

2018-2019 Publications

A. Publications that result from Center-supported Projects:

In peer-reviewed technical journals:

1. Kwok, AT; Moore, JE; Rosas, S; Kerr, BA; Andrews, RN; Nguyen, CM; Lee, J; Furdei, CM; Collins, BE; Willey, JS, "Knee and Hip Joint Cartilage Damage from Combined Spaceflight Hazards of Low-Dose Radiation Less than 1 Gy and Prolonged Hindlimb Unloading", *Radiat Res.* 2019 Jun;191(6):497-506. doi: 10.1667/RR15216.1. Epub 2019 Mar 29.
2. Liu, L; Gebresellassie, K; Collins, BE; Zhang, H; Xu, Z.; Sankar, J; Lee, YC; Yun, Y , "Degradation Rates of Pure Zinc, Magnesium, and Magnesium Alloys Measured by Volume Loss, Mass Loss, and Hydrogen Evolution", *Appl. Sci.* 2018, 8(9), 1459; <https://doi.org/10.3390/app8091459>
3. Lumei Liu, Sang-Ho Ye, Xinzhu Gu, Teal Russell, Zhigang Xu, Jagannathan Sankar, William R. Wagner, Young-Choon Lee, Yeoheung Yun, Comparison of endothelial cell attachment on surfaces of biodegradable polymer-coated magnesium alloys in a microfluidic environment, *PLOS ONE*, 2018, 13(10): e0205611
4. Udhav Adhikari, Xiaoxian An, Nava Rijal, Shalil Khanal, Tracy Hopkins, Tom Chavez, Keith Stringer, Jag Sankar, Kevin J. Little, David B. Hom, Narayan Bhattarai, Sarah K. Pixley. "Embedding Magnesium Metallic Particles in Polycaprolactone Nanofiber Meshes Improves Applicability for Biomedical Applications" *Acta Biomaterialia* 2018 (In press, online version is published)
5. Shalil Khanal, Shanta R. Bhattarai, Ramjee Bhandari, Jeffery McDonald, and Narayan Bhattarai "Novel Alginate-PLGA Nanofiber Hydrogel Composites for Cell Encapsulation" (Under Revision, Scientific Reviews, 2019.
6. Udhav Adhikari, Sunghyun Jung, Shalil Khanal, Jag Sankar, Svitlana Failkova, Narayan Bhattarai "Preparation and characterization of chitin nanofibrils and Nanocomposites for Biomedical Application" (under preparation)
7. Nava Raijal, Udhav Adhikari, Shalil Khanal, Devdad Pai, Jannathan Sankar, Narayan Bhattarai "Magnesium Oxide-Poly(ϵ -caprolactone)-Chitosan-based Composite Nanofiber for Tissue Engineering Applications" *Materials Science and Engineering B* 228 (2018) 18-27.
8. Fialkova, S., Zhang, H., Xu, Z., Sankar, J. (2019). Effect of Sample preparation on Volta Potential Measurements of Plastically Deformed Mg-Al alloys" Paper accepted for presentation at the ASME 2019 International Mechanical Engineering Congress and Exposition.
9. Jaipan, P., Nannuri, C., Mucha, N.R., Singh, M.P., Xu, Z., Moatti, A., Narayan, J., Fialkova, S., Kotoka, R., Yarmolenko, S., Scott-Emuakpor, O., Binek, C., Kebede, A., Kumar, D., 2018. Influence of Gold Catalyst on the Growth on Titanium Nitride Nanowires. *MATERIALS FOCUS* 7, 720–725.
10. Liu, L; Gebresellassie, K; Collins, BE; Zhang, H; Sankar, J; Lee, YC; Yun, Y , "*Degradation Rates of Pure Zinc, Magnesium, and Magnesium Alloys Measured by Volume Loss, Mass Loss, and Hydrogen Evolution*", *Appl. Sci.* 2018, 8(9), 1459; <https://doi.org/10.3390/app8091459>
11. Karupphasamy Bavya Devi, Bipasa Tripathy, Prashant N. Kumta, Samit Nandi, Mangal Roy, "In vivo Biocompatibility of Zinc Doped Magnesium Silicate Bio-Ceramics", *ACS Biomaterials Science & Engineering* (2018) 4, 6, 2126-2133.
12. Thomas Richardson, Shibin Matthews, Joseph E. Candiello, Saik K. Goh, Prashant N. Kumta, Ipsita Banerjee, "Development of an Alginate Array Platform to Decouple the Effect of Multiparametric Perturbations on Human Pluripotent Stem Cells During Pancreatic Differentiation", *Biotechnology Journal*, Volume 13, Issue 2, Feb13 (2) (2018) doi: 10.1002/biot.201700099.

13. Sudhanshu Shekhar, Boeun Lee, Abhijit Roy, Joe Candiello, Prashant N. Kumta, "Surface Mediated Non-Viral Gene Transfection on Titanium Substrate using Polymer Electrolyte and Nanostructured Silicate Substituted Calcium Phosphate pDNA (NanoSiCaPs) Composites", *Materials Today Communications* 16 (2018) 169-173.
14. Sarah A. Luffy, Jingyao Wu, Prashant N. Kumta, Thomas W. Gilbert, "Evaluation of Magnesium Alloys for use as an intraluminal Tracheal Stent for Pediatric Application", *Journal of Biomedical Materials Research B, Part B* (2018) 9999:9999: 1-10.
15. Jingyao Wu, Daoli Zhao, John M. Ohodnicki, Boeun Lee, Abhijit Roy, Raymon Yao, Shauna Chen, Zhongyun Dong, William R. Heineman, Prashant N. Kumta, "In-vitro and in-vivo evaluation of dual phase ultra-high ductility Mg-Li-Zn alloys for cardiovascular stent application", *ACS Biomaterials Science and Engineering* (2018) 4, 919-932.
16. Oleg I. Velikokhatnyi and Prashant N. Kumta, "First Principles Study of the Elastic Properties of Magnesium and Iron Based Bioresorbable Alloys", *Materials Science and Engineering B* 230 (2018) 20-23.
17. Mitali Patil, Fatima Umanzor, Robert Kormos, Prashant N. Kumta, "Platinum Aptasensor Wire Arrays for Cardiac Biomarker Detection", *Materials Today Communications* 15 (2018) 55-60.
18. Joseph Candiello, Taraki Sai Pavan Grandhi, Sai Kia Goh, Vimal Vaidya, Maya Lemmon-Kishi, Kiarash Rahmani Eliatro, Robert Ros, Prashant N. Kumta, Kaushal Rege, Ipsita Banerjee, "3D heterogeneous islet organoid generation from human embryonic stem cells using a novel engineered hydrogel platform", *Biomaterials* 177 (2018) 27-39.
19. Anna V. Ivanina, Ballav M. Borah, Angela Vogts, Ifra Malik, Jingyao Wu, Adam R. Chin, Alejandro J. Almarza, Prashant N. Kumta, Helen Piontkivska, Elia Beniash and Inna M. Sokolova, "Potential trade-offs between biomineralization and immunity revealed by shell properties and gene expression profiles of two closely related *Crassostrea* species", *J. Experimental Biology* (2018) 221, jeb183236. doi:10.1242/jeb.183236.
20. Sangeetha Kunjukunju, Abhijit Roy, Prashant N. Kumta, "Cross-linked Enzyme Aggregate of Alginate Lyase: An Engineered Approach to Controlled Degradation of Alginate Hydrogel", *International Journal of Biomacromolecules* 115 (2018) 176-184.
21. Da-Tren Chou, Daeho Hong, Sinan Oskuz, Riccardo Schweizer, Abhijit Roy, Boeun Lee, Vijay Gorantla, and Prashant N. Kumta, "In-vivo Corrosion, bone healing, and host response of Mg-Y-Zn-Zr-Ca alloy in a rat femoral osteotomy model", *Journal of Biomaterials Applications* (2019) Vol. 33 (9) 1178-1194.
22. K. Bavya Devi. Bipasa Tripathy, Abhijit Roy, Boeun Lee, Prashant N. Kumta, Samit Kumar Nandi, Mangal Roy, "In Vitro Biodegradation and In Vivo Biocompatibility of Forsterite Bio-Ceramics: Effects of Strontium Substitution", *ACS Biomaterials Sci, Eng.* (2019) 5, 2, 530-543.
23. Jingyao Wu, Boeun Lee, Partha Saha, Prashant N. Kumta, "A Feasibility Study of Biodegradable Magnesium-Aluminum-Zinc-Calcium-Manganese (AZXM) Alloys for Tracheal Stent Application", *Journal of Biomaterials Applications* (2019) Vol. 33(8) 10180-1093.
24. In Vitro and In Vivo Evaluation of Multiphase Ultrahigh Ductility Mg-Li-Zn Alloys for Cardiovascular Stent Application, J. Wu, D. Zhao, J. M. Ohodnicki, B. Lee, A. Roy, R. Yao, S. Chen, Z. Dong, W. R. Heineman, P. N. Kumta, *ACS Biomaterials Science & Eng.*, 4, 919-932, 2018.
25. In Vivo Quantification of Hydrogen Gas Concentration in Bone Marrow Surrounding Magnesium Fracture Fixation Hardware using an Electrochemical Hydrogen Gas Sensor, D. Zhao, A. Brown, T. Wang, S. Yoshizawa, C. Sfeir, W. R. Heineman, *Acta Biomaterialia*, 73, 559-566, 2018
26. Adhikari, U; An, X; Rijal, N; An, X; Hopkins, TM; Khanal, S; Chavez, T; Tatu, R; Sankar, J; Little, KJ; Hom, DB; Bhattarai, N & Pixley. Embedding magnesium metallic particles in polycaprolactone nanofiber mesh improves applicability for biomedical applications, *Acta Biomaterialia*, in press. <https://doi.org/10.1016/j.actbio.2019.04.061>.

27. Chenhao Xu, Zhangzhang Yin, Prabir Roy-Chaudhury, Begona Campos-Naciff, Guangfeng Hou, Mark Schulz, *Structural Design and Finite Element Analysis of a Magnesium Biodegradable Stent*, submitted August 2019.

In peer-reviewed conference proceedings:

1. Xu, Z., Zhang, H.L., Yarmolenko, S., Wei, Q.M., Kecskes, L., Sankar, J. "Effect of annealing on the microstructure and mechanical properties of Mg-9Al% alloy plates processed with symmetrical and asymmetrical rolling," IMECE2019-11612, Accepted by Proceedings of the ASME 2019 International Mechanical Engineering Congress and Exposition IMECE2019, November 11-14, 2019, Salt Lake City, UT, USA.
2. Fialkova, S., Zhang, H., Xu, Z., Sankar, J. (2019). "Effect of Sample preparation on Volta potential measurements of plastically deformed Mg-Al alloys," Accepted by Proceedings of the ASME 2019 International Mechanical Engineering Congress and Exposition IMECE2019, November 11-14, 2019, Salt Lake City, UT, USA.
3. Udhav Adhikari, Xiaoxian An, Jagannathan Sankar, Sarah Pixley, Narayan Bhattarai "Fabrication of Nanofibrous Composite Meshes Incorporating Mg metal particles for Nerve Repair Applications" *Society For Biomaterials 2019 Annual Meeting and Exposition: The Pinnacle of Biomaterials and Innovation and Excellence*, April 3 – 6, Seattle, WA, USA.
4. Shalil Khanal, Sara Tatum, Jagannathan Sankar, Narayan Bhattarai "Alginate Based Hydrogel Platform for Cell Encapsulation" *Society For Biomaterials 2019 Annual Meeting and Exposition: Exploring the Nexus of Research and Application*, April 3 – 6, Seattle, WA, USA.
5. Sheikh Saudi, Udhav Adhikari, Shyam Aravamudhan, Jagannath Sankar, Narayan Bhattarai "Investigation of Diclofenac Sodium Release from Electrospun Composite Nanofibers of Poly (ϵ -caprolactone) and Chitosan" *Society For Biomaterials 2019 Annual Meeting and Exposition: Exploring the Nexus of Research and Application*, April 3 – 6, Seattle, WA, USA.
6. Udhav Adhikari, Jagannathan Sankar, Narayan Bhattarai "Mg based composite nanofibrous scaffolds for tissue engineering application" *35th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2019*, February 22-24, Hattiesburg, MS, USA.
7. Shalil Khanal, Sara Tatum, Jagannathan Sankar, Narayan Bhattarai "3D Hydrogel Platform for Cell Encapsulation" *35th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2019*, February 22-24, Hattiesburg, MS, USA.
8. Oreoluwa Alonga, Narayan Bhattarai, Arvind Chandrasekaran "Micro Contact Printing assisted Fabrication of Miniaturized Chitosan Scaffolds for High Throughput Bone Metastasis-on-Chip Assays" *35th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2019*, February 22-24, Hattiesburg, MS, USA.
9. Sheikh Saudi, Udhav Adhikari, Shyam Aravamudhan, Jagannath Sankar, Narayan Bhattarai "Investigation of Drug Release from Electrospun Composite Nanofibers" *35th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2019*, February 22-24, Hattiesburg, MS, USA.
10. Sara Pixley, Udhav Adhikari, X An, Shalil Khanal, Tracy Hopkins, Narayan Bhattarai, W Heineman "Magnesium metal electrospun with polycaprolactone into nanofibrous fabrics has tissue reparative effects in vivo" *10th Symposium on Biodegradable Metals*, August 26 to 31, 2018, University of Oxford, England.
11. Udhav Adhikari, Sheikh Saudi, Sunghyun Jun, Jagannathan Sankar, Narayan Bhattarai "PCL-Chitosan-Magnesium Oxide Based Composite Nanofibers for Tissue Engineering Applications"

Society For Biomaterials 2018 Annual Meeting and Exposition: Exploring the Nexus of Research and Application, being held April 11 – 14, Atlanta, GA, USA.

12. Udhab Adhikari, Shalil Khanal, Sara Tatum, Sheikh Saudi, Kalene Johnson, Marlayna Jackson, & Narayan Bhattarai “Modeling of Biomaterials Research for Middle School Science Students; Cotton Candy: A Sweet Inspiration to Teach Nanofibrous Biomaterials” *Society For Biomaterials 2018 Annual Meeting and Exposition: Exploring the Nexus of Research and Application*, being held April 11 – 14, Atlanta, GA, USA
13. Shalil Khanal, Sara Tatum, Erika Johnson, Jagannathan Sankar, Narayan Bhattarai “3D Alginate Hydrogel Matrix for Cell Encapsulation and Preservation” *Society For Biomaterials 2018 Annual Meeting and Exposition: Exploring the Nexus of Research and Application*, being held April 11 – 14, Atlanta, GA, USA.
14. Udhab Adhikari, Shalil Khanal, Jagannathan Sankar, Narayan Bhattarai “PCL/Magnesium Based Composite Nanofiber Scaffolds” *34th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2018*, March 8-10, Charlotte, NC, USA
15. Sunghyun Jun, Udhab Adhikari, Shalil Khanal, Svitlana Fialkova, Jagannathan Sankar, Narayan Bhattarai “Chitin based Nanofibrils and Nanocomposites for Biomedical Application” *34th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2018*, March 8-10, Charlotte, NC, USA
16. Shalil Khanal, Sara Tatum, Jagannathan Sankar, Narayan Bhattarai “Fabrication of 3D Alginate Hydrogel Scaffold” *34th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2018*, March 8-10, Charlotte, NC, USA
17. Sheikh Saudi, Udhab Adhikari, Shalil Khanal, Shyam Aravamudhan, Jagannathan Sankar, Narayan Bhattarai “Fabrication of PLGA/PCL composite fibers for controlled drug release” *34th Annual Meeting of Southern Biomedical Engineering Conference, SBEC 2018*, March 8-10, Charlotte, NC, USA
18. Fialkova, S., Yarmolenko, S., Sankar, J., Ndungu, G., & Wilkinson, K. (2018). Bioactive Coating from White Portland Cement Deposited by Pulsed Laser Deposition. Paper presented at the SBEC 2018 International Mechanical Engineering Congress and Exposition.
19. Fialkova, S., Flores, J., Yarmolenko, S., Sankar, J., Ndungu, G., & Wilkinson, K. (2018). Effect of Thermal Treatment on Bioactivity of Experimental Dental Cement. Paper presented at the ASME 2017 International Mechanical Engineering Congress and Exposition.
20. Abhijit Roy and Prashant N. Kumta, “Novel Biodegradable scaffold platforms for bone regeneration”, Invited speaker, Injury, Repair & Regenerative Medicine Seminar Series, April 16, 2019 McGowan Institute for Regenerative Medicine, University of Pittsburgh and UPMC, Pittsburgh, USA

Book Chapters:

1. Chenhao Xu, Devika Chauhan, Zhangzhang Yin, Guangfeng Hou, Vianessa Ng, Yi Song, Michael Paine, Chapter 35. *Synthesis of Hybrid Carbon Nanotube Yarn and Sheet and Their Applications*, in *Nanotube Superfiber Materials, Science, Manufacturing, Commercialization*, Elsevier, March, 2019, Editors, Mark Schulz, Vesselin Shanov, John Yin, Marc Cahay.
2. Zhangzhang Yin, Zhongyun Dong, Marc Cahay, Sarah Pixley, Kevin J. Haworth, Maham Rahimi, Sook Kuan Goh, Sandra Starnes, Madhura Patwardhan, Sumeet Chaudhary, Mark J. Schulz. Chapter 31. *Carbon Nanotube Wire for use in Precision Medical Devices*, in *Nanotube Superfiber Materials, Science, Manufacturing, Commercialization*, Elsevier, March, 2019, Editors, Mark Schulz, Vesselin Shanov, John Yin, Marc Cahay.

B. Publications that result from Associated Projects in the Strategic Plan:

In peer-reviewed technical journals:

1. Kwok, AT; Moore, JE; Rosas, S; Kerr, BA; Andrews, RN; Nguyen, CM; Lee, J; Furdei, CM; Collins, BE; Willey, JS, "Knee and Hip Joint Cartilage Damage from Combined Spaceflight Hazards of Low-Dose Radiation Less than 1 Gy and Prolonged Hindlimb Unloading", *Radiat Res.* 2019 Jun;191(6):497-506. doi: 10.1667/RR15216.1. Epub 2019 Mar 29
2. Gyoung Hwa Jeong, Ilbok Lee, Donghyun Lee, Hea-Min Lee, Seungmin Baek, O-Pil Kwon, Prashant N. Kumta, Songhun Yoon, Sang-Wook Kim, "Fabrication of β -CoV₃O₈ nanorods embedded in graphene sheets and their application for electrochemical charge storage electrode", *Nanotechnology*, 29 (19) (2018) 195403.
3. Prasad P. Patel, Shrinath Ghadge, Prashanth J. Hanumantha, Moni K. Datta, Bharat Gattu, Pavithra Murugavel Shanthi, Prashant N. Kumta, "Active and robust novel bilayer photoanode architectures for hydrogen generation via direct non-electric bias induced photo-electrochemical water splitting", *International Journal of Hydrogen Energy* 43 (2018) 13158-13176.
4. Prasad P. Patel, Oleg I. Velikokhatnyi, Shrinath D. Ghadge, Prashanth J. Hanumantha, Moni K. Datta, Ramalinga Kuruba, Bharat Gattu, Pavithra Murugavel Shanthi, Prashant N. Kumta, "Electrochemically active and robust cobalt doped copper phosphosulfide electro-catalysts for hydrogen evolution reaction in electrolytic and photoelectrochemical water splitting", *J. Power Sources* 43 (2018) 7855-7871.
5. Pavithra M. Shanthi, Prashanth J. Hanumantha, Taciana Albuquerque, Bharat Gattu, Prashant N. Kumta, "Electrospinning of PVdF-HFP: Novel Composite Polymer Electrolytes (CPEs) with Enhanced Ionic Conductivities for Rechargeable Lithium – Sulfur batteries", *ACS Applied Energy Materials* (2018) 1 (2) 483-494.
6. Shrinath Ghadge, Prasad P. Patel, Moni K. Datta, Oleg I. Velikokhatny, Bharat Gattu, Pavithra M. Shanthi, Prashant N. Kumta, "First report of vertically aligned (Sn,Ir)O₂:F solid solution nanotubes: Highly efficient and robust oxygen evolution electrocatalyst for proton exchange membrane based water electrolysis", *J. Power Sources* 392 (2018)139-149.
7. Daiwon Choi, Jay R.P. Jayakody, Steven G. Greenbaum and Prashant N. Kumta, "Synthesis, Surface Chemistry and Pseudocapacitance Mechanisms of VN Nanocrystals Derived by a Simple Two-step Halide Approach", *Materials Science and Engineering B* 230 (2018) 8-19.
8. Shrinath D. Ghadge, Oleg I. Velikokhatnyi, Moni K. Datta, Susheng Tan, Krishnan Damodaran, and Prashant N. Kumta, "Experimental and Theoretical Validation of High Efficiency and Robust Electrocatalytic Response of One Dimensional (1D) (Mn, Ir)O₂:10F Nano-rods for Oxygen Evolution Reaction in PEM based Water Electrolysis", *ACS Catalysis* (2019) 9, 2134-2157.
9. Pavithra Murugavel Shanthi, Prashanth J Hanumantha, Ramalinga Kuruba, Bharat Gattu, Moni K. Datta, Prashant N. Kumta, "Effective bipyridine and pyrazine based polysulfide dissolution resistant complex framework material systems for high capacity rechargeable Lithium – Sulfur batteries", *Energy Technology* (2019), 1900141; doi: 10.1002/ent.201900141.
10. Pavithra Murugavel Shanthi, Prashanth J. Hanumantha, Ramalinga Kuruba, Bharat Gattu, Moni K. Datta, Prashant N. Kumta, "Sulfonic Acid – based Metal Organic Frameworks (MOFs) – Nanostructured Polysulfide Immobilizing Systems for Rechargeable Lithium – Sulfur battery", *J. Electrochemical Society*, 166 (10) A1827-A1835 (2019).
11. Olia S.E., Wearden P.D., Maul T.M., Shankarraman V., Kocyildirim E., Snyder S.T., Kameneva M.V., Wagner W.R., Borovetz H.S. and Antaki J.F. Preclinical Performance of a Pediatric Mechanical Circulatory Support Device: The PediaFlow® Ventricular Assist Device. *Journal of Thoracic and Cardiovascular Surgery* 2018;156:1643–51 PMID: 29807773
12. Simon MA, Bachman TN, Watson J, Baldwin JT, Wagner WR and Borovetz HS. "Current and Future Considerations in the Use of Mechanical Circulatory Support Devices: An Update, 2008 – 2018." *Annual Review of Biomedical Engineering* vol. 21, pp. 33-60, 2019.

13. Borovetz HS and Antaki JF. In Memoriam -- Kenneth Clark Butler (1939–2018). *ASAIO Journal* 2019;65:301-302.
14. Bhaumik, A., Nori, S., Sachan, R., Gupta, S., Kumar, D., Majumdar, A. K., & Narayan, J. (2018). Room-Temperature ferromagnetism and Extraordinary Hall Effect in nanostructured Q-carbon: implications for potential spintronic devices, *Applied Nano Materials* 1(2), 807–819.
15. Jaipan, P., Nannuri, C., Reddy, M. R., Singh, M., Xu, Z., Moatti, A., Narayan, J. Kumar, D. (2018). Influence of Gold Catalyst on the Growth of Titanium Nitride Nanowires, *Materials Focus*, 7(5), pp. 720-725.

In peer-reviewed conference proceedings

1. Reddy, M., Ezhaikuiyan, R., Rathnayake, H., Kumar, D., Carolina Science Symposium, "A single photo active and Efficient Visible Light Responsive Titanium Oxynitride materials for light harvesting applications," MRS, ASM International and AVS, NC State University, Raleigh. (November 2018).
2. Shaji, S. (Presenter & Author), Giri, P. (Author Only), Binek, C. (Author Only), Kumar, D. (Author Only), Carolina Science Symposium, "Magnetic and magnetocaloric properties of Fe₉₀Ta₁₀ Thin films," MRS, ASM, AVS, NC State University, Raleigh. (November 2018).
3. Roy, M. (Presenter & Author), Reddy, M. (Presenter & Author), Ponnampaluri, R. (Author Only), Scott-Emuakpor, O. (Author Only), Majumdar, A. (Author Only), Kumar, D. (Author Only), Carolina Science Symposium, "Quantum interference effects in single crystalline titanium nitride films at low temperatures," MRS, ASM International and AVS, NC State University, Raleigh. (November 2018).
4. Jaipan, P. (Presenter & Author), Roy, K. (Presenter & Author), Tran, D., Scott-Emuakpor, O., Sundaresan, M., Yarmolenko, S., Kumar, D., Carolina Science Symposium, "Vibration damping enhancement in titanium beams with titanium nitride/titanium films deposition by RF magnetron sputtering," MRS, ASM International and AVS, NC State University, Raleigh. (November 2018).
5. Reddy, M. (Presenter & Author), Kumar, D. (Author Only), International Mechanical Engineering Congress & Exposition (IMECE), "Bandgap engineering of Titanium Oxynitride Thin films with Large Power Conversion Efficiency in Photovoltaic Solar Cells," ASME, Pittsburgