



Dr. Kishor Kumar is working in Center for Advanced Materials, Qatar University. He has published 82 Journal papers, 12 book chapters, 7 books edited and 3 patents filed. He has about 10 years of experience in synthesis & characterization of nanoparticles and also in manufacturing nanocomposites for industrial applications. His areas of interest include different types of nanocomposite fabrication, modifications, designs and their applications especially sensors, piezoelectrics, actuators, energy storage, Dielectrics, 3D-Printing and flexible electronics.

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# Dr. Kishor Kumar Sadasivuni

Center for Advanced Materials, Qatar University.

Managing Editor, *Emergent Materials*, Qatar University & Springer.

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## QUALIFICATIONS

➤ **Ph. D (Material Science)** (Nov 2012), University of South Brittany, France.

Thesis title: Development of high-performance poly (isobutylene-co-isoprene) nanocomposites for mechanical, barrier and sensing applications.

➤ **M. Sc. (Analytical Chemistry)** (May 2008), Andhra University, Visakhapatnam, India.

➤ **B. Sc (Chemistry)** (May 2006), Andhra University, Visakhapatnam, India.

## VISITING RESEARCHER

➤ **Dec 2012- Feb 2013:** AMME-LECAP, EA 4528 International Laboratory, Institute of Material Research FED4114, Université de Rouen, Faculté des Sciences, Avenue de l'Université BP 12, 76801 Saint Etienne du Rouvray, France.

➤ **Apr 2012-May 2012:** Laboratory of Applied Rheology and Polymer Processing, Katholieke Universiteit, Leuven, Department of Chemical Engineering, Belgium.

➤ **Sep 2009- Oct 2010:** Leibniz Institute of Polymer Research, Dresden, Germany.

## AWARDS AND PRIZES

➤ Tyre & Rubber Industry Leadership Acknowledgement Awards (TRILA): Young Research Scholar of the Year 2017

➤ Second prize in the Entrepreneurship Day 22nd of February 2017 competition at QATAR UNIVERSITY, Presenters- Dr. John-John Cabibihan and Dr. Kishor Kumar Sadasivuni. Title - Wearable sensor technologies

## AWARDS FOR CO-SUPERVISED STUDENTS

- Mohammad Houkan and Mohammad Taha, Senior Projects Presentation, 1st Place for “Smart capacitive biometric sensors for fingerprint devices security,” Mechanical and Industrial Engineering Department, Qatar University, Fall 2016.
- Mohammad El-Khatib, Mohammad Houkan, Mohammad Taha, Microsoft Imagine Cup, Innovation Category, National Winner (Qatar), 2016.
- Second prize in the ALBAIRAQ competition. Project title: Recyclable & Reusable Sensors from Industrial and Environmental Plastic Waste. 2018

## ONGOING RESEARCH PROJECTS

- Functionalized 2D graphene and MXene nanocomposites-based prototype for CO<sub>2</sub>-to-C<sub>2</sub> fuels electro-conversion with smart online monitoring sensor system. Lead principle investigator, Grant number: NPRP11S-1221-170116.
- A noninvasive monitor to predict hypoglycemia in diabetes patients. Principle investigator, Grant number: NPRP11S-0110-180247.
- Highly selective e-nose as VOC biomarkers in breath based on sulfonated poly(ether ether ketone) [SPEEK]/2D metal carbide MXenes nanocomposites. Lead principle investigator, Grant number: UREP23-116-2-041.

## EXPERIENCE

- **Oct 2017- Present:** Managing Editor, Emergent Materials Journal, Qatar University and Springer.
- **Feb 2018- Present:** Research Associate, Center for Advanced Materials, Qatar University, Qatar.
- **Jul2015-Oct2017:** Post-Doctoral Fellow, Department of Mechanical Engineering, Qatar University, Qatar.  
**Project-** “Development of Smart Minimum Invasive Surgery Tools with Tactile Sensing Capabilities for Telerobot surgery System” and “Neuromorphic Tactile Sensing: A Paradigm Shift for Prosthetics and Surgical Robotics” NPRP4-368-2-135 & NPRP7-673-2-251.
- **Mar2015-Jun2015:** Post-Doctoral Fellow, Centre for Advanced Materials (CAM, Prof. Mariam Ali Al-Madeed), Qatar University, Qatar.

