

Dr. Deepalekshmi Ponnamma

Post-doctoral Researcher

Center for Advanced Materials, Qatar University

E-mail: lekshmi_deepa@yahoo.com, deepalekshmi@qu.edu.qa

Phone : +974-50182442

Citations	h-index
3158	32



https://scholar.google.com/citations?hl=en&user=4sHHOIQAAAAJ&view_op=list_works&sortby=pubdate

Academic Achievements:

- Recognized in the **top 2 %** Scientists according to the global list compiled by Stanford University in 2020.
- **2015- Ongoing:** Post-Doctoral researcher at Qatar University
- **April 2015** Doctoral Degree in Materials Engineering from Deakin University, Australia
Doctoral Thesis: Development of High Performance Materials based on Smart Elastomer Nanocomposites
- **2010-2011:** Research Fellow at Seoul National University, South Korea.

Professional Achievements

- Qualified ISO 17025 training.
- Teaching Experience of 1 year at Kerala University, India (during 2009-2010).

AWARDS

- 1) **Best Oral Presentation Award** in “National Conference on Nanostructured Materials and Nanocomposites (NCNM) 2012" Sponsored by UGC, at NSS College, Ottapalam, Kerala, India.
- 2) **Best Poster Presentation Award** in “International Conference on Recent Trends in Materials Science and Technology (ICMST) 2010”. Organized by: MRSI, Thiruvananthapuram & Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram, India.
- 3) **Best Poster Presentation Award** in “National Seminar on Recent Advances in Polymer Science and Technology-2012” Organized by Society for Polymer Science India and Mar Ivanios College Trivandrum, India.

- 4) **Invited Speaker** in “Polymer Conference for Young Researchers-2014” Organized by Society for Polymer Science India, Trivandrum Chapter.
- 5) **Best Poster Presentation Award** in “Materials Science Research day-2015” Organized by College of Materials Science and Technology Master program, College of Arts and Sciences, Qatar University
- 6) **First Runner-up Award** in “Fikra: Rising Stars of the Plastics Industry” competition featured at the GPCA Plastics Excellence Awards 2016 in Dubai.
- 7) **Best Scientific Professor for Al-Bairaq** in “Al-Bairaq- I am a Researcher -11th Cycle” program of Center for Advanced Materials, Qatar University.
- 8) **Best Scientific Professor for Al-Bairaq** in “Al-Bairaq- I am a Researcher-12th Cycle” program of Center for Advanced Materials, Qatar University.
- 9) **First Runner-up Award** Poster presentation in Materials Science and Engineering Symposium 2017, Qatar University
- 10) **Best Scientific Professor for Al-Bairaq** in “Al-Bairaq- I am a Researcher-13th Cycle” program of Center for Advanced Materials, Qatar University.

Awarded Projects/Grants

- 1) **Lead Investigator in RRC-2-114 in 2020 (Qatar National Research Fund, Qatar).**
Smart quick fix shutter for disinfecting scan glass in biometric scanners.
- 2) **Mentor in UREP24-142-1-032 in 2019 (Qatar National Research Fund, Qatar).**
Piezoelectric nanogenerators based on PVDF/metal oxide nanocomposites for self-powering devices
- 3) **Mentor in HSREP01-0425-190066 (Qatar National Research Fund, Qatar).**
Designing flexible nanogenerators for sustainable energy harvesting
- 4) **Mentor in UREP23-135-2-046 in 2018 (Qatar National Research Fund, Qatar).**
Manufacturing piezophototronic ZnO/ZnS hybrid nanoarchitecture containing PVDF membranes for energy harvesting

Journal Publications

1. **Ponnamma D**, Chamakh MM, Alahzm AM, Salim N, Hameed N, AlMaadeed MA. Core-Shell Nanofibers of Polyvinylidene Fluoride-based Nanocomposites as Piezoelectric Nanogenerators. *Polymers*. 2020;12(10):2344. (Impact Factor 3.426)

2. Jin X, Feng C, **Ponnamma D**, Yi Z, Parameswaranpillai J, Thomas S, Salim N. Review on exploration of graphene in the design and engineering of smart sensors, actuators and soft robotics. *Chemical Engineering Journal Advances*. 2020:100034.
3. **Ponnamma D**, Yin Y, Salim N, Parameswaranpillai J, Thomas S, Hameed N. Recent progress and multifunctional applications of 3D printed graphene nanocomposites. *Composites Part B: Engineering*. 2020:108493. (Impact Factor 7.635)
4. Thatikayala D, **Ponnamma D**, Sadasivuni KK, Cabibihan JJ, Al-Ali AK, Malik RA, Min B. Progress of Advanced Nanomaterials in the Non-Enzymatic Electrochemical Sensing of Glucose and H₂O₂. *Biosensors*. 2020;10(11):151. (Impact Factor 3.24)
5. Vattappalam SC, Thomas D, **Ponnamma D**, Sadasivuni KK, Pasha SK, Deshmukh K. Enhanced LPG Sensitivity for Electron Beam Irradiated Al-ZnO Nanoparticles. In *Macromolecular Symposia 2020* (Vol. 392, No. 1, p. 2000168).
6. Sundarabharathi L, Chinnaswamy M, **Ponnamma D**, Parangusan H, Al-Maadeed MA. La³⁺/Sr²⁺ Dual-Substituted Hydroxyapatite Nanoparticles as Bone Substitutes: Synthesis, Characterization, In Vitro Bioactivity and Cytocompatibility. *Journal of Nanoscience and Nanotechnology*. 2020 Oct 1;20(10):6344-53. (Impact Factor 0.734)
7. **Ponnamma D**, Sharma AK, Saharan P, Al-Maadeed MA. Gas Sensing and Power Harvesting Polyvinylidene Fluoride Nanocomposites Containing Hybrid Nanotubes. *Journal of Electronic Materials*. 2020 Apr;49(4):2677-87. (Impact Factor 1.774)
8. Elgawady Y, **Ponnamma D**, Adham S, Al-Maas M, Ammar A, Alamgir K, Al-Maadeed MA, Hassan MK. Mesoporous silica filled smart super oleophilic fibers of triblock copolymer nanocomposites for oil absorption applications. *Emergent Materials*. 2020 Jun 30:1-2.
9. AlMaadeed MA, **Ponnamma D**. Role of Research and Higher Education on Industry 4.0, Material Science as an example. In *2020 IEEE International Conference on Informatics, IoT, and Enabling Technologies (ICIOT) 2020* Feb 2 (pp. 435-439). IEEE.
10. Luo Y, Wang X, Zhang R, Singh M, Ammar A, Hassan M, **Ponnamma D**, Adham S, Al-Maadeed M, Karim A. Vertically Oriented Nanoporous Block Copolymer Membranes for Separation and Filtration. *Soft Matter*. 2020. (Impact Factor 3.33)
11. **Ponnamma D**, Parangusan H, Deshmukh K, Kar P, Muzaffar A, Pasha SK, Ahamed MB, Al-Maadeed MA. Green synthesized materials for sensor, actuator, energy storage and energy

