaban, P. Supraja, M. Rakshita, N. Purushotham Reddy, G. Maharana, M. Kovendhan, **Ganapathy. V**, G. Laxminarayana, R. Rakesh Kumar, D. Haranath, Paul Joseph Daniel, **Mechanically stable ultrathin flexible metallic Au/Pt/Au tri-layer as an alternative transparent conducting electrode for optoelectronic device applications**, Vacuum, (**2022**), 206, 111487 **(IF: 4.1)**
16. R. Munniramaiah, N. Purushotham Reddy, R. Santhosh, J. M. Fernandes, D. B. Padmanaban, G. Maharana, M. Kovendhan, **Ganapathy. V**, G. Laxminarayana, M. Banavath, Paul Joseph Daniel, **Solvent effect on the optoelectronic properties of fluorine doped SnO_2 thin films prepared by spray-pyrolysis**, Surfaces and Interfaces (**2022**), 33, 102174. **(IF: 6.1)**

17. S. Mandati, R. K. Dileep, **Ganapathy. V**, E. Ramasamy, **Large area bar coated TiO_2 electron transport layers for perovskite solar cells with excellent performance homogeneity,** Solar Energy (**2022**), 240, 258-268. **(IF: 7.1)**
18. Ramya Krishna, **Ganapathy. V**, Bhyrappa.P, Sudakar. C, Easwaramoorthi. R, **Dual functional inorganic CuSCN for efficient hole extraction and moisture sealing of $MAPb_{I3}$ perovskite solar cells**, Materials Advances (**2022**), 3, 2000-2010 **(Selected as Front cover article) (IF: 5.0)**
19. P. Vijendar, M. Suresh, R. K. Dileep, B. Ramya Krishna, P. Uday bhaskar, E. Ramasamy, **Ganapathy. V***, **Temperature dependence of $MAPbI_3$ films by quasi-vapor deposition techniques and impact on photovoltaic performance and stability of perovskite solar cells,** Journal of Alloys and Compounds (**2021**), 888, 161448. **(IF: 6.3)**
20. M. Suresh, K. Vaithinathan, T. B. Korukonda, S. C. Pradhan, S. Suraj, E. Ramasamy, **Ganapathy. V***, **Ambient processed perovskite sensitized porous TiO_2 nanorods for highly efficient and stable perovskite solar cells,** Journal of Alloys and Compounds (**2021**), 884, 161061. **(IF: 6.3)**
21. S. Arun Kumar, R. K. Dileep, J. Manonmani, **Ganapathy. V***, J. Senthilselvan*, **Enhanced Power-Conversion Efficiency using Ce3+:SrF2 Down-shifting Nanophosphor based Photoelectrode for Dye-Sensitized Solar Cell Application,** ACS Applied Energy Materials (**2021**), 4, 7112. **(IF: 6.9)**