**Project-** “Development of Self-healing Corrosion Protection Barriers from Chitosan-based Nanocomposites” NPRP 4-800-2-297.

- **Nov2013-Feb2015:** Post-Doctoral Fellow, Department of Mechanical Engineering, Inha University, South Korea.

**Project-** “Bionanocomposites for Reconfigurable Actuating Lens” Brain Korea.

- **Mar2013-Sep2013:** Post-Doctoral Fellow, Centre for Advanced Materials (CAM), Qatar.

**Project-** “Development of oil sensor based on conductive polymer composite” NPRP-6.

- **Mar2009-Feb2010:** Junior Research Fellow in School of Chemical Sciences, Mahatma Gandhi University, India.

**Project-** “Development of high-performance butyl rubber and chlorobutyl rubber nanocomposites for barrier application” DST, India.

## **SELECTED PUBLICATIONS**

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### **1. Transparent and flexible cellulose nanocrystal/reduced graphene oxide film for proximity sensing**

K.K. Sadasivuni, A. Kafy, L. Zhai, H. U. Ko, S. Mun, J. Kim. *Small*, 11, 994-1002, 2014.

### **2. Evolution from graphite to graphene elastomer composites.**

K. K. Sadasivuni\*, D. Ponnamma, S. Thomas, Y. Grohens  
*Progress in Polymer Science*, 39, 749-780, 2014.

### **3. Flexible NO<sub>2</sub> sensors from renewable cellulose nanocrystals/iron oxide composites**

K. K. Sadasivuni, D. Ponnamma, H.-U. Ko, H. C. Kim, L. Zhai, J. Kim.  
*Sensors and Actuators B*, 233, 633-638, 2016.

### **4. Non-enzymatic sensing of glucose using screen-printed electrode modified with novel synthesized CeO<sub>2</sub>@CuO core shell nanostructure.**

Dayakar. T, K. V. Rao, K. Bikshalu, V. Malapati, KK Sadasivuni, *Biosensors and Bioelectronics* 111, 166, 2018.

### **5. Anti-corrosive and oil sensitive coatings based on epoxy/polyaniline/magnetite-clay composites through diazonium interfacial chemistry**

K Jlassi, AB Radwan, KK Sadasivuni, M Mrlík, AM Abdullah, MM Chehimi. *Scientific reports* 8 (1), 13369, 2018.

## **6. Graphene-based Polymer Nanocomposites in Electronics**

K. K. Sadasivuni, D. Ponnamma, J. Kim, S. Thomas.  
Springer Publisher 2014. ISBN: 9783319138749.  
(Top 25 e-download book in 2015)

### **FULL PUBLICATIONS**

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#### Reviews

#### **1. Evolution from graphite to graphene elastomer composites.**

K. K. Sadasivuni\*, D. Ponnamma, S. Thomas, Y. Grohens  
Progress in Polymer Science, 39, 749-780, 2014.

#### **2. Carbon Nanotubes based Elastomer Composites-An Approach Towards Multifunctional Materials.**

D. Ponnamma, K. K. Sadasivuni\*, Q. Guo, Y. Grohens, S. Thomas  
Journal of Materials Chemistry C, 2, 8446-8485, 2014.

#### **3. Graphene and graphitic derivatives filled polymer composites as potential sensors**

D. Ponnamma, Q. Guo, I Krupa, M. A. Al-Maadeed, K. T. Varughese, S. Thomas, K. K. Sadasivuni\*  
Physical Chemistry Chemical Physics, 17, 3954-3981, 2015.

#### **4. Recent Advances in Electrochemical Biosensor and Gas Sensors Based on Graphene and Carbon Nanotubes (CNT) - A Review**

Thangamani. G. J, K. Deshmukh, K. K. Sadasivuni, K. Chidambaram, M. Basheer Ahamed, D. Ponnamma, M. A. Al-Maadeed, S. K. Khadheer Pasha. Advanced Materials Letters, 8, 196-205, 2017.