generation: a review. *Polymer-Plastics Technology and Materials*. 2020 Jan 2;59(1):1-62. (Impact Factor 1.705)

12. El-Samak AA, **Ponnamma D**, Hassan MK, Ammar A, Adham S, Al-Maadeed MA, Karim A. Designing Flexible and Porous Fibrous Membranes for Oil Water Separation—A Review of Recent Developments. *Polymer Reviews*. 2020 Feb 27;1-46. (Impact Factor 6.766)
13. Sundarabharathi L, **Ponnamma D**, Parangusan H, Chinnaswamy M, Al-Maadeed MA. Effect of anions on the structural, morphological and dielectric properties of hydrothermally synthesized hydroxyapatite nanoparticles. *SN Applied Sciences*. 2020 Jan 1;2(1):94.
14. **Ponnamma D**, S Nair S, Parangusan H, K Hassan M, Adham S, Karim A, Al Ali Al-Maadeed M. White Graphene-Cobalt Oxide Hybrid Filler Reinforced Polystyrene Nanofibers for Selective Oil Absorption. *Polymers*. 2020 Jan;12(1):4. (Impact Factor 2.944)
15. **Ponnamma D**, Parangusan H, Tanvir A, AlMa'adeed MA. Smart and robust electrospun fabrics of piezoelectric polymer nanocomposite for self-powering electronic textiles. *Materials & Design*. 2019 Dec 15;184:108176. (Impact Factor 5.77)
16. **Ponnamma D**, Aljarod O, Parangusan H, Al-Maadeed MA. Electrospun nanofibers of PVDF-HFP composites containing magnetic nickel ferrite for energy harvesting application. *Materials Chemistry and Physics*. 2019 Oct 11:122257. (Impact Factor 2.781)
17. Elkelawy M, Bastawissi HA, Esmail KK, Radwan AM, Panchal H, Sadasivuni KK, **Ponnamma D**, Walvekar R. Experimental studies on the biodiesel production parameters optimization of sunflower and soybean oil mixture and DI engine combustion, performance, and emission analysis fueled with diesel/biodiesel blends. *Fuel*. 2019 Nov 1;255:115791. (Impact Factor 5.128)
18. Vaghasia JG, Ratnadhariya JK, Panchal H, Sadasivuni KK, **Ponnamma D**, Elkelawy M, Bastawissi HA. Experimental Performance investigations on various orientations of evacuated double absorber tube for solar parabolic trough concentrator. *International Journal of Ambient Energy*. 2019 Aug 9(just-accepted):1-7.
19. Parangusan H, **Ponnamma D**, Al-Maadeed MA. Effect of cerium doping on the optical and photocatalytic properties of ZnO nanoflowers. *Bulletin of Materials Science*. 2019 Aug 1;42(4):179. (Impact Factor 0.87)
20. Mevada D, Panchal H, ElDinBastawissi HA, Elkelawy M, Sadashivuni K, **Ponnamma D**, Thakar N, Sharshir SW. Applications of Evacuated tubes collector to harness the solar energy: A Review. *International Journal of Ambient Energy*. 2019 Jun 27(just-accepted):1-27.

21. Lakshmi R, Choudhary R, **Ponnamma D**, Sadasivuni KK, Swamiappan S. Wollastonite/forsterite composite scaffolds offer better surface for hydroxyapatite formation. *Bulletin of Materials Science*. 2019 Jun 1;42(3):107. (Impact Factor 0.87)
22. **Ponnamma D**, Aljarod O, Parangusan H, Al-Maadeed MA. Reduction in piezoelectric voltage generation for the cerium doped nickel ferrite nanoparticles filled PVDF-HFP nanocomposites. *Results in Physics*. 2019 Jun 1;13:102130. (Impact Factor 3.042)
23. Sundarabharathi L, Chinnaswamy M, Parangusan H, **Ponnamma D**, Al-Maadeed MA. Cytocompatibility and Dielectric Properties of Sr²⁺ Substituted Nano-Hydroxyapatite for Triggered Drug Release. *Frontiers in Advanced Materials Research*. 2019 May 30;1(1):18-24.
24. **Ponnamma D**, Parangusan H, Deshmukh K, Kar P, Muzaffar A, Pasha SK, Ahamed MB, Al-Maadeed MA. Green synthesized materials for sensor, actuator, energy storage and energy generation: a review. *Polymer-Plastics Technology and Materials*. 2019 May 20:1-62.
25. Parangusan H, **Ponnamma D**, AlMaadeed MA. Toward High Power Generating Piezoelectric Nanofibers: Influence of Particle Size and Surface Electrostatic Interaction of Ce-Fe₂O₃ and Ce-Co₃O₄ on PVDF. *ACS Omega*. 2019 Apr 4;4(4):6312-23. (Impact Factor 2.584)
26. **Ponnamma D**, Sadasivuni KK, Al-Maadeed MA, Thomas S. Developing Polyaniline Filled Isoprene Composite Fibers by Electrospinning: Effect of Filler Concentration on the Morphology and Glass Transition. *Polymer Science, Series A*. 2019 Mar 1;61(2):194-202. (Impact Factor 5.128)
27. Reddy PL, Deshmukh K, Chidambaram K, Ahamed B, Sadasivuni KK, **Ponnamma D**, Lakshmi R, Dayananda D, Pasha SK. Effect of Poly Ethylene Glycol (PEG) on Structural, Thermal and Photoluminescence Properties of CdO Nanoparticles For Optoelectronic Applications. *Materials Today: Proceedings*. 2019 Jan 1;9:175-83.
28. Parangusan H, **Ponnamma D**, Hassan MK, Adham S, Al-Maadeed MA. Designing Carbon Nanotube-Based Oil Absorbing Membranes from Gamma Irradiated and Electrospun Polystyrene Nanocomposites. *Materials*. 2019 Jan;12(5):709. (Impact Factor 2.972)
29. **Ponnamma D**, Cabibihan JJ, Rajan M, Pethaiah SS, Deshmukh K, Gogoi JP, Pasha SK, Ahamed MB, Krishnegowda J, Chandrashekar BN, Polu AR. Synthesis, optimization and applications of ZnO/polymer nanocomposites. *Materials Science and Engineering: C*. 2019 <https://doi.org/10.1016/j.msec.2019.01.081>. (Impact Factor 5.080)

