

Dr.Hemalatha Parangusan

Citations: 1830

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Summary

- Exposures to new material preparation and their application with 9+ years of experience in developing methods
 - For different composites and nanocomposites preparation using conducting polymer and PVDF polymers.
 - Complete analysis of the material using different tools
 - Potential application of obtained composites in different fields.
 - Synthesis & characterization of nanoparticles and also in manufacturing nanocomposites for industrial applications, especially sensors, piezoelectrics, energy storage, Dielectrics, and flexible electronics.
- Strong desire to interact with material scientists has been the key strategy in my research
- Passion for research and self-motivation has led to 46 publications and 2 book chapters.

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Qualifications

- **Ph.D (Physics)**(Sep 2016), Ayya Nadar Janaki Ammal College (Madurai Kamaraj University), Sivakasi.
- **M.Phil. (Physics)** (Dec 2008), Annamalai University, Chidambaram.
- **M.Sc. (Physics)** (April 2005), V.V.Vanniaperumal College for Women, Virudhunagar.
- **B.Sc. (Physics)** (April 2002), Sri. S. Ramasamy Naidu College, Sattur.

Professional Experience

- **April 2019- Nov 2024:** Researcher, Qatar University Young Scientists Center, Qatar University, Qatar.
- **May 2018-March 2019:** Researcher (Tissue Engineering), Hamad Medical Corporation, Qatar.
- **Oct 2016-Apr 2018:** Researcher, Center For Advanced Materials, Qatar University, Qatar.
- **Dec 2005-May 2008:** Lecturer, Department of Physics, SRNM college, TamilNadu, India.

Academic Achievements

- Recognized in the **top 2%** Scientists according to the global list compiled by Standford University in 2024.

Awards

- **Best Poster Presentation Award:** National Conference on Advanced Materials (NCAM 2013), India.
- **Best Scientific Professor for Al-Bairaq** in “Al-Bairaq I am a Researcher” 14th cycle”, Nov-2017, Program of Center for Advanced Materials, Qatar University, Qatar.
- **Chaired a session:** International Conference on Materials Science and Engineering, (ICMSE 2017), Amsterdam, Netherland.
- **Chaired a Session:** International Conference and Exhibition on Materials science and chemictry, Berlin, Germany.

Awarded Projects/Grants

Project 1: *An integrated NFC sensor for monitoring of concrete structure's life span and oil/gas pipeline leakage (Funded by Qatar National research fund-UREP 24-133-2-036)-2019.*

Role: Research mentor

Summary: This proposal mainly aims at developing and designing NFC sensors for their effective application in smart safety technology. The proposal is made simple and easy to understand, particularly for undergraduate students. The significant aim of this proposal is to introduce multi-disciplinary research topics to undergraduate students of Qatar University.

Project 2: *Development of next-generation flexible, ultrathin, and ultrasensitive gas sensors based on 2D semiconductors for the oil and gas industry (Funded by Qatar National Research fund-UREP 25- 057-2- 023)-2020.*

Role: Research mentor

Summary: This undergraduate research project will provide a systematic study on materials sensing mechanism and property optimization and high selectivity of chemical sensors based on 2D TM semiconductors. 2D TM semiconductor nanocomposites will be tuned with different nanomaterials to customize the sensor to sense specific gases from the mixture of gases.

Project 3: *Flexible and durable hybrid nanocomposites as self-powered gas sensors (Funded by Qatar National Research fund-UREP 28-190-2-046-2022).*

Role: Research mentor

Summary: This proposal is designed in such a way that the undergraduate students will get a chance to understand the concepts of material science, and multifunctional materials and can contribute to the technological improvement of Qatar.

Project 4: *Self-powered air-quality monitoring sensor through piezoelectric and triboelectric nanogenerator (Funded by Qatar National Research Fund-CCE01-1108-230163)-2024.*

Role: Principal Investigator

Summary: The main aim of this project is to design and fabricate a self-powered air quality sensor by integrating nanogenerators with the sensing components.

Invited lecturers as Resource person

- **Invited speaker** in “International Seminar on Emerging Trends in Materials Science (July 2018)”, Sri. S. Ramasamy Naidu Memorial college, Sattur Tamilnadu, India.