22. R. K. Dileep, S. Mandati, E. Ramasamy, S. Mallick, T. N. Rao, **Ganapathy. V***, **Rapid assessment of photovoltaic activity of perovskite solar cells by photoluminescence spectroscopy,** Materials Letters (**2021**), 299, 130056. **(IF: 3.5)**
23. A. Ashina, B. Ramya Krishna, E. Ramasamy, N. Chundi, S. Sakthivel, **Ganapathy. V***, **Dip coated SnO_2 film as electron transport layer for low-temperature processed planar perovskite solar cells**, Applied Surface Science Advances (**2021**), 4, 100066. **(IF: 6.2) (Cited by-1)**
24. R. K. Dileep, M. K. Rajbhar, A. Ashina, E. Ramasamy, S. Mallick, T. N. Rao, **Ganapathy. V***, **A Facile Co-precipitation method for Synthesis of Zn doped $BaSnO_3$ nanoparticles for photovoltaic application,** Materials Chemistry and Physics (**2021**), 258, 123939 **(IF: 4.7)**
25. A. S. Ganeshraja, S. Maniarasu, P. V. Reddy, **Ganapathy. V***, K. Vaithinathan, K. Nomura, J. Wang. **Hierarchical Sn and AgCl co-doped TiO_2 Microspheres as Electron Transport Layer for Enhanced Perovskite Solar Cell Performance.** Catalysis Today (**2020**), 355, 333-339. **(IF: 6.5) (Cited by-3)**
26. K. V. Seshaiah, A. Das, R. K. Dileep, C. Goautham, P. Supriya, **Ganapathy. V**, E. Ramasamy, P. Meduri, S. Asthana, M. Deepa, S. S. K. Raavi, **Critical role of vacancies in Neodymium doped Titania photoanodes for enhanced sensitized solar cells and photo-electrochemical cells**, Solar Energy Materials & Solar Cells (**2021**), 220, 110843. **(IF: 7.3) (Cited by-2)**
27. R. Ramarajan, N. Purushotham Reddy, R. K. Dileep, M. Kovendhan, **Ganapathy. V**, K. Thangaraju, Paul Joseph Daniel, **Large-area spray deposited Ta-doped SnO_2 thin film electrode for DSSC application**, Solar Energy (**2020**), 211, 547-559. **(IF: 7.1) (Cited by-7)**
28. Ramya Krishna, **Ganapathy. V**, Bhyrappa.P, Sudakar. C, Easwaramoorthi. R, **Stability of $MAPbI_3$ perovskite grown on planar and mesoporous electron-selective contact by inverse temperature crystallization**, RSC Advances (**2020**), 10, 30767. **(IF: 4.0) (Cited by-3)**
29. N. Purushotham Reddy, M. Kovendhan, R. K. Dileep, **Ganapathy. V**, K. Saravana Kumar, Paul Joseph Daniel, **Synthesis and characterization of nanostructured La-doped $BaSnO_3$ for dye-sensitized solar cell application**, Materials Chemistry and Physics (**2020**), 250, 123137. **(IF: 4.7) (Cited by-3)**