#### **5. A review on porous polymer composite materials for multifunctional electronic applications**

K. K. Sadasivuni, J.-J. Cabibihan, K. Deshmukh, S. Goutham, M. K. Abubasha, J. P. Gogoi, I. Klemenoks, G. Sakale, B. Satya Sekhar, P. S. Rama Sreekanth, K. Venkateswara Rao, and Maris Knite, polymer-plastics technology and engineering, 2018,  
<https://doi.org/10.1080/03602559.2018.1542729>

#### **6. Biopolymer Composite Membranes for Purification of Water: A Review**

R. S. Dongre, K. K. Sadasivuni\*, K. Deshmukh, A. Mehta, S. Basu, J. S. Meshram, M. A. Al-Maadeed, A. Karim. polymer-plastics technology and engineering, 2018. (Accepted)

#### **7. Biopolymer Composites and its Mechanical Energy Applications: A review**

K. K. Sadasivuni, P. Saha, J. Adhikari, K. Deshmukh, Sowmya Sankaran, M. Basheer Ahamed, John-John Cabibihan.  
Composites Part B: Engineering, 2018. (Accepted)

## JOURNALS

### **8. Non-enzymatic sensing of glucose using screen-printed electrode modified with novel synthesized CeO<sub>2</sub>@CuO core shell nanostructure.**

Dayakar. T, K. V. Rao, K. Bikshalu, V. Malapati, KK Sadasivuni, Biosensors and Bioelectroni 111, 166, 2018.

### **9. Room temperature LPG resistive sensor based on the use of a few-layer graphene/SnO<sub>2</sub> nanocomposite.**

S Goutham, S Bykkam, KK Sadasivuni, DS Kumar, M Ahmadipour, Zainal Arifin Ahmad, K. Venkateswara Rao, Microchimica Acta 185 (1), 69, 2018.

### **10. Flexible ultra-sensitive and resistive NO<sub>2</sub> gas sensor based on nanostructured Zn (x) Fe (1-x) Z O 4.** S Goutham, KK Sadasivuni, DS Kumar, KV Rao. RSC Advances 8 (6), 3243-3249, 2018.

### **11. Studies on the Electrical Properties of Graphene Oxide-Reinforced Poly (4-Styrene Sulfonic Acid) and Polyvinyl Alcohol Blend Composites.**

K Deshmukh, S Sankaran, MB Ahamed, SKK Pasha, KK Sadasivuni, D/. Ponnamma, M. A. Al-Maadeed, K Chidambaram. International Journal of Nanoscience, 1760005, 2018.

### **12. Influence of CuO nanoparticles and graphene nanoplatelets on the sensing behaviour of poly (vinyl alcohol) nanocomposites for the detection of ethanol and propanal vapours.**

GJ Thangamani, K Deshmukh, K Chidambaram, MB Ahamed, K. K. Sadasivuni, Deepalekshmi Ponnamma, Muhammad Faisal, N. Arunai Nambiraj, S. K. Khadheer Pasha. Journal of Materials Science: Materials in Electronics, 1-20, 2018.

### **13. Synthesis, green emission and photosensitivity of Al-doped ZnO film.**

D Thomas, KK Sadasivuni, S Waseem, B Kumar, JJ Cabibihan, Microsystem Technologies, 1-5, 2018.

### **14. Calcium deficiency in Hydroxyapatite and its drug delivery applications**

S Koppala, S Swamiappan, G Yuvaraj, X Lei, KK Sadasivuni, D. Ponnamma, R Vijayaraghavan, Micro & Nano Letters, 2018.

### **15. Studies on the Mechanical, Morphological and Electrical Properties of Highly Dispersible Graphene Oxide Reinforced Polypyrrole and Polyvinylalcohol Blend Composites**

Kalim Deshmukh, M Basheer Ahamed, Sowmya Sankaran, SK Khadheer Pasha, K. K. Sadasivuni, Deepalekshmi Ponnamma, M. A. Al-Maadeed, Materials Today: Proceedings 5 (2), 8744-8752, 2018.

### **16. Dependence of wear behavior on sintering mechanism for Iron-Alumina Metal Matrix Nanocomposites**

P Gupta, D Kumar, O Parkash, AK Jha, KK Sadasivuni, Materials Chemistry and Physics 220, 441-448, 2018.

**17. Cisplatin-Loaded Graphene Oxide/Chitosan/Hydroxyapatite Composite as a Promising Tool for Osteosarcoma-Affected Bone Regeneration**

M Sumathra, [KK Sadasivuni](#), SS Kumar, M Rajan, ACS Omega 3 (11), 14620-14633, 2018.

**18. Hybrid Nano-filler for Value Added Rubber Compounds for Recycling**

[KK Sadasivuni](#), S Rattan, K Deshmukh, A Muzaffar, MB Ahamed, Rubber Recycling, 310-329, 2018.

**19. Effect of phosphorus on controlling and enhancing electrocatalytic performance of Ni-P-TiO<sub>2</sub>-MnO<sub>2</sub> coatings**

SMA Shibli, MA Sha, BL Anisha, D Ponnamma, [KK Sadasivuni](#), Journal of Electroanalytical Chemistry 826, 104-116, 2018.

**20. Controlling the sensing performance of rGO filled PVDF nanocomposite with the addition of secondary nanofillers**

D Ponnamma, S Goutham, [KK Sadasivuni](#), KV Rao, JJ Cabibihan, Synthetic Metals 243, 34-43, 1, 2018

**21. Anti-corrosive and oil sensitive coatings based on epoxy/polyaniline/magnetite-clay composites through diazonium interfacial chemistry**

K Jlassi, AB Radwan, [KK Sadasivuni](#), M Mrlík, AM Abdullah, MM Chehimi. Scientific reports 8 (1), 13369, 2018.

**22. Surface modification and grafting of carbon fibers: A route to better interface**

N Raphael, K Namratha, BN Chandrashekar, [KK Sadasivuni](#). Progress in Crystal Growth and Characterization of Materials 64 (3), 75-101, 2018.

**23. Non-enzymatic biosensing of glucose based on silver nanoparticles synthesized from *Ocimum tenuiflorum* leaf extract and silver nitrate**

T Dayakar, KV Rao, J Park, [KK Sadasivuni](#), KR Rao. Materials Chemistry and Physics 216, 502-507, 2018.

**24. Investigation and performance analysis of Scheffler reflector solar cooking system integrated with sensible and latent heat storage materials**

H Panchal, [KK Sadasivuni](#), International Journal of Ambient Energy, 1-10,2018.

**25. Investigation On The Electrical Properties Of Lithium Ion Conducting Polymer Electrolyte Films Based On Biodegradable Polymer Blends**

S Sankaran, K Deshmukh, MB Ahamed, SK Pasha, [KK Sadasivuni](#), Advanced Science Letters 24 (8), 5496-5502, 1, 2018.

**26. Performance analysis of evacuated tubes coupled solar still with double basin solar still and solid fins**

H Panchal, [KK Sadasivuni](#), M Suresh, S Yadav, S Brahmabhatt, International Journal of Ambient Energy, DOI 10 (01430750.2018), 1501745, 1, 2018.

**27. Experimental characterization of a tactile sensor for surgical applications**

A Tahir, J Abinahed, N Navkar, [KK Sadasivuni](#), A Al-Ansari, JJ Cabibihan, Innovative Research and Development (ICIRD), 2018 IEEE International, 2018.

**28. Blue luminescent cyanopyridone based molecular architectures: A structure-property study**

CT Devaiah, B Hemavathi, MB Ros, J Barberá, RM Tejedor, [KK Sadasivuni](#), T. N. Ahipa, Journal of Molecular Liquids 255, 233-243, 2, 2018.

**29. A Comparative Study of Chemically and Biologically Synthesized MgO Nanomaterial for Liquefied Petroleum Gas Detection**

R Thirupathi, G Solleti, T Sreekanth, [KK Sadasivuni](#), KV Rao, Journal of Electronic Materials, 1-6, 1, 2018.

**30. Dielectric and electromagnetic interference shielding properties of germanium dioxide nanoparticle reinforced poly (vinyl chloride) and poly (methylmethacrylate) blend ...**

J Joseph, K Deshmukh, K Chidambaram, M Faisal, E Selvarajan, [KK Sadasivuni](#). Journal of Materials Science: Materials in Electronics, 29, 20172-20188, 2018.

**31. A pH-sensitive guar gum-grafted-lysine-β-cyclodextrin drug carrier for the controlled release of 5-flourouracil into cancer cells**

RA Praphakar, M Jeyaraj, S Mehnath, A Higuchi, D Ponnamma, [KK Sadasivuni](#). Journal of Materials Chemistry B 6 (10), 1519-1530,7,2018.

**32. Flexible ultra-sensitive and resistive NO<sub>2</sub> gas sensor based on nanostructured Zn(x) Fe(1-x)<sub>2</sub> O<sub>4</sub>.**

S Goutham, [KK Sadasivuni](#), DS Kumar, KV Rao, RSC Advances 8 (6), 3243-3249,1,2018.