Journal Publications

- 1. An Impedance Humidity Sensor based on CVD-grown WSe₂ 2D films**, Jolly, Lucas M. Sassi, Eliezer Fernando Oliveira, Jordan A. Hachtel, Hemalatha Parangusan, Shoaib Alam Mallick, Zubair Ahmed, Douglas S. Galvao, Anand, Robert Vajtai, Pulickel M. Ajayan, Noora Al-thani, *ACS Applied Electronic Materials* (2024), **(Impact factor 4.3)**
- 2. Fabrication of free-standing nano-SiO₂ incorporated solid polymer electrolytes on poly(vinyl chloride)**, S. Jayanthi, Hemalatha Parangusan, Anandha Babu, Sundaresan, Deepalekshmi Ponnamma, *Ionics* (2024), **(Impact factor 2.4)**
- 3. Tailored nanofiber composites for a flexible piezoelectric nanogenerator: Poly(vinylidene fluoride) with BaTiO₃/NiFe₂O₄**, Hemalatha Parangusan, K. Karuppasamy, Jolly Bhadra, *Journal of Alloys and Compounds* (2024), **(Impact factor 6.37)**

4. **α -Fe₂O₃/ZnO nanocomposite as an efficient photocatalyst for wastewater treatment and flexible electronic device applications**, Saisree Sridharan, Sundara Venkatesh, Jeganathan Kulandaivel, Gopalakrishnan, Hemalatha Parangusan, Deepalekshmi Ponnamma, *Ionics* (2024), **(Impact factor 2.4)**.
5. **Development of flexible PVDF/BaTiO₃-MoS₂ polymer nanocomposites for energy harvesting and gas sensing applications**, Hemalatha Parangusa, Dana Sowaidi, rElhassen Sheck Elhadrami, Deepalekshmi Ponnamma, Jolly Bhadra, *Journal of Materials Science: Materials in Electronics* (2024), **(Impact factor 2.220)**
6. **Trilayer composite scaffold for urethral reconstruction: in vitro evaluation of mechanical, biological and angiogenic properties**, Tariq O. Abbas, Hemalatha Parangusan, Mohamed Hassan, Lubna Zarif, Pennisi, *Biomedical Materials* (2024). **(Impact factor 3.9)**.
7. **Engineering the structural, optical, and photoelectrochemical properties of BaTiO₃/CoFe₂O₄ nanocomposite for photoelectrochemical water splitting**, Hemalatha Parangusan, Jolly Bhadra, K. Karuppasamy, Zubair Ahmed, and Noora Al-Thani (*Journal of Electrochemica acta*) (2023), **(Impact factor 5.5)**.
8. **Current trends and prospects in catalytic upgrading of lignocellulosic biomass feedstock into ultrapure biofuels**, K. Karuppasamy, T. Jayaraman, A. Selvaraj, D. Vikaraman, Hemalatha Parangusan, R. Mythili, M. Y. Choi, H. S. Kim, (*Environmental Research* (2023), **(Impact factor 7.7)**.
9. **Unveiling the redox electrochemistry of 1D, urchin-like vanadium sulfide electrodes for high-performance hybrid supercapacitors**, K. Karuppasamy, D. Vikaraman, S. Hussain, B. Thirumalraj, P. Santhoshkumar, Hemalatha Parangusan, H. C. Park, J. Jung, H. S. Kim, *Journal of Energy Chemistry*, (2023) **(Impact factor 14.0)**.
10. **Synthesis and Photoelectrochemical performance of Co-doped SrTiO₃ nanostructures photoanode**, Arthi Mishra, Hemalatha Parangusan, Jolly Bhadra, Zubair Ahmed, Shoaib Mallick, Farid Touati, Noora Al-Thani, *Environmental progress and sustainability*, 2022.
11. **Comparative study on gas sensing properties of 2D (MoS₂, WS₂)/PANI nanocomposite based sensor** Hemalatha Parangusan, Jolly Bhadra, Razen A. Al-Qudah, E. Cheikh, N. J. Al-Thani, *Nanomaterials* (2022) **(Impact factor 4.4)**.
12. **Hierarchical BaTiO₃/NiFe₂O₄ nanocomposite as an efficacious photoanode for Photoelectrochemical Water Splitting**, Hemalatha Parangusan, Jolly Bhadra, Shoaib Mallick, K. Karuppasamy, Farid Touati, Noora Al-Thani, *Ceramic International*, 2022 **(Impact factor 5.1)**.
13. **Electrospun PVDF/ZnO based composite fibers for Oil absorption and Photocatalytic Degradation of Organic dyes from waste water**, Hemalatha Parangusan, Jolly Bhadra, Zubair Ahmed, Ali SMA Al-Maadeed, Abdulaziz, MAA Al-Mohannadi, Noora Al-Thani, *Fibers and Polymers*, 2022 **(Impact factor 2.2)**.
14. **Development of a piezoelectric nanogenerator based on mesoporous silica/zinc oxide hybrid nanocomposite fibers**, Jolly Bhadra, Deepalekshmi Ponnamma, Asma Alkareem, Hemalatha Parangusan, Zubair Ahmed, Noora Al-Thani, Amal KE Daifalla, Noora Ali Al-Sanari, Radwa Mohamed, *International Journal of Energy Research*, 2022 **(Impact factor 4.3)**.

15. **Sensors in advancing the capabilities of corrosion detection: A review**, M. Sai Bhargava Reddy, Deepalekshmi Ponnamma, Kishor Kumar Sadasivuni, Sharma Aich, Saraswathi Kailasa, [Hemalatha Parangusan](#), Muna Ibrahim, Shady Eldeib, Omar Shehata, Mohammad Ismail, Ranin Zarandah, *Sensors and Actuators A: Physical*, 2021 **(Impact factor 4.1)**.
16. **Humidity sensor based on poly(lactic acid)/PANI-ZnO composite electrospun fibers**, [Hemalatha Parangusan](#), Jolly Bhadra, Zubair Ahmed, Shoaib Mallick, Farid Touati, Noora Al-Thani, *RSC Advances*, 2021 **(Impact factor 3.9)**.
17. **Electrical and Electrochemical characteristics of withania somnifera Leaf Extract incorporation Sodium Alginate Polymer Film for Energy Storage Applications**, K. Chinnaiah, T. Theivashanthi, Karthik Kannan, M. S. Revathy, [Hemalatha Parangusan](#), S. Christopher Jeyaseelan, K. Gurushankar, *Inorganic and Organometallic Polymers and Materials*. **(Impact factor 3.9)**.
18. **Flexible piezoelectric nanogenerator based on[P(VDF-HFP)]/PANI-ZnS electrospun nanofibers for electrical energy harvesting**, [Hemalatha Parangusan](#), Jolly Bhadra, Noora Al-Thani, *Journal of Materials Science: Materials in Electronics*, 2021 **(Impact factor 2.8)**.
19. **A review of passivity breakdown on metal surfaces: influence of chloride and sulfide-ion concentration, temperature and pH**, [Hemalatha Parangusan](#), Jolly Bhadra, Noora Al-Thani, *Emergent Materials*, 2021 **(Impact factor 4.8)**.
20. **La³⁺/Sr²⁻ dual substituted Hydroxyapatite Nanoparticles as Bone substitutes: Synthesis and Characterization, In Vitro Bioactivity and Cytocompatibility**, Lakshmanaperumal Sundarabharathi, Mahendran Chinnaswamy, Deepalekshmi Ponnamma, [Hemalatha Parangusan](#), Mariam Al Ali-Al-Maadeed, *Journal of Nanoscience and Nanotechnology*, 2020 **(Impact factor 1.3)**.
21. **Enhanced Corrosion protection of epoxy/ZnO-NiO nanocomposite coatings on steel**, Muna Ibrahim, Karthick Kannan, [Hemalatha Parangusan](#), Shady Eldeib, Omar Shehata, Mohammad Ismail, Ranin Zarandah, Kishor Kumar Sadasivuni, *Coatings*, 2020 **(Impact factor 2.9)**.
22. **Effect of sulfonated Poly(ether ether ketone) on the sensitivity of polyvinylidene fluoride-based resistive humidity sensors**, Shoaib Mallick, Zubair Ahmed, Abubaker Eribi, [Hemalatha Parangusan](#), Jolly Bhadra, Mohammad K Hassan, Noora J Al-Thani, Farid Touatin, Shaheen Al-Muhtaseb, *Materials today Communications*, 2020 **(Impact factor 3.7)**.
23. **Capacitive type humidity sensor based on PANI decorated Cu-ZnS porous microsphere**, [Hemalatha Parangusan](#), Jolly Bhadra, Zubair Ahmad, Shoaib Mallick, Farid Touati, Noora Al-Thani, *Talanta*, 2020 **(Impact factor 5.6)**.
24. **Investigation of the structural, optical and gas sensing properties of PANI coated Cu-ZnS microspherecomposite**, [Hemalatha Parangusan](#), Jolly Bhadra, Zubair Ahmad, Shoaib Mallick, Farid Touati, Noora Al-Thani, *RSC Advances*, 2020 **(Impact factor 3.9)**.

25. **Electrospun Polystyrene/PANI-Ag fibers for organic dye removal and antibacterial application**
Jolly Bhadra, Hemalatha Parangusan, Anton Popelka, Marian Lehocky, Petr Humpolicek, Noora Al-Thani, *J.Environmental Chemical Engineering*, 2020 **(Impact factor 7.4)**.
26. **Electrospun Nanofibers of PVDF-HFP composites containing magnetic nikel ferrite for energy harvesting application**, Deepalekshmi Ponnamma, Omar Aljarod, Hemalatha Parangusan, Mariam Al Ali Al-Maadeed, *Materils chemistry and Physics*, 239, 122-257, 2020 **(Impact factor 4.3)**.
27. **White Graphene-Cobalt Oxide Hybrid Filler Reinforced Polystyrene Nanofibers For selective Oil Absorption**, Deepalekshmi Ponnamma, Sabari Nair, Hemalatha Parangusan, Mohammed Hassan, Samer Adham, Almgir Karim, Mariam Al Ali Al-Maadeed, *Polymers*, 12 (1), 2020 **(Impact factor 4.7)**.
28. **Effect of anions on the structural, morphological and dielectric properties of hydrothermally synthesized hydroxyapatite nanoparticles**, Lakshmanaperumal Sundarabharathi, Deepalekshmi Ponnamma, Hemalatha Parangusan, Mahendran Chinaswamy, Mariam Al Ali Al-Maadeed, *SN Applied science*, 2(1), 94, 2020 **(Impact factor 2.8)**.
29. **Green Synthesized materials for sensor, actuator, energy storage and energy generation: a review**
Deepalekshmi Ponnamma, Hemalatha Parangusan, Kalim Deshmukh, Pradip Kar, Basheer Ahamed, Mariam Al Ali Al-Maadeed, *Polymer-Plastics Technology and Materials*, 1- 62, 2019 **(Impact factor 2.66)**.
30. **Smart robust electrospun fabrics of piezoelectric polymer nanocomposite for self-powering electronic textiles**, D Ponnamma, Hemalatha Parangusan, A. Tanvir, Mariam Al Ali-Al-Maadeed, *Materials & Design*, 184, 108176, 2019 **(Impact factor 7.6)**.
31. **Effect of cerium doping on the Optical and Photocatalytic properties of ZnO nanoflowers**, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al-Maadeed, *Bulletin of Materials Science*, 42(4), 179, 2019 **(Impact factor 1.9)**.
32. **Reduction in Piezoelectric voltage generation for the cerium doped nickle ferrite nanoparticles filled PVDF-HFP nanocompoistes**, Deepalekshmi Ponnamma, O. Aljarod, Hemalatha Parangusan, Mariam Al-Ali Al-Maadeed, *Results in physics*, 13, 102130, 2019 **(Impact factor 4.4)**.
33. **Cytocompatibility and Dielectric Properties of Sr²⁺ substituted Nano-hydroxyapatite for Triggered Drug release**, Lakshmanaperumal Sundarabharathi, Mahendran Chinnaswamy, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al Ali Al-Maadeed, *Frontiers in Advanced Materials Research*, 1(1), 18-24, 2019 **(Impact factor 2.008)**.
34. **Designing carbon nanotube based Oil absorbing membranes from Gamma irradiated and Electrospun polystyrene nanocomposites**, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mohamed Hassan, Samer Adham, Mariam Al Ali Al- Maadeed, *Materials*, 12 (5), 2019 **(Impact factor 3.1)**.

35. Toward High power Generating Piezoelectric Nanofibers: Influence of Particle size and Surface Electrostatic interaction of Ce- Fe₂O₃ and Ce-Co₃O₄ on PVDF, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al Ali Al-Maadeed, *ACS Omega*, 4, 6312-6323, 2019 **(Impact factor 3.7)**.
36. Investigation on the Effect of γ -irradiation on the Dielectric and Piezoelectric properties of stretchable PVDF/Fe-ZnO nanocomposites for self-powered Devices, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al Ali Al-Maadeed, *Soft Matter*, 43, 2018 **(Impact factor 2.9)**.
37. Nanoflower-like Yttrium doped ZnO photocatalyst for the degradation of Methylene Blue Dye, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al Ali Al-Maadeed, M. Alagar, *Photochemistry and Photobiology*, 94, 2018, 237-246 **(Impact factor 2.6)**.
38. Investigation of Antimicrobial properties and in-vitro Bioactivity of Ce³⁺/Sr²⁺ Dual substituted nano Hydroxyapatites, A Lakshmanaperumal Sundarabharathi, Mahendran Chinnaswamy, Deepalekshmi Ponnamma, Hemalatha Parangusan, Mariam Al Ali Al-Maadeed, *American Ceramic Society*, 2018, 1- 14 **(Impact factor 3.5)**.
39. Stretchable Electrospun PVDF-HFP/Co-ZnO Nanofibers as Piezoelectric Nanogenerators, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al Ali Al-Maadeed, *Sci. Reports*, 8, 2018, 754 **(Impact factor 3.8)**.
40. Stretchable quaternary phasic PVDF-HFP nanocomposite films containing graphene-titania-SrTiO₃ for mechanical energy harvesting, Deepalekshmi Ponnamma, Alper Erturk, Hemalatha Parangusan, Kalim Deshmukh, M. Basheer Ahmad, Mariam Al-Maadeed, *Emergent Materials* (2018), **(Impact factor 4.8)**.
41. Flexible tri-layer piezoelectric nanogenerator based on PVDF-HFP/Ni-doped ZnO nanocomposites, Hemalatha Parangusan, Deepalekshmi Ponnamma, Mariam Al Ali Al-Maadeed, *RSC. Adv*, 7, 2017, 50156 **(Impact factor 3.9)**.
42. In-Vitro biocompatibility, bioactivity and photoluminescence properties of Eu³⁺/Sr²⁺ dual doped nano-hydroxyapatite for biomedical applications, A Lakshmanaperumal Sundarabharathi, Mahendran Chinnaswamy, Deepalekshmi Ponnamma, Hemalatha Parangusan, Mariam Al Ali Al-Maadeed, *J. Biomed Mater Res Part B*, 2017, Doi: 10.1002/jbm.b.34023 **(Impact factor 3.2)**.
43. La-doped ZnO nanoflower as photocatalyst for methylene Blue dye degradation under UV irradiation, P. Hemalatha, S. N. Karthick, K. V. Hemalatha, Moonsuk Yi, Hee-Je-Kim, M. Alagar, *J Mater Sci: Mater Electron*, 27, 2016, 2367- 2378 **(Impact factor 2.8)**.
44. Drastic photocatalytic degradation of methylene blue dye by neodymium doped Zirconium oxide as photocatalyst under visible light irradiation, C. Dhandapani, R. Narayanasamy, S. N. Karthick, K. V. Hemalatha, S. Selvam, P. Hemalatha, M. Sureshkumar, S. Dinesh Kirupha, Hee-Je Kim, *Optik* 127 (2016) 10288 – 10296.
45. Electrical, Thermal Structural and Optical properties of Li(x) FeO₂ (1-x) Nanorods and its Applications, V.Selvamurugan, A. Arulsankar, P. Hemalatha, M. Alagar, *International Journal of Engineering Research and Technology*, Vol. 3 - Issue 1 (January - 2014)
46. Investigation of structural, Optical, and photocatalytic properties of Sr-doped ZnO nanoparticles
S. Lakshmanaperumal, P. Hemalatha, M. Alagar, K. Navaneetha Pandiyaraj, *International journal of chemical and physical sciences*, ISSN: 2319-6602. IJCPS Vol. 4, ETP -2015.

Book Chapters

1. **Polymer-Based Nanoscale Materials for Surface Coatings**, Hemalatha Parangusan, Jolly Bhadra, Deepalekshmi Ponnamma, Noora Al-thani, “*Spectroscopic characterizations of nanoscale polymer-based coatings*”, *Elsevier Publisher (ISBN: 978-0-323-90-778-1)* , 151-165, (2023).
2. **Pulsed Laser Induced Nanostructures in Liquid for Energy and Environmental Applications**, Aravindhan Selvaraj, Hemalatha Parangusan, Dhanasekaran Vikraman, A. Nicholson, Ranjith Bose, Saeed Alameri, Jayaraman Theerthagiri, Akram Alfantazi, Hyun-Seok Kim, K. Karuppasamy, “ *Metal nanoparticles and alloys produced by pulsed laser ablation in liquids for photocatalytic remediation*”, *Elsevier Publisher (ISBN: 9780443133794 (2024))*.

Conferences Attended

1. Oral presentation of paper entitled “Self-powered flexible nanocomposite fibers for piezoelectric energy harvesting applications”, *ACS Research Conference: Chemistry and Chemical Engineering in MENA, 2022, Qatar*.
2. Presented a poster entitled “Liquid exfoliated MoS₂ sheet coupled with conductive polyaniline for gas sensor” *Annual Research Forum, 2021, Qatar*.
3. Presented a poster entitled “Gas sensor based on PANI/Cu-ZnS porous microsphere film for CO₂ detection” *Annual Research Forum, 2020, Qatar*.
4. Oral presentation of paper entitled “Enhanced dielectric properties and energy storage performance of PVDF nanocomposites containing ferromagnetic metals doped ZnO nanoflowers”, *16th International conference on Emergent materials and Nanotechnology, London, UK, March 22-23, 2018*.
5. Oral presentation of paper entitled “Piezoelectric and Dielectric properties of PVDF/ZnO nanocomposites”, *2nd International conference on Materials science and Chemistry, Berlin, German, July13-14, 2017*.
6. Oral presentation of paper entitled “Piezoelectric and dielectric properties of poly(vinylidene fluoride-Hexafluoropropylene)/ZnO”, *19th International conference on Materials science and Engineering (ICMSE 2017) 14th and 15th May 2017, Netherland*.
7. Oral presentation of paper entitled “Optical property and photocatalytic activity of La- doped ZnO nanoflowers on Methylene Blue dye degradation”, *National seminar on Nanomaterials: synthesis, characterization and applications (NSONM), India, 6th and 7th Aug 2015*.
8. Oral presentation of paper entitled “Structural and Morphological properties of Neodymium doped NiO nanoparticles”, *National Seminar on Approaches and application of Nano science & Nanotechnology, India, 12&13th sept 2013*.

9. Oral presentation of paper entitled “Influence of pH on Structural, Optical and Morphological properties of Yttrium oxide nanoparticles by Co-precipitation method”, *7th International Conference on materials for Advanced Technologies (ICMAT-2013), 30 Jun-5 July 2013, Singapore.*
10. Presented a poster entitled “Preparation of Samarium doped Yttrium oxide nanoparticles and its characterization”, *III National Conference on Advanced Materials (NCAM 2013), 23-25 Jan 2013, India.*

Reviewer of Journals

- Journal of Materials Engineering and Performance, **Springer.**
- Journal of Hydrogen Energy, **Elsevier**
- Applied electrochemistry, **Springer**
- Materials& Design, **Elsevier**
- Polymers, **Elsevier**
- Scientific reports, **Nature**
- Separation and Technology, **Elsevier**
- International Journal of Energy Research, **Wiley.**

Research Output

- Published 44 research papers in prestigious international journals
- Active research collaboration with Khalifa University, UAE.

Research Interest

Overview: **Ph.D. Abstract:** In my PhD work, I have synthesized Rare earth metal oxide nanoparticles and its modifications with dopant materials by using the microwave-assisted sol-gel technique. The nanomaterial obtained is characterized by different techniques, such as FTIR, XRD, SEM, TEM, UV-vis absorption spectroscopy, and BET, and then utilized for the photocatalytic degradation of organic dyes.

Current Research Abstract: The research is mainly concentrated on developing polymer nanocomposites applicable in various fields such as high-performance Sensors, Piezoelectrics, Dielectrics, Tissue engineering, H₂ generation, oil absorbers materials etc. Both micro, as well as nanofillers are used for polymer reinforcement and in particular, the effect of semiconductors and conductive fillers on polymer properties is investigated.

In short, stronger, lighter and high-performance multifunctional materials were fabricated which can have tremendous possibilities in the technological field. I have skilled to use techniques like UV-vis absorption, Contact angle, piezoelectric studies, and Dielectric spectroscopy in characterizing the fillers as well as the composites. Fabrication of gas sensors by spin coating and electrospinning methods are also trained well.

Personal Details

Name : Hemalatha

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