- 30. Ponnamma D.**, Al-Maadeed M. Influence of BaTiO₃/white graphene filler synergy on the energy harvesting performance of piezoelectric polymer nanocomposite. Sustainable Energy & Fuels. 2019. DOI 10.1039/C8SE00519B (Impact Factor 4.91)
- 31. A. Hezam, K. Namratha, Q.A. Drmosh, D. Ponnamma,** V. Ganesh, B. Neppolian, K. Byrappa. Direct Z-Scheme Cs₂O-Bi₂O₃-ZnO Heterostructures for Photocatalytic Overall Water Splitting. Journal of Materials Chemistry A. 2018. (Impact Factor 9.931)
- 32. H. Parangusan, D. Ponnamma,** M.A. Al-Maadeed. Investigation on the Effect of γ -irradiation on the Dielectric and Piezoelectric Properties of Stretchable PVDF/Fe-ZnO Nanocomposites for Self-Powering Devices. Soft matter. 2018. (Impact Factor 3.709)
- 33. A. Hezam, K. Namratha, D. Ponnamma,** Q.A. Drmosh, A.M. Saeed, C. Cheng, K. Byrappa. Direct Z-Scheme Cs₂O–Bi₂O₃–ZnO Heterostructures as Efficient Sunlight-Driven Photocatalysts. ACS Omega. 2018; 3(9): 12260-9. (Impact Factor 2.584)
- 34. L. Sundarabharathi, H. Parangusan, D. Ponnamma,** M.A. Al-Maadeed, M. Chinnaswamy. In_vitro biocompatibility, bioactivity and photoluminescence properties of Eu³⁺/Sr²⁺ dual_doped nano_hydroxyapatite for biomedical applications. Journal of Biomedical Materials Research Part B: Applied Biomaterials. 2018; 106(6): 2191-201. (Impact Factor 2.308)
- 35. H. Parangusan, D. Ponnamma,** M.A. Al-Maadeed. Stretchable electrospun PVDF-HFP/Co-ZnO nanofibers as piezoelectric nanogenerators. Scientific reports. 2018;8(1):754. (Impact Factor 4.122)
- 36. D. Ponnamma,** V. Sivakumar, A. Popelka, Y.H. Hussein, M.A. Al-Maadeed. Laser Induced Periodic Surface Structures on Nano Metal Oxide filled Polyvinylidene Fluoride Nanocomposites. Optik. 2018. (Impact Factor 1.191)
- 37. D. Ponnamma,** S. Goutham, K.K. Sadasivuni, K.V. Rao, J.J. Cabibihan, M.A. Al-Maadeed. Controlling the sensing performance of rGO filled PVDF nanocomposite with the addition of secondary nanofillers. Synthetic Metals. 2018; 243:34-43. (Impact Factor 2.526)
- 38. D. Ponnamma,** A. Erturk, H. Parangusan, K. Deshmukh, M.B. Ahamed, M.A. Al-Maadeed. Stretchable quaternary phasic PVDF-HFP nanocomposite films containing graphene-titania-SrTiO₃ for mechanical energy harvesting. Emergent Materials. 2018:1-1. (Impact Factor --)
- 39. S.M. Shibli, M.A. Sha, B.L. Anisha, D. Ponnamma,** K.K. Sadasivuni. Effect of phosphorus on controlling and enhancing electrocatalytic performance of Ni–P–TiO₂–MnO₂ coatings. Journal of Electroanalytical Chemistry. 2018;826:104-16. (Impact Factor 3.012)

40. S. Sankaran, K. Deshmukh, M.B. Ahamed, S.K. Pasha, K.K. Sadasivuni, **D. Ponnamma**, M.A. AlMaadeed, K. Chidambaram. Investigation on the Electrical Properties of Lithium Ion Conducting Polymer Electrolyte Films Based on Biodegradable Polymer Blends. *Advanced Science Letters*. 2018;24(8):5496-502. (Impact Factor --)
41. A. Jeeva, P.S. Vijayanand, S. Ashokan, T. Kojima, S. Kato, **D. Ponnamma**. A Facile Synthesis of Poly (aniline-co-3-trifluoromethyl aniline) Doped Silver Nanoparticles in Micellar Solution: Its Humidity Sensor Application. *Polymer Science, Series B*. 2018;60(4):505-15. (Impact Factor 0.735)
42. N. Raphael, K. Namratha, B.N. Chandrashekar, K.K. Sadasivuni, **D. Ponnamma**, A.S. Smitha, S. Krishnaveni, C. Cheng, K. Byrappa. Surface modification and grafting of carbon fibers: A route to better interface. *Progress in Crystal Growth and Characterization of Materials*. 2018. (Impact Factor 3.147)
43. L. Sundarabharathi, M. Chinnaswamy, **D. Ponnamma**, H. Parangusan, M.A. Al-Maadeed. Investigation of Antimicrobial Properties and in-vitro Bioactivity of Ce³⁺-Sr²⁺ Dual-substituted nano Hydroxyapatites. *Journal of the American Ceramic Society*. 2018; 102(1):144-157 (Impact Factor 2.841)
44. R.A. Praphakar, M. Jeyaraj, S. Mehnath, A. Higuchi, **D. Ponnamma**, K.K. Sadasivuni, M. Rajan. A pH-sensitive guar gum-grafted-lysine- β -cyclodextrin drug carrier for the controlled release of 5-flourouracil into cancer cells. *Journal of Materials Chemistry B*. 2018;6(10):1519-30 (Impact Factor 4.776)
45. G.J. Thangamani, K. Deshmukh, K. Chidambaram, M.B. Ahamed, K.K. Sadasivuni, **D. Ponnamma**, M. Faisal, N.A. Nambiraj, S.K. Pasha. Influence of CuO nanoparticles and graphene nanoplatelets on the sensing behaviour of poly (vinyl alcohol) nanocomposites for the detection of ethanol and propanol vapors. *Journal of Materials Science: Materials in Electronics*. 2018;29(6):5186-205. (Impact Factor 2.019)
46. S. Koppala, S. Swamiappan, Y. Gangarajula, L. Xu, K.K. Sadasivuni, **D. Ponnamma**, V. Rajagopalan. Calcium deficiency in hydroxyapatite and its drug delivery applications. *Micro & Nano Letters*. 2018;13(4):562-4. (Impact Factor 0.841)
47. K. Deshmukh, M.B. Ahamed, S. Sankaran, S.K. Pasha, K.K. Sadasivuni, **D. Ponnamma**, M.A. AlMaadeed. Studies on the Mechanical, Morphological and Electrical Properties of Highly

Dispersible Graphene Oxide Reinforced Polypyrrole and Polyvinylalcohol Blend Composites. *Materials Today: Proceedings*. 2018;5(2):8744-52. (Impact Factor --)

49. M.M. Chamakh, **D. Ponnamma**, M.A. Al-Maadeed. Vapor sensing performances of PVDF nanocomposites containing titanium dioxide nanotubes decorated multi-walled carbon nanotubes. *Journal of Materials Science: Materials in Electronics*. 2018;29(6):4402-12. (Impact Factor 2.019)
50. H. Parangusan, **D. Ponnamma**, M.A. AlMaadeed, A. Marimuthu. Nanoflower-like Yttrium.doped ZnO Photocatalyst for the Degradation of Methylene Blue Dye. *Photochemistry and photobiology*. 2018;94(2):237-46. (Impact Factor 2.413)
51. H. Parangusan, **D. Ponnamma**, M.A. AlMaadeed. Flexible tri-layer piezoelectric nanogenerator based on PVDF-HFP/Ni-doped ZnO nanocomposites. *RSC Advances*. 2017;7(79):50156-65. (Impact Factor 2.936)
52. A.A. Issa, M.A. Al-Maadeed, A.S. Luyt, **D. Ponnamma**, M.K. Hassan. Physico-mechanical, dielectric, and piezoelectric properties of PVDF electrospun mats containing silver nanoparticles. *Journal of Carbon Research*. 2017 Oct 16;3(4):30. (Impact Factor --)
53. D. Thomas, A. Thomas, A.E. Tom, K.K. Sadasivuni, **D. Ponnamma**, S. Goutham, J.J. Cabibihan, K.V. Rao. Highly selective gas sensors from photo-activated ZnO/PANI thin films synthesized by mSILAR. *Synthetic Metals*. 2017;232:123-30. (Impact Factor 2.526)
54. J.G. Thangamani, K. Deshmukh, K.K. Sadasivuni, **D. Ponnamma**, S. Goutham, K.V. Rao, K. Chidambaram, M.B. Ahamed, A.N. Grace, M. Faisal, S.K. Pasha. White graphene reinforced polypyrrole and poly (vinyl alcohol) blend nanocomposites as chemiresistive sensors for room temperature detection of liquid petroleum gases. *Microchimica Acta*. 2017;184(10):3977-87. (Impact Factor 5.705)
55. D. Thomas, K.A. Vijayalakshmi, K.K. Sadasivuni, A. Thomas, **D. Ponnamma**, J.J. Cabibihan. A Fast Responsive Ultraviolet Sensor from mSILAR-Processed Sn-ZnO. *Journal of Electronic Materials*. 2017;46(11):6480-7. (Impact Factor 1.579)
56. S. Valiya Parambath, **D. Ponnamma**, K.K. Sadasivuni, S. Thomas, R. Stephen. Effect of nanostructured polyhedral oligomeric silsesquioxane on the physical properties of poly (vinyl alcohol). *Journal of Applied Polymer Science*. 2017;134(43):45447. (Impact Factor 1.90)
57. K. Deshmukh, S. Sankaran, M. B. Ahamed, S. K. K. Pasha, K. K. Sadasivuni, **D. Ponnamma**, M A Al-Maadeed, K. Chidambaram. Studies on the electrical properties of graphene oxide

- oxidereinforced poly (4-styrene sulfonic acid) and polyvinyl alcohol blend composites. *Int. J. Nanosci.* 2017; DOI: <http://dx.doi.org/10.1142/S0219581X17600055> (Impact Factor --)
58. D. Thomas, K. A. Vijayalakshmi, J. J. Mathen, S. Augustin, **D. Ponnamma**, K. K. Sadasivuni, J. J. Cabibihan. Microton irradiation induced tuning of dielectric properties of nano ZnO–natural rubber disks. *Polymer Bulletin*, 2017; DOI: 10.1007/s00289-017-1998-y (Impact Factor 1.589)
59. K. Zadeh, **D. Ponnamma**, M A Al-Maadeed. Date Palm Fibre filled Recycled Ternary Polymer Blend Composites as Flame Retardants. *Polymer Testing*. 2017 Aug 1;61:341-8 (Impact Factor 2.35)
60. K. D. Satapathy, K. Deshmukh, M. B. Ahamed, K. K. Sadasivuni, **D. Ponnamma**, S. K. K. Pasha, M A Al-Maadeed, J. Ahmad. High- quality factor poly (vinylidene fluoride) based novel nanocomposites filled with graphene nanoplatelets and vanadium pentoxide for high-Q capacitor applications. *Advanced Materials Letters* 2017; 8(3): 288-294 (Impact Factor 1.46)
61. G. J. Thangamani, K. Deshmukh, K. K. Sadasivuni, K. Chidambaram, M. B. Ahamed, **D. Ponnamma**, M A Al-Maadeed, S. K. K. Pasha. Recent advances in electrochemical biosensor and gas sensors based on graphene and carbon nanotubes (CNT) - A review. *Advanced Materials Letters* 2017; 8(3): 196-205 (Impact Factor 1.46)
62. K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, K. K. Sadasivuni, **D. Ponnamma**, A. M. Trimukhe, S. K. K. Pasha, M A Al-Maadeed, A. R. Polu, K. Chidambaram. Eeonomer 200F®: A High-Performance Nanofiller for Polymer Reinforcement—Investigation of the Structure, Morphology and Dielectric Properties of Polyvinyl Alcohol/Eeonomer-200F® Nanocomposites for Embedded Capacitor Applications. *Journal of Electronic Materials* 2017; 46(4): 2406–2418 (Impact Factor 1.491)
63. **D. Ponnamma**, K. T. Varughese, S. Thomas, M A Al-Maadeed, Curing Enhancement and Network Effects in Multi-Walled Carbon Nanotube filled Vulcanized Natural Rubber-Evidence for Solvent Sensing. *Polymer International*, 2017, DOI: 10.1002/pi.5341 (Impact Factor 2.414)
64. K. Deshmukh, M. B. Ahamed, K. K. Sadasivuni, **D. Ponnamma**, R. R. Deshmukh, A. M. Trimukhe, S. K. K. Pasha, A. R. Polu, M A Al-Maadeed, K. Chidambaram. Solution-processed white graphene-reinforced ferroelectric polymer nanocomposites with improved thermal conductivity and dielectric properties for electronic encapsulation. *Journal of Polymer Research* 2017; 24 (2): 1-14 (Impact Factor 1.969)
65. M. K. Mohanapriya, K. Deshmukh, K. Chidambaram, M. B. Ahamed, K. K. Sadasivuni, **D.**

- Ponnamma**, M A Al-Maadeed, R. R. Deshmukh, S. K. K. Pasha. Polyvinyl alcohol (PVA)/polystyrene sulfonic acid (PSSA)/carbon black nanocomposite for flexible energy storage device applications. *Journal of Materials Science: Materials in Electronics* 2017; 28, (8): 6099–6111 (Impact Factor 1.798)
66. A. Al-Saygh, **D. Ponnamma**, M. A. Al-Maadeed, P. P. Vijayan, A. Karim, M. K. Hassan. Flexible Pressure Sensor Based on PVDF Nanocomposites Containing Reduced Graphene Oxide-Titania Hybrid Nanolayers. *Polymers* 2017; 9(2): 33 (Impact Factor 2.944)
67. M.M. Chamakh, **D. Ponnamma**, M. A. Al-Maadeed. Negative results of growing titania nanotubes on cellulose nanocrystals – Effect of hydrothermal reaction. *Results in Physics*, 2017, <http://dx.doi.org/10.1016/j.rinp.2017.01.016> (Impact Factor 1.337)
68. **D. Ponnamma**, P. P. Vijayan, M. A. Al-Maadeed. 3D Architectures of Titania Nanotubes and Graphene with Efficient Nanosynergy for Supercapacitors. *Materials and Design*, 2017; 117: 203-212. (Impact Factor 3.997)
69. K. Deshmukh, M. B. Ahamed, K. K. Sadasivuni, **D. Ponnamma**, M A Al-Maadeed, S.K. K. Pasha, R. R. Deshmukh, K. Chidambaram. Graphene oxide reinforced poly (4-styrenesulfonic acid)/polyvinyl alcohol blend composites with enhanced dielectric properties for portable and flexible electronics. *Materials Chemistry and Physics* 2017; 186: 188-201 (Impact Factor 2.101)
70. V. Sivakumar, **D. Ponnamma**, YHA Hussein. Photoinduced electron transfer interaction of anthraquinones with aniline quenchers: Influence of methyl substitution in aniline donors. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 2017; 173: 931-938 (Impact Factor 2.653)
71. K. Deshmukh, M. B. Ahamed, K. K. Sadasivuni, **D. Ponnamma**, M A Al-Maadeed, R. R. Deshmukh, S.K. K. Pasha, A. R. Polu, K. Chidambaram. Fumed SiO₂ nanoparticle reinforced biopolymer blend nanocomposites with high dielectric constant and low dielectric loss for flexible organic electronics. *J. Appl. Polym. Sci.* 2016, DOI: 10.1002/app.44427 (Impact Factor 1.6)
72. K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, S.K. K. Pasha, K. K. Sadasivuni, A. R. Polu, **D. Ponnamma**, M A Al-Maadeed, K. Chidambaram. Newly developed biodegradable polymer nanocomposites of cellulose acetate and Al₂O₃ nanoparticles with enhanced dielectric performance for embedded passive applications. *J Mater Sci: Mater Electron*. DOI: 10.1007/s10854-016-5616-9 (Impact Factor 1.798)