**33. White graphene reinforced polypyrrole and poly (vinyl alcohol) blend nanocomposites as chemiresistive sensors for room temperature detection of liquid petroleum gases**

J. G. Thangamani, K. Deshmukh, [K. K. Sadasivuni](#), D. Ponnamma, S. Goutham, K. Venkateswara Rao, K. Chidambaram, M. Basheer Ahamed, A. Nirmala Grace, M. Faisal, S. K. K. Pasha. Microchimica Acta, 1-11, 2017.

**34. Highly selective gas sensors from photo-activated ZnO/PANI thin films synthesized by mSILAR**

D. Thomas, A. Thomas, A. E. Tom, [K. K. Sadasivuni](#), D. Ponnamma, S. Goutham, J. -J. Cabibihan, K. Venkateswara Rao. Synthetic Metals 232, 123-130, 2017.

**35. Investigation of lanthanum impregnated cellulose, derived from biomass, as an adsorbent for the removal of fluoride from drinking water**

A. Nagaraj, [KK Sadasivuni](#), M Rajan, Carbohydrate Polymers, 176, 402-410, 2017.

**36. The synthesis, characterization and in vivo study of mineral substituted hydroxyapatite for prospective bone tissue rejuvenation applications**

D Govindaraj, M Rajan, MA Munusamy, AA Alarfaj, [KK Sadasivuni](#), S Suresh. Nanomedicine: Nanotechnology, Biology and Medicine, 13, 2661-2669, 2017.

**37. A Fast Responsive Ultraviolet Sensor from mSILAR-Processed Sn-ZnO**

D Thomas, KA Vijayalakshmi, KK Sadasivuni, A Thomas, D Ponnamma, J. -J Cabibihan. Journal of Electronic Materials, 46, 6480–6487, 2017.

**38. Heterogeneous growth mechanism of ZnO nanostructures and the effects of their morphology on optical and photocatalytic properties**

Abdo Hezam, K. Namratha, Q. A. Drmosh, Bananakere Nanjegowda Chandrashekar, K. K. Sadasivuni, Z. H. Yamani, Chun Cheng, K. Byrappa, CrystEngComm, 19, 3299-3312, 2017.

**39. Effect of Nanostructured Polyhedral Oligomeric Silsesquioxane (POSS) on the Physical Properties of Poly(vinyl alcohol) (PVA)**

Swapna VP, R. Stephen, D. Ponnamma, K. K. Sadasivuni. Journal of Applied Polymer Science, 43, 134, 2017.

**40. Fumed SiO<sub>2</sub> nanoparticle reinforced biopolymer blend nanocomposites with high dielectric constant and low dielectric loss for flexible organic electronics**

K Deshmukh, MB Ahamed, KK Sadasivuni, D Ponnamma, Journal of Applied Polymer Science 134 (5), 133, 2017.

**41. Tribological Studies of Nanomodified Mineral based Multi-grade Engine Oil**

M Laad, D Ponnamma, KK Sadasivuni, International Journal of Applied Engineering Research 12, 2855-2861, 2017.

**42. Studies on The Electrical Properties of Graphene Oxide Reinforced Poly (4-Styrene Sulfonic Acid) And Polyvinyl Alcohol Blend Composites**

K Deshmukh, S Sankaran, M B. Ahamed, SK Khadheer Pasha, K K Sadasivuni, D Ponnamma, M. A. Al-Maadeed, K Chidambaram. International Journal of Nanoscience. 2017.

DOI: <http://dx.doi.org/10.1142/S0219581X17600055>

**43. Microtron irradiation induced tuning of dielectric properties of nano ZnO–natural rubber disks**

D. Thomas, K. A. Vijayalakshmi, J. J. Mathen, S. Augustine, D. Ponnamma, K. K. Sadasivuni, J.-J. Cabibihan. Polymer Bulletin. DOI 10.1007/s00289-017-1998-y.

**44. Solution-processed white graphene-reinforced ferroelectric polymer nanocomposites with improved thermal conductivity and dielectric properties for electronic encapsulation**

K Deshmukh, MB Ahamed, KK Sadasivuni, D Ponnamma, RR Deshmukh. Journal of Polymer Research 24 (2), 27, 2017.

**45. Nanostructured ZnO gas sensors obtained by green method and combustion technique**

S Goutham, S Kaur, KK Sadasivuni, JK Bal, N Jayarambabu, DS Kumar. Materials Science in Semiconductor Processing 57, 110-115, 2017.



**46. Graphene oxide reinforced poly (4-styrenesulfonic acid)/polyvinyl alcohol blend composites with enhanced dielectric properties for portable and flexible electronics**

K Deshmukh, MB Ahamed, KK Sadasivuni, D Ponnamma, M. A. Al-Maadeed, S. K. Khadeer Pasha, R. R Deshmukh, K. Chidambaram. Materials Chemistry and Physics 186, 188-201, 2017.

**47. Nanostructure ZnFe<sub>2</sub>O<sub>4</sub> with Bacillus subtilis for Detection of LPG at Low Temperature**

S Goutham, DS Kumar, KK Sadasivuni, JJ Cabibihan, KV Rao, Journal of Electronic Materials, 46, 2334-2339, 2017.

**48. Polyvinyl alcohol/Polystyrene Sulfonic Acid (PSSA)/Carbon Black Nanocomposite for Flexible Energy Storage Device Applications.**

K. B. Sheikh, M. K. M. Jothibai, K. Deshmukh, K. Chidambaram, M. B. Ahamed, K. K. Sadasivuni, D. Ponnamma, M. A. Al-Maadeed, R. R Deshmukh. Journal of Materials Science: Materials in Electronics (JMSE), 28, 6099-6111, 2017.

**49. 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.**

K. Deshmukh, MB Ahamed, RR Deshmukh, KK Sadasivuni, D Ponnamma, S. K. Khadeer Pasha, Mariam Al-Ali AlMaadeed, AR Polu, K. Chidambaram. Journal of Electronic Materials, 46, 2406-2418, 2017.

**50. Tribological behaviour of 1D and 2D nanofiller based high density poly-ethylene hybrid nanocomposites: A run-in and steady state phase analysis**

N. D. Badgayan, K. K. Sadasivuni, D. Ponnamma, P. S. Rama Sreekanth. Wear, 376, 1379-1390, 2017.

**51. High-Quality Factor Poly (vinylidene Fluoride) Based Novel Nanocomposites Filled With Graphene Nanoplatelets And Vanadium Pentoxide For High - Q Capacitor Applications.**

K. D. Satapathy, K. Deshmukh, M. B. Ahamed, K. K. Sadasivuni, D. Ponnamma, S. K. Pasha, M. A. Al-Maadeed, J. Ahmad, Advance Material Letters 2017, 8(3), 288-294.

**52. Flexible NO<sub>2</sub> sensors from renewable cellulose nanocrystals/iron oxide composites**

K. K. Sadasivuni, D. Ponnamma, H.-U. Ko, H. C. Kim, L. Zhai, J. Kim. Sensors and Actuators B, 233, 633-638, 2016.

**53. Electroactive and Optically Adaptive Bionanocomposite for Reconfigurable Microlens**

K. K. Sadasivuni, D. Ponnamma, H. -U. Ko, L. Zhai, H. C. Kim, J. Kim. The Journal of Physical Chemistry B, 120, 4699-4705, 2016.

**54. Reduced Graphene Oxide Filled Poly(dimethylsiloxane) based Transparent Stretchable and Touch-Responsive Sensors**

D. Ponnamma, K. K. Sadasivuni, J. J. Cabibihan, W. J. Yoon, B. Kumar. Applied Physical Letters, 108, 171906, 2016.

**55. Eco-Friendly Electromagnetic Interference Shielding Materials from Flexible Reduced Graphene Oxide Filled Polycaprolactone/Polyaniline Nanocomposites.**

D. Ponnamma, [K. K. Sadasivuni](#)\*, M. Strankowski, P. Kasak, I. Krupa, M. A. Al-Maadeed. Polymer-Plastics Technology and Engineering, 920-928, 2016. DOI:10.1080/03602559.2015.1132435.

**56. Synergistic Effect of Vanadium Pentoxide and Graphene Oxide in Polyvinyl alcohol for Energy Storage Application.**

K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, S. K. K. Pasha, [K. K. Sadasivuni](#), D. Ponnamma, K. Chidambaram. European Polymer Journal, 76, 14-27, 2016.

**57. 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.**

K. Deshmukh, M. Basheer Ahamed, R. R. Deshmukh, S. K. Khadheer Pasha, K. Chidambaram, [K. K. Sadasivuni](#), D. Ponnamma, M. A. Al-Maadeed. Polymer-Plastics Technology and Engineering, 55, 1240-1253, 2016.

**58. Surface Functionalization of Natural Lignin Isolated from Aloe Barbadensis Miller Biomass by Atom Transfer Radical Polymerization for Enhanced Anticancer Efficacy**

M. Jeyaraj, R. A. Praphakaran, C. Rajendran, D. Ponnamma, [K. K. Sadasivuni](#). RSC Advances, 6, 51310-51319, 2016.

**59. Influence of temperature on the confinement effects of micro and nano level graphite filled poly(isoprene-co-isobutylene) composites**

D. Ponnamma, A. Saiter, J. M. Saiter, S. Thomas, Y. Grohens, M. A. Al-Maadeed, [K K Sadasivuni](#)\*. Journal of Polymer Research, 23, 125, 2016.

**60. Microtron irradiation induced tuning of bandgap and photo response of Al-ZnO thin films synthesized by mSILAR**

D. Thomas, S. Augustine, [K. K. Sadasivuni](#), D. Ponnamma, A. Y. Alhaddad, J. J. Cabibihan, K. A. Vijayalakshmi. Journal of Electronic Materials, 45, 4847-4853, 2016.

**61. Oleic acid-grafted chitosan/graphene oxide composite coating for corrosion protection of carbon steel**

E. M. Fayyad, [K. K. Sadasivuni](#), D. Ponnamma, M. A. Al-Maadeed. Carbohydrate Polymers, 151, 871-8, 2016.

**62. Poly-Carboxylic acids Functionalized Chitosan Nanocarriers for Controlled and Targeted Anti-cancer Drug delivery**

M. Rajan, M. Murugan, D. Ponnamma, [K. K. Sadasivuni](#), M. A. Munusamy, Biomedicine & Pharmacotherapy 83:201-211, 2016.

**63. Impedance spectroscopy, ionic conductivity and dielectric studies of new Li<sup>+</sup> ion conducting polymer blend electrolytes based on biodegradable polymers for solid state battery applications**  
K Deshmukh, M. B Ahamed, A R Polu, [K.K.Sadasivuni](#), S. K. Khadheer Pasha, D Ponnamma, M. A. Al-Maadeed, K. Chidambaram, Journal of Materials Science Materials in Electronics, 27:11, 11410-11424, 2016.

**64. Striking Multiple Synergies in Novel Three-Phase Fluoropolymer Nanocomposites by Combining Titanium Dioxide and Graphene Oxide as Hybrid Fillers**  
K. Deshmukh, M. B. Ahamed, R. Deshmukh, S. K. Khadheer Pasha, [K. K. Sadasivuni](#), D. Ponnamma, M. A. Al-Maadeed. Journal of Materials Science: Materials in Electronics (JMSE), 28, 559-575, 2016.

**65. Graphene oxide reinforced polyvinyl alcohol/polyethylene glycol blend composites as high-performance dielectric material**  
K. Deshmukh, M. B. Ahamed, R. Deshmukh, S. K. Khadheer Pasha, [K. K. Sadasivuni](#), D. Ponnamma, M. A. Al-Maadeed, Journal of Polymer Research, 23 (8), 159, 2016.

**66. Newly Developed Biodegradable Polymer Nanocomposites of Cellulose Acetate and Al<sub>2</sub>O<sub>3</sub> Nanoparticles with Enhanced Dielectric Performance for Embedded Passive Applications**  
K. Deshmukh, M. B. Ahamed, R. R. Deshmukh, S. K. Khadheer Pasha, [K. K. Sadasivuni](#), A. P. Reddy, D. Ponnamma, M. A. Al-Maadeed, K. Chidambaram, Journal of Materials Science: Materials in Electronics (JMSE), 28, 973-986, 2016.

**67. Targeted delivery of rifampicin to tuberculosis-infected macrophages: design, in-vitro, and in-vivo performance of rifampicin-loaded poly (ester amide) as nanocarriers**  
R. A. Praphakar, M. A. Munusamy, [K. K. Sadasivuni](#), M. Rajan  
International Journal of Pharmaceutics 513, 628-635, 2016.

**68. Flexible Oil Sensors Based On Multiwalled Carbon Nanotube–Filled Isoprene Elastomer Composites**  
D. Ponnamma, [K. K. Sadasivuni](#)\*, S. Thomas, I. Krupa, M. A. Al-Maadeed.  
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### **BOOK CHAPTERS**

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### **11. Confinement effects in Butyl Rubber Composites: from micro to nano scale.**

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### **12. Graphene-Butyl rubber Nanocomposites for Permeability, Mechanical and Sensing Applications, Mutiphases Polymers and Polymer Composites: From Nanoscale to Macro Composite**

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### **POSTER PRESENTATION**

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#### **1. Cellulose nanocrystals (biomaterial) based touch sensors for biomedical applications**

K. K. Sadasivuni<sup>1</sup>, W. J. Yoon, J. J. Cabibihan. BioRobotics and Bionics: New Frontiers of Biomedical Engineering.  
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#### **2. Development of Poly(Isobutylene-co-Isoprene)/Reduced Graphene Oxide Nanocomposites for Barrier, Dielectric, and Sensing Applications,**

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#### **3. Confinement effects in Butyl Rubber Composites: from micro to nano scale.**

K.K.Sadasivuni, A.Saiter, D. Laurant, J.M.Saiter, S. Thomas, Y. Grohens  
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#### **4. Molecular mobility and cooperativity in Butyl Rubber Composites.**

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K.K.Sadasivuni, A.Saiter, S.Thomas, Y.Grohens  
International Conference on Nanocomposites 2011, Kottayam, Kerala, India

#### **6. A Comparative Study of solvent vapour barrier properties of polymer Films by conductive polymer composite sensor**

K.K.Sadasivuni, I. Pillin, M. Castro, J. F. Feller, S. Thomas, Y. Grohens  
Group Francaispolymer (GFP) 2012, Lorient, France

## **7. Graphene-Poly (isobutylene-co-isoprene) Nanocomposites for Permeability, Mechanical and Sensing Applications, Mutiphases Polymers and Polymer Composites: From Nanoscale to Macro Composite**

K. K. Sadasivuni, P. Deepalekshmi, J. M. Hanna, C. Robert, M. Castro, J.F. Feller, S. Thomas.  
Paris Nanocomposites 2011, Paris, France

### **REVIEWER OF JOURNALS**

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- Applied Materials & Interfaces, ACS
- Materials Chemistry and Physics, Elsevier
- Composite Science and Technology, Elsevier
- Material Science and Engineering B, Elsevier
- Composites Part B, Elsevier
- Materials and Design, Elsevier
- Nano-Structures & Nano-Objects, Elsevier
- Colloid and polymer science, Springer
- The Korean Journal of Chemical Engineering, Springer
- International Journal of Mechanical and Materials Engineering, Springer

### **TEACHING**

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- Courses: Advanced Materials and Composites. Graduate students, College of Arts and Science, Lecture-7.
- Courses: Sensors and Actuators based on polymer composites
- Courses: Flexible piezo/dielectric materials based on polymer composites

### **EDITORIAL**

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- Managing Editor- Emerging Materials, Springer.
- Editorial Board Member- Bulletin of Chemical and Pharma Research.
- Guest Editor- Sensors & Transducers journal, IFSA Publishing.
- Guest Editor- International Journal of Materials Science and Applications.
- Frontiers Bioengineering, Editorial Board Member and Review Editor.
- International Program Committee member- ICSR 2017 Conference, Tsukuba, Japan.

## RESEARCH SUMMARY

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The research is mainly concentrated to develop polymer nanocomposites applicable in various fields such as high-performance *Sensors, Actuators, Piezoelectrics, Dielectrics, FET, MEMS, 3D printing and Lithographic patterning* of materials. Both micros, as well as nanofillers, are used for polymer reinforcement and the in particular effect of conductive fillers such as Graphene, MXene, CNT, cellulose nanocrystal, polyaniline, etc. 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 Semiconductor analysis, FTIR, DSC, DMA, TGA, UV, Raman Analysis, Florescent spectroscopy, Atomic Force Microscopy, Wide Angle X-ray Diffraction, Scanning Electron Microscopy and Transmission Electron Microscopy 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, etc. are trained well.

## PERSONAL DETAILS

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