30. N. Purushotham Reddy, R. K. Dileep, M. Kovendhan, **Ganapathy. V***, Paul Joseph Daniel, **Prickly pear fruit extract as photosensitizer for dye-sensitized solar cell**, Spectrochimica Acta part A: Molecular and Biomolecular Spectroscopy (**2020**), 228, 117686. **(IF: 4.8) (Cited by-5)**

31. S. Velu, H. Muniyasamy, A. Siva, M. Suresh, **Ganapathy. V**, M. Sepperumal, **Design and synthesis of organic sensitizers containing carbazole and triphenylamine pi-bridged moiety for dye-sensitized solar cells**, J. of Iranian Chemical Society (**2019**), 16, 1923-1937. **(IF: 2.2) (Cited by-7)**

32. R. K. Dileep, G. Kesavan, V. Reddy, M. K. Rajbhar, S. Shanmugasundaram, E. Ramasamy, **Ganapathy. V***, **Room temperature curable carbon cathode for hole-conductor free perovskite solar cells,** Solar Energy (**2019**), 187, 261-268. **(IF: 7.1) (Cited by-15)**
33. E. Ramasamy, K. Vaithinathan, K. Ramesh Kumar, **Ganapathy. V**, **Glass-to-glass encapsulation with ultraviolet light curable epoxy edge sealing for stable perovskite solar cells**, Materials Letters (**2019**), 250, 51-54. **(IF: 3.5) (Cited by-15)**
34. S. Maniarasu, M. K. Rajbhar, R. K. Dileep, E. Ramasamy, P. V. Reddy, **Ganapathy. V***, **Hole-conductor free ambient processed mixed halide perovskite solar cells.** Materials Letters (**2019**), 245, 226-229. **(IF: 3.5) (Cited by-11)**
35. S. B. Subramanian, A. Ramani, **V. Ganapathy**, V. Anbazhagan, **Preparation of self-assembled platinum nanoclusters to combat salmonella typhi infection and inhibit biofilm formation**. Colloids and Surfaces B: Biointerfaces (**2018**), 171, 75-84. **(IF: 6.0) (Cited by-13)**
36. S. Maniarasu, T. B. Korukonda, V. Manjunath, E. Ramasamy, R. Mohan**, Ganapathy. V *. Recent Advancement in Metal Cathode and Hole-Conductor-free Perovskite Solar Cells for Low-cost and High stability: A Route Towards Commercialization**. Renewable and Sustainable Energy Reviews (**2018**), 82, 845-857. **(IF: 16.7) (Cited by-74)**
37. E. Ramasamy, P. Kathirvel, S. Kumar, S. Koppoju, Ganapathy. V. **Rapid and Scalable Synthesis of Crystalline SnO_2 nanoparticles with Superior Photovoltaic Properties by Flame Oxidation**. MRS Communications (**2017**), 7, 862-866. **(IF: 2.9) (Cited by-1)**
38. **Ganapathy. V**, * K. Zhang, S. Soman, N. Heo, J. H. Park. **Stibnite Sensitized Hollow Cubic TiO_2 Photoelectrodes for Organic-Inorganic Heterojunction Solar Cells**. Solar Energy (**2017**), 157, 434-440. **(IF: 7.1) (Cited by-5)**
39. V. Karthikeyan, S. Maniarasu, V. Manjunath, E. Ramasamy, **Ganapathy. V** * **Hydrothermally Tailored Anatase TiO_2 Nanoplates with exposed {111} facets for highly efficient Dye-sensitized solar cells**. Solar Energy (**2017**), 147, 202-208. **(IF: 7.1) (Cited by-12)**
40. G. A. Sundaram, M. Yang, K. Nomura, S. Maniarasu, **Ganapathy. V**, T. Liu, J. Wang. **^{119}Sn Mossbauer and ferromagnetic studies on hierarchical tin and nitrogen co-doped TiO_2 microspheres with efficient photocatalytic performance.** J. Physical Chemistry C (**2017**), 121, 6662-6673. **(IF: 4.1). (Cited by-16)**
41. N. Islavath, S. Saroja, K. Srinivasa Reddy, P. C. Harikesh, **V. Ganapathy**, E. Ramasamy, S. V. Joshi. **Effect of hole-transporting materials on the photovoltaic performance and stability of all-ambient processed perovskite solar cells.** J. Energy Chemistry (**2017**), 26, 584-591. **(IF: 13.5). (Cited by-19)**
42. K. Zhang, S. Ravishankar, M. Ma, **Ganapathy Veerappan**, J. Bisquert, F. F. Santiago, J. H. Park. **Overcoming Charge Collection Limitation at Solid/Liquid Interface by a controllable Crystal Deficient Overlayer**, Advanced Energy Materials (**2017**), 7, 1600923. **(IF: 29.6)**. **(Cited by-56)**

43. **Ganapathy. V**, K. Zhang, M. Ma, B. Kang, J. H. Park. **High-reversible capacity of Perovskite $BaSnO_3$/rGO composite for Lithium-Ion Battery Anodes**. Electrochimica Acta (**2016**), 214, 31-37. **(IF: 7.3). (Cited by-18)**
44. K. Zhang, L. Wang, J. K. Kim, M. Ma, **V. Ganapathy**, C. L. Lee, K. J. Kong, H. Lee, J. H. Park, **An order/disorder/water junction system for highly efficient Co-Catalyst-Free Photocatalytic Hydrogen Generation.** Energy & Environmental Science (**2016**), 9, 499-503. **(IF: 39.7) (Cited by-251)**

Before joining in ARCI-2010-2015

45. K. L. Vincent Joseph, A. Anthonysamy, E. Ramasamy, D. V. Shinde, **V. Ganapathy**, S. Karthikeyan, J. Lee, T. Park, S. W. Rhee, K.S. Kim, J. K. Kim. **Cyanoacetic Acid Tethered Thiophene for well-matched LUMO level in Ru (II)-Terpyridine Dye-Sensitized Solar Cells.** Dyes and Pigments (**2016**), 126, 270-278. **(IF: 5.1) (Cited by-9)**
46. H. Kim, ‼ **Ganapathy. V**, ‼ D. H. Wang, J. H. Park. **Large Area Platinum and Fluorine-doped Tin Oxide-free Dye sensitized Solar Cells with Silver-Nanoplate Embedded Poly (3, 4-Ethylenedioxythiophene) Counter Electrode**. Electrochimica Acta (**2016**), 187, 218-223. **(IF: 7.3)** ‼ **Equal Contribution. (Cited by-9)**
47. C. J. Mo, ‼ **V. Ganapathy**, ‼ M. Kim, J. H. Park. **Self-organized Formation of Embossed Nanopatterns on various Metal Substrates: Application To Flexible Solar Cells.** Electrochimica Acta (**2015**), 176, 636-641.**(IF: 7.3)** ‼ **Equal Contribution. (Cited by-1)**
48. **Ganapathy. V,** S. Yu, D. H. Wang, W. I. Lee, J. H. Park. **Facile Control of Intra-and Inter particle Porosity in Template-Free synthesis of Size-Controlled Nanoporous TiO_2 beads for Efficiency Organic-Inorganic Heterojunction Solar Cells.** Journal of Power Sources (**2015**), 279, 72-79. **(IF: 9.7) (Cited by-6)**
49. K. B. A. Ahmed, S. Subramanian, **V. Ganapathy**, N. Hari, A. Sivasubramanian, V. Anbazhagan. **β-siosterol-D-glucopyranoside Isolated from Desmostachyabipinnata mediate Photoinduced Rapid Green Synthesis of Silver Nanoparticles.** RSC Advances (**2014**), 4, 59130-59136.**(IF: 4.0) (Cited by-21)**
50. J. K. Kim‼, **V. Ganapathy**‼, N. Heo, D. H. Wang, J. H. Park. **Efficient Hole Extraction from Sb_2S_3 Heterojunction Solar Cells by the Solid transfer of Pre-formed PEDOT: PSS film.** J. Physical Chemistry C (**2014**), 118, 22672-22677. **(IF: 4.1)** ‼ **Equal Contribution. (Cited by-27)**
51. V. Chakrapani, K. H. Ayaz Ahmed, V. Vinod Kumar, **V. Ganapathy**, S. Philip Anthony, V. Anbazhagan. **A facile route to synthesize casein capped copper nanoparticles: an effective antibacterial agent and selective colorimetric sensor for mercury and tryptophan**. RSC Advances (**2014**), 4, 33215-33221. **(IF: 4.0) (Cited by-43)**
52. H. Kim‼, **Ganapathy. V**‼, J. H. Park. **Conducting Polymer coated Non-woven Graphite-Fiber film for Dye-sensitized Solar cells: Superior Pt-and FTO-free counter electrodes**. Electrochimica Acta. (**2014**), 137, 164-168. **(IF: 7.3)** ‼**Equal Contribution. (Cited by-27)**
53. K. B. A. Ahmed, S. Subramanian, A. Sivasubramanian, **V. Ganapathy**, V. Anbazhagan. **Preparation of gold nanoparticles using salicorniabrachiata plant extract and evaluation of catalytic and antibacterial activity.** Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy (**2014**), 130, 54-58. **(IF:4.8) (Cited by-107)**
54. S. Venkatakrishnan, **V. Ganapathy**, E. Elamparuthi, V. Anbazhagan. **Aerobic synthesis of biocompatible copper nanoparticles: Promising antibacterial agent and catalyst for**

nitroaromatic reduction and C-N cross coupling reaction. RSC Advances **(2014)**, 4, 15003-15006. **(IF: 4.0)** **(Cited by-32)**

55. **V. Ganapathy,** D. W. Jung, J. Kwon, J. Choi, H. Nansra, J. H. Park, G. Ra. Yi. **Multi Functionality of Macroporous TiO_2 spheres in Dye-sensitized and Hybrid Heterojunction solar cells**. Langmuir **(2014)**, 30, 3010-3018**. (IF: 4.3)**. **(Cited by-44)**
56. **V. Ganapathy**, E.H. Kong, Y.C. Park, Hyun. M. Jang, Shi-Woo Rhee. **Cauliflower-like SnO_2 Hollow Microspheres as Photoanode with Carbon fiber Counter Electrode for High-Performance Quantum Dot-and Dye-Sensitized Solar Cells.** Nanoscale **(2014)**, 6, 3296-3301**. (IF: 8.3)** **(Cited by-50)**
57. T. Pazhanivel, V. P. Devarajan, S. Bharathi, K. Senthil, **V. Ganapathy**, K. Yong, N. Devaraj. **Systematic Investigation on the Structure and Photophysical Properties of CdSe, CdSe/ZnS QDs and their Hybrids with Beta Carotene**. RSC Advances **(2013)**, 3, 26116-26126. **(IF: 4.0)** **(Cited by-8)**
58. J. Kwon, ‼ **V. Ganapathy**,‼ Y. H. Kim, K. D. Song, H. G. Park, Y. Jun, P. J. Yoo, J. H. Park. **Nanopatterned conductive polymer films as a Pt, TCO-free counter electrode for low-cost dye-sensitized solar cells**. Nanoscale (**2013**), 5, 7838-7844. **(IF: 8.3)** **(Cited by-62)** ‼**Equal Contribution.**
59. **V. Ganapathy**, B. Karunagaran, Shi-Woo Rhee. **Amorphous Carbon Counter Electrode for Low-cost and efficient Dye-sensitized Solar Cells.** Renewable energy (**2012**), 41, 383-388. **(IF: 8.6)** **(Cited by-60)**
60. **V. Ganapathy**, W. Kwon, Shi-Woo Rhee. **Carbon-nanofiber counter electrodes for quasi-solid state dye-sensitized Solar Cells.** Journal of Power Sources (**2011**), 196, 10798-10805. **(IF: 9.7)** **(Cited by-63)**
61. A. Anthonysamy, Y. Lee, B. Karunagaran, **V. Ganapathy**, Shi-Woo Rhee, S. Karthikeyan, Kwang Soo Kim, Min Jae Ko, Nam-Gyu Park, M. J. Ju, Jin Kon Kim. **Molecular design and synthesis of Ruthenium (II) sensitizers for high efficient Dye-sensitized Solar Cells: Combined experimental and DFT-TDDFT computational studies.** Journal of Material Chemistry (**2011**), 21, 12389-12397. **(IF: 6.6)** **(Cited by-42)**
62. **V. Ganapathy**, B. Karunagaran, Shi-Woo Rhee. **Sub-micrometer-sized Graphite as a Conducting and Catalytic Counter Electrode for Dye-sensitized Solar Cells.** ACS Applied Material & Interfaces (**2011**), 3, 857-862. **(IF: 10.3)** **(Cited by-291)**
63. **V. Ganapathy**, B. Karunagaran, Shi-Woo Rhee. **Improved performance of dye-sensitized solar cells with TiO_2/ Alumina core-shell formation using atomic layer deposition.** Journal of Power Sources (**2010**), 195, 5138-5143**. (Top 25 Hottest Articles from April to June 2010 & July to September 2010). (IF: 9.7)** **(Cited by-158)**

Other Technical Articles in Magazines and Newsletters

1. **Dr. V. Ganapathy** and Dr. P. B. Borse, Indian Scientists develops lead-free perovskite self-powered broadband photodetector for safer solar energy generation, **Ministry of Science and Technology website, DST website and various other news platforms, 29th Dec 2023**.

2. **Dr. V. Ganapathy,** Low-cost perovskite solar cells with superior thermal and moisture stability developed indigenously by Indian Scientists, **Ministry of Science and Technology website, DST website and various other news platforms, 14th July 2023.**
3. Dr. R. Easwaramoorthi and **Dr. V. Ganapathy**, Perovskite Solar Cells with enhanced stability fabricated using inorganic material, **Ministry of Science and Technology website, DST website and various other news platforms, 31st Mar 2023**.
4. Dr. R. Easwaramoorthi and **Dr. V. Ganapathy**, Copper thiocyanate to eliminate moisture leaks in perovskite PV cells, **PV magazine, 31st Mar 2023**.
5. **Dr. V. Ganapathy,** Indian Scientists develop efficient and durable solar cells by tuning the length and porosity of nanorods, **Ministry of Science and Technology website, DST website and various other news platforms, 31st Jan 2022.**
6. **Dr. V. Ganapathy,** Highly conducting, stable carbon cathode bring down production costs of next-generation solar cells**, DST website and DD news, 11th Feb 2020.**

Reviewer for International Publications

- American Chemical Society (ACS)
- Elsevier
- Royal Society of Science (RSC)
- Springer
- Willey

Reviewer for International Proposals

- Netherlands organization for Scientific Research (NWO), Netherlands
- Faculty Research Grant (FRG20), American University of Sharjah, UAE
- Faculty Research Grant (FRG19), American University of Sharjah, UAE
- Faculty Research Grant (FRG18), American University of Sharjah, UAE
- Collaborative Grant, Qatar University, Qatar

Reviewer for Masters and Ph.D Viva-Voce

- Ph.D Viva-Voce Examiner, Anna University
- Masters Viva-Voce Examiner, B.S. Abdur Rahman Crescent Institute of Science & Technology

Invited Talks *(Selectively)*

1. Ganapathy. V*, **"Materials and Processes for Organic-Inorganic Halide Perovskite Solar Cells"** Two days Workshop on perovskite Solar Cells, 15-16th Dec, 2023, Bharathidasan University, Tiruchirappali, Tamilnadu.

2. Ganapathy. V*, **"Semiconductors for Renewable Energy"** Industrial Lecture Series, IIT Tirupati, 12th Feb, 2024, Tirupati, Andhra Pradesh

Ganapathy. V*, **"Introduction to Perovskite-solar cells: Fundamentals; Do's and Don'ts"** India-UK joint Hands of training on Solar Energy Conversion Devices, VIT, Sep-22-23rd, 2022, Vellore, Tamilnadu

3. Ganapathy. V*, **"Challenges in Large-scale fabrication of perovskite-solar cells"** Webinar on Sustainable Energy Technologies, IIT Guwahati, April 28, 2022, Guwahati, Assam

4. Ganapathy. V*, **"Emerging Trends in Photovoltaic Technology"** Workshop on Energy Conversion and Storage Devices, IIT Hyderabad, July 1-5, 2021, Hyderabad, Telangana.

5. Ganapathy. V*, **"Solar Cells and Module Fabrication"** Workshop on Energy Conversion and Storage Devices, IIT Hyderabad, July 1-5, 2021, Hyderabad, Telangana.

6. Ganapathy. V*, **"Moisture Resistant Quasi-Two Dimensional Perovskite and Carbon Electrodes for Stable Perovskite Solar Cells"** India-UK 2nd International Conference on Advanced Nanomaterials for Energy, Environment and Healthcare Applications, Feb-4-6, 2019, Tiruchirappali, Tamilnadu.

7. Ganapathy. V*, **"Nanostructured Materials for Photovoltaic Applications"** 3rd International Conference on Nanomaterials: Synthesis, Characterization and Applications, May 11-13, 2018, Kottayam, Kerala.

8. V. Ganapathy * "Next-generation photovoltaics for sustainable green energy" Nanofluid Application for Heat-Transfer and Energy Systems & Simulation using CFD, Andhra University, Sept. 2016, Visakapatinam, Andhra Pradesh.

9. **Ganapathy. V***, **"Inorganic sensitizers and nanostructured metal oxides for next-generation solar cells.** ARCI, Hyderabad, 2014.

10. **Ganapathy. V***, **"Alternative counter electrode and recombination free photoelectrode for highly efficient and stable dye-sensitized solar cells.** CSIR-CECRI, Karaikudi, 2012.

Ph.D Dissertation Supervised

1. ***Ms. Reshma K. Dileep***: Carbon based perovskite solar cells from labscale to large area devices with high stability and reproducibility, **ARCI & Pursuing Ph.D @ IITB (Thesis Submitted)**

UG/PG Dissertation Supervised: Totally 14

1. Synthesis and Development of Hole-conductor Free Mixed Halide based Perovskite Solar Cell, by ***Mr. M. Suresh,*** **M.Tech: 2015-16. (Postdoc @ Helmholtz-Zentrum Berlin)**

2. Design and Fabrication of Perovskite Solar Cell by Semi-vapor deposition, by ***Mr. P. Vijendhar Reddy***, **M. Tech: 2016-17. (Pursuing PhD @ NPL Delhi)**

3. Hole conductor and Metal cathode free Mixed Cation Perovskite Solar Cells, by ***Ms. Reshma K. Dileep***, **M. Tech: 2017-18. (Presently SRF @ ARCI & Pursuing Ph.D @ IITB).**

4. Inorganic Hole Transport Material for Highly Stable Perovskite Solar Cells, by ***Ms. Ashina***, **M.Sc: 2017-18. (Presently School Teacher).**

5. Synthesis of Lanthanum doped Tin Oxide Beads for ETM layer in Perovskite Solar Cells, by ***Mr. Aditya***, **M. Tech: 2018-19.**

6. Synthesis and Fabrication of Highly Stable Dion-Jacboson Quasi 2D Perovskite based Solar Cell, by ***Mr. Arya Vidhan***, **M. Tech: 2018-19. (Pursuing Ph.D @ IITB).**

7. Metal Cathode free Flexible Perovskite based Solar Cell, by ***Mr. Mohan Kumar***, **M. Tech: 2018-19. (Pursuing Ph.D @ IISC).**

8. Impact of passivation in $MAPbI_3$ film by a fluorinated 2D cation for enhanced stability, by ***Mr. Thulasi Raman***, **M.Sc: 2020-21. (Pursuing Ph.D @ Univ. of Manitoba, Canada).**

9. Development of Transparent Conductive Electrode by Nano Soldering for Opto-Electronic devices, by ***Mr. S. Adil***, **M. Tech: 2021-22**

10. Alkali metal Fluoride doped Electron transport layer for highly stable Low-Temperature Perovskite Solar Cell, ***Mr. Nithish Molla***, **M. Tech: 2021-22 (Executive Trainee @ NPCIL).**

11. Synthesis of single crystalline Titanium Dioxide by utilizing Amino group as surfactant, by ***Mr. P. Dhanush***, **M.Sc: 2021-22.**

Man-Power Trained

1. ***Ms. Tulja Bhavani***, Synthesis and Characterization of 1-D Nano-Structured Perovskite for Photovoltaic Applications, **PGTP: 2015-16. (Postodoc @ Purdue Univ).**
2. ***Mr. Vishesh Manjunath***, Improving the Efficiency of Perovskite Solar Cell, **PGTP: 2016-17. (Completed Ph.D @ IIT Indore)**
3. ***Mr. P. Vijendhar Reddy***, Design and Fabrication of Perovskite Solar Cell by Semi-vapor deposition, **PGTP: 2017-18. (Pursuing Ph.D @ NPL Delhi)**
4. ***Ms. Reshma K. Dileep***, Hole conductor and Metal cathode free Mixed Cation Perovskite Solar Cells, **PGTP: 2017-18. (Presently SRF @ ARCI & Pursuing Ph.D @ IITB).**
5. ***Ms. Ashina*** Inorganic Hole Transport Material for Highly Stable Perovskite Solar Cells, **M.Sc: 2018-19. (Presently school teacher)**
6. ***Mr. Smrutiranjan Panda,*** Inorganic hole transport material for carbon based perovskite solar cells**, GTP: 2022-23. (Presently Project associate @ IISC)**

Affiliation to Professional societies

Electrochemical Society (ECS)
International Solar Energy Society (ISES)

Contact Information

Dr. V. Ganapathy
Centre for Solar Energy Materials, ARCI
Balapur, Hyderabad
Tel: +91-40-24452466, Email: ganagv@arci.res.in ; ganagv@gmail.com