73. K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, S.K. K. Pasha, K. K. Sadasivuni, **D. Ponnamma**, M A Al-Maadeed. Striking multiple synergies in novel three-phase fluoropolymer nanocomposites by combining titanium dioxide and graphene oxide as hybrid fillers. J Mater Sci: Mater Electron. 2016, DOI: 10.1007/s10854-016-5559-1 (Impact Factor 1.798)
74. K. Deshmukh, M. B. Ahamed, A. R. Polu, K. K. Sadasivuni, S.K. K. Pasha, **D. Ponnamma**, M A Al-Maadeed, R. R. Deshmukh, K. Chidambaram. Impedance spectroscopy, ionic conductivity and dielectric studies of new Li⁺ ion conducting polymer blend electrolytes based on biodegradable polymers for solid state battery applications J Mater Sci: Mater Electron. 2016; DOI 10.1007/s10854-016-5267-x. (Impact Factor 1.798)
75. K. Deshmukh, M. B. Ahamed, K. K. Sadasivuni, **D. Ponnamma**, R. R. Deshmukh, S.K. K. Pasha, M A Al-Maadeed, K. Chidambaram Graphene oxide reinforced polyvinyl alcohol/polyethylene glycol blend composites as high-performance dielectric material. Journal of Polymer Research, 2016; 23(7): 159-172. (Impact Factor 1.969)
76. M. Rajan, M. Murugan, **D. Ponnamma**, K. K. Sadasivuni, M. A. Munusamy. Polycarboxylic acids functionalized chitosan nanocarriers for controlled and targeted anti-cancer drug delivery. Biomedicine & Pharmacotherapy. 2016; 83: 201-211 (Impact Factor 2.326)
77. E. Fayyad, K. K. Sadasivuni, **D. Ponnamma**, M. A. Al-Maadeed. Oleic acid-grafted chitosan/graphene oxide composite coating for corrosion protection of carbon steel. Carbohydrate Polymers, 2016; 151: 871-878. (Impact Factor 4.219)
78. D. Thomas, S. Augustine, K. K. Sadasivuni, **D. Ponnamma**, A.Y. Alhaddad, J.J. Cabibihan, K A Vijayalakshmi. Microtron irradiation induced tuning of bandgap and photo response of Al-ZnO thin films synthesized by mSILAR. Journal of Electronic Materials, 2016, doi:10.1007/s11664016-4673-4 (Impact Factor 1.491)
79. **D. Ponnamma**, A. Saiter, J.M. Saiter, S. Thomas, Y. Grohens, M. A. Al-Maadeed, K. K. Sadasivuni. Influence of temperature on the confinement effects of micro and nano level graphite filled poly(isoprene-co-isobutylene) composites. Journal of Polymer Research, 2016; 23(7): 128133. (Impact Factor 1.969)
80. K.K. Sadasivuni, **D. Ponnamma**, H.U. Ko, L. Zhai, H. C. Kim, J. Kim. Electroactive and Optically Adaptive Bionanocomposite for Reconfigurable Microlens. Journal of Physical Chemistry B. 2016; 120 (20): 4699–4705. (Impact Factor 3.187)

81. M Jeyaraj, R. A. Praphakaran, C. Rajendran, **D. Ponnamma**, K. K. Sadasivuni, M. A. Munusamy, R. Mariappan. Surface Functionalization of Natural Lignin Isolated from Aloe Barbadensis Miller Biomass by Atom Transfer Radical Polymerization for Enhanced Anticancer Efficacy. RSC Adv., 2016, (DOI: 10.1039/C6RA01866A) (Impact Factor 3.289)
82. K.K. Sadasivuni, **D. Ponnamma**, H.U. Ko, H. C. Kim, L. Zhai, J. Kim. Flexible NO₂ sensors from renewable cellulose nanocrystals/iron oxide composite Flexible NO₂ sensors from renewable cellulose nanocrystals/iron oxide composites. Sensors and Actuators B: Chemical. 2016; 233: 633–638. (Impact Factor 4.758)
83. **D. Ponnamma**, K.K. Sadasivuni, J.J. Cabibihan, W. J. Yoon, B. Kumar. Reduced Graphene Oxide Filled Poly(dimethyl siloxane) based Transparent Stretchable, and Touch-Responsive Sensors. Appl. Phys. Lett. 2016; 108: 171906. (Impact Factor 3.142)
84. **D. Ponnamma**, K. K. Sadasivuni, M. Strankowski, P. Kasak, I. Krupa, M. A. A. Al-Maadeed. Eco-Friendly Electromagnetic Interference Shielding Materials from Flexible Reduced Graphene Oxide Filled Polycaprolactone/Polyaniline Nanocomposites. Polymer-Plastics Technology and Engineering; 2016 (DOI:10.1080/03602559.2015.1132435) (Impact Factor 1.511)
85. K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, S. K. K. Pasha, K. Chidambaram, K. K. Sadasivuni, **D. Ponnamma**, M. A. A. Al-Maadeed. Eco-Friendly Synthesis of Graphene Oxide Reinforced Hydroxypropyl Methylcellulose (HPMC)/Polyvinyl Alcohol (PVA) Blend Nanocomposites Filled with Zinc Oxide (ZnO) Nanoparticles for High-k Capacitor Applications. Polymer-Plastics Technology and Engineering; 2016 (DOI:10.1080/03602559.2015.1132451) (Impact Factor 1.511)
86. K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, S.K. K. Pasha, K. K. Sadasivuni, **D. Ponnamma**, K. Chidambaram. Synergistic effect of vanadium pentoxide and graphene oxide in polyvinyl alcohol for energy storage application. European Polymer Journal 2016; 76: 14-27 (doi:10.1016/j.eurpolymj.2016.01.022) (Impact Factor 3.485)
87. **D. Ponnamma**, K. K. Sadasivuni, S. Thomas, I. krupa, M. A. S. A. Al-Maadeed. Flexible oil sensors based on multi walled carbon nanotube filled isoprene elastomer composites. Rubber Chemistry and Technology 2016; (doi: http://dx.doi.org/10.5254/rct.15.84841) (Impact Factor 0.99)

88. K.S. Usha Devi, **D Ponnamma**, V Causin, H J Maria and S Thomas. Enhanced morphology and mechanical characteristics of clay/styrene butadiene rubber nanocomposites. *Applied Clay Science* 2015; 114: 568–576. (*doi:10.1016/j.clay.2015.07.009*) (Impact Factor 2.586)
89. **D Ponnamma**, R Ramachandran, S Hussain, R. Rajaraman, G. Amarendra, K.T. Varughese and S Thomas. Free-volume correlation with mechanical and dielectric properties of natural rubber/multi walled carbon nanotubes composites. *Composites Part A: Applied Science and Manufacturing* 2015; 77: 164–171. (*doi:10.1016/j.compositesa.2015.06.023*) (Impact Factor 3.719)
90. **D.Ponnamma**, Q Guo, I Krupa, M Al-Maadeed, KT Varughese, S Thomas, K.K. Sadasivuni. Graphene and graphitic derivatives filled polymer composites as potential sensors. *Physical Chemistry Chemical Physics* 2015; 17(6): 3954-3981. (*DOI: 10.1039/C4CP04418E*) (Impact Factor 4.449)
91. K. K. Sadasivuni, **D. Ponnamma**, S. Thomas, Y. Grohens Evolution from graphite to graphene elastomer composites. *Progress in Polymer Science*, 2014; 39(4): 749-780. (*DOI: 10.1016/j.progpolymsci.2013.08.003*) (Impact Factor 27.184)
92. D. Ponnamma, S. H. Sung, J. S. Hong, K. H. Ahn, K.T. Varughese, S. Thomas. Influence of noncovalent functionalization of carbon nanotubes on the rheological behavior of natural rubber latex nanocomposites. *European Polymer Journal* 2014; 53: 147–159. (*DOI: 10.1016/j.eurpolymj.2014.01.025*) (Impact Factor 3.485)
93. K. K. Sadasivuni, **D. Ponnamma**, P. Kasak, I. Krupa, M.A. Al-Maadeed. Designing dual phase sensing materials from polyaniline filled styrene-isoprene-styrene composites. *Material Chemistry and Physics*, 2014; 147(3): 1029-1036. (*DOI 10.1002/pen.23992*) (Impact Factor 2.101)
94. **D. Ponnamma**, J. George, M. G. Thomas, C. C. Han, S. Valić, M. Mozetič, U. Cvelbar, S. Thomas. Investigation on the thermal and crystallization behaviour of high density polyethylene/acrylonitrile butadiene rubber blends and their composites. *Polymer Engineering and Science*, 2014; 55(5): 1203-1210. (*DOI 10.1002/pen.23992*) (Impact Factor 1.719)
95. **D.Ponnamma**, K.K. Sadasivuni, Y. Grohens, S Thomas. Carbon Nanotubes based Elastomer Composites-An Approach towards Multifunctional Materials. *Journal of Material Chemistry C*, 2014; 2(40): 8446-8485. (*DOI: 10.1039/C4TC01037J*) (Impact Factor 5.066)

96. K.K. Sadasivuni, **D. Ponnamma**, B. Kumar, M Strankowsky, R Cardinels, P Mauldenares, S. Thomas, Y. Grohens. Dielectric properties of modified graphene oxide filled polyurethane nanocomposites and its correlation with rheology. *Composite Science and Technology* 2014; 104:18-25. (*doi:10.1016/j.compscitech.2014.08.025*) (Impact Factor 3.897)
97. **D. Ponnamma**, K.K. Sadasivuni, M. Strankowski, Q. Guo, S. Thomas. Synergistic Effect of Multi Walled Carbon Nanotubes and Reduced Graphene Oxides in Natural Rubber for Sensing Application. *Softmatter* 2013; 9: 10343-10353 (*DOI: 10.1039/C3SM51978C*) (Impact Factor 3.798)
98. **D. Ponnamma**, K.K. Sadasivuni, M. Strankowsky, P. Moldenaers, S. Thomas, Y. Grohens. Interrelated Shape Memory and Payne Effect in Polyurethane/Graphene Oxide Nanocomposites. *RSC Advances*, 2013; 3: 16068-16079. (*DOI: 10.1039/C3RA41395K*) (Impact Factor 3.289)
99. **D. Ponnamma**, S. Thomas Polymer latex nanocomposites: recent advances. Published in Conference Proceedings, Latex and Synthetic Polymer Dispersions 2012, Kuala Lumpur, Malaysia 13-14 March 2012. ISBN: 978-1-84735-725-0. SmithersRapra Technology Ltd, 2012)

Book Chapters

1. AlMaadeed MA, **Ponnamma D**, El-Samak AA. Polymers to improve the world and lifestyle: physical, mechanical, and chemical needs. In *Polymer Science and Innovative Applications 2020* Jan 1 (pp. 1-19).
2. **D. Ponnamma**, M. Chamakh, K. Deshmukh, M. B. Ahamad, E. Alper, P. Sharma, M. A. AlMaadeed. Ceramic based Polymer Nanocomposites as Piezoelectric Materials. In *Smart Polymer Nanocomposites-Energy Harvesting, Self-Healing and Shape Memory*. Springer, *In Press*.
3. **D. Ponnamma**, Y. Hany, M. Rajan, S. Goutham, K. V. Rao, M. A. Al-Maadeed. Conducting polymer nanocomposites for shape memory. In *Smart Polymer Nanocomposites-Energy Harvesting, Self-Healing and Shape Memory*. Springer, *In Press*.
4. **D. Ponnamma**, G. J. Ogunleye, P. Sharma, M. A. Al-Maadeed. Piezo and Thermo Electric Materials from Biopolymer Composites. In *Biopolymer Composites in Electronics*. Elsevier, 2016, ISBN 9780128092613.

5. **D. Ponnamma**, K. K. Sadasivuni, M. A. Al-Maadeed. Introduction of Biopolymer Composites: What to do in electronics? In Biopolymer Composites in Electronics. Elsevier, 2016, ISBN 9780128092613.
6. **D Ponnamma**, D. Rouxel, S Thomas. Spectroscopy: Advantages and application areas of polymer nanocomposites- State of the art, new challenges, and opportunities. In Spectroscopy of Polymer Nanocomposites. Elsevier 2016; ISBN 978-0-323-40183-8.
7. **D Ponnamma**, K K Sadasivuni, KT Varughese, S Thomas, MA AlMa'adeed. Natural polyisoprene composites and their electronic applications. In Flexible and Stretchable Electronic Composites. Springer International Publishing 2016; 1-35
8. K K Sadasivuni, **D Ponnamma**, J J Cabibihan, M A AlMa'adeed. Electronic Applications of Polydimethylsiloxane and Its Composites. In Flexible and Stretchable Electronic Composites. Springer International Publishing 2016; 199-228.
9. **D. Ponnamma**, K.K. Sadasivuni. The role of graphene in electronics: Theory and Practice. In Graphene-Based Polymer Nanocomposites in Electronics. Springer International Publishing 2015; 1-24.
10. P. Noorunnisa Khanam, **D. Ponnamma**, M.A. AL-Maadeed. Electrical Properties of Graphene Polymer Nanocomposites. In Graphene-Based Polymer Nanocomposites in Electronics. Springer International Publishing 2015; 25-47.
11. **D. Ponnamma**, S. Thomas. Origin of nonlinear viscoelasticity in filled rubbers: Theory and Practice. In Non-linear viscoelasticity of rubber Composites and Nanocomposites. Springer International Publishing 2014; 1-13.
12. E. Abraham, M. S. Thomas, **D. Ponnamma**, L. Pothan, S. Thomas. Biofiber Reinforced Natural Rubber Composites: Mechanical, Thermal and Biodegradation Properties. In Handbook of Green Materials: Volume 4, 2014; 105-118. (DOI: 10.1142/9789814566469_0054)
13. **D. Ponnamma**, P. M. Visakh, A. P. Mathew, A. K. Chandra and S. Thomas. Advances in Elastomers: Their Blends and Interpenetrating Networks-State of Art, New Challenges and Opportunities. In Advances in Elastomers I. Springer International Publishing 2013; 1-9.
14. **D. Ponnamma**, C. J. Chirayil, K. K. Sadasivuni, L. Somasekharan, Y. Srinivasarao, J. Abraham and S. Thomas. Special Purpose Elastomers: Synthesis, Structure-Property Relationship, Compounding, Processing, and Applications. In Advances in Elastomers I. Springer International Publishing 2013; 47-82.

15. **D. Ponnamma**, P. M. Visakh, A. P. Mathew, A. K. Chandra and S. Thomas. Advances in Elastomers: Their Composites and Nanocomposites: State of Art, New Challenges and Opportunities. In Advances in Elastomers II. Springer International Publishing 2013; 1-9.
16. **D. Ponnamma**, H. J. Maria, A. K. Chandra and S. Thomas. Rubber Nanocomposites: Latest Trends and Concepts. In Advances in Elastomers II. Springer International Publishing 2013; 69107.
17. **D. Ponnamma**, K.K. Sadasivuni, S. Thomas. NMR studies of Natural Rubber Composites from Macro to Nanoscales - A Review. "Volume 2- Natural Rubber based Blends and IPNs" Royal Society of Chemistry 2013 (DOI 10.1039/9781849737654-00683)
18. **D. Ponnamma**, S. Thomas. Green Methods to Synthesize and Recycle Materials- A promise to future. In Recent Advances in Rubber Recycling Edited by Y. Grohens, K. K. Sadasivuni and A. Boudenne. Apple Press Academy 2012; 213.

Books Edited

1. M. A AlMaadeed, **D Ponnamma**, M. A. Carignano, Polymer Science and Innovative Applications, Elsevier, 2020, ISBN 9780128168080, <https://doi.org/10.1016/B978-0-12-816808-0.00021-4>.
2. Sadasivuni KK, **D. Ponnamma**, Rajan M, Ahmed B, SA AM, editors. Polymer Nanocomposites in Biomedical Engineering. Springer, 2019, DOI <https://doi.org/10.1007/978-3-030-04741-2>
3. **D. Ponnamma**, K. K. Sadasivuni, J. J. Cabibihan, M. A. Al-Maadeed. Smart Polymer Nanocomposites-Energy Harvesting, Self-Healing and Shape Memory. Springer, Print ISBN 978-3-319-50423-0
4. K. K. Sadasivuni, J. J. Cabibihan, **D. Ponnamma**, M.A. Al-Maadeed, J. Kim. Biopolymer Composites in Electronics. Elsevier, 2016, ISBN 9780128092613
5. **D Ponnamma**, D. Rouxel, S. Thomas. Spectroscopy of Polymer Nanocomposites. Elsevier 2016; ISBN 978-0-323-40183-8.
6. **D Ponnamma**, K K Sadasivuni, C Wan, S Thomas, M A AlMa'adeed. Flexible and Stretchable Electronic Composites. Springer Series on Polymer and Composite Materials. 2016; ISBN: 9783-319-23662-9.

7. K. K. Sadasivuni, **D.Ponnamma**, J. Kim, S. Thomas. Graphene based Polymer Nanocomposites in Electronics. Springer Series on Polymer and Composite Materials 2015; ISBN 978-3-31913874-9.
8. **D. Ponnamma**, S. Thomas Non-Linear Viscoelasticity of Rubber Composites and Nanocomposites: Influence of Filler Geometry and Size in Different Length Scales. Advances in Polymer Science, Springer International Publisher, 2014; ISBN: 978-3-319-08701-6
9. **D. Ponnamma**, A. K. Zachariah, S. Thomas. Recent Advances in Material Science- Volume 1. Polymer Processing and Characterization Polymers. Apple press Academy 2011, ISBN: 97819268951554

RESEARCH SUMMARY

The research is mainly concentrated to develop polymer nanocomposites applicable in various fields such as high-performance *sensors, dielectrics, energy harvesters, oil absorbers, shape memory materials* etc. Both micro, as well as nanofillers, are used for polymer reinforcement, and in particular, the effect of conductive fillers such as graphene, CNT, polyaniline, etc. as well as the semiconducting ZnO on polymer properties is investigated. Other than the fabrication methods such as melt mixing, electrospinning, solution casting and extruder mixing of polymer nanocomposites, many methods for synthesizing nanomaterials such as hydrothermal synthesis, co-precipitation, chemical reactions etc. are much studied.

I have skill to use techniques like FTIR, Atomic Force Microscopy, Raman, Wide Angle Xray Diffraction, Scanning Electron Microscopy, Transmission Electron Microscopy, Positron Annihilation Lifetime Spectroscopy, Rheometer, DMA, and UTM in characterizing the fillers as well as the composites. Fabrication of Interdigital electrode patterns on polymer films using lithography, a coating of metal by vapor deposition methods, development of piezoelectric nanogenerators etc. are also trained well.

In short stronger, lighter and high-performance multifunctional materials were fabricated which can have tremendous possibilities in the technological field.

Personal Details:

Date of Birth and Nationality: 10/02/1984; Indian

Marital Status: Married + 2

REFERENCES

1) Prof. Sabu Thomas,

Hon. Director of Centre for Nanoscience and Nanotechnology,

Mahatma Gandhi University,

Kottayam, Kerala, India -686 560

Phone Office: 914812730003

Mobile:(Personal)+919447223452, (Res) 914812597914

E-mail; sabuchathukulam@yahoo.co.uk

2) Prof. Qipeng Guo

Institute of Frontier Materials

Deakin University

Australia

E-mail: qipeng.guo@deakin.edu.au

3) Prof. Mariam Ali S A Al-Maadeed

Center for Advanced Materials,

Qatar University

Qatar, Postal Code: 2713

E-mail: m.alali@qu.edu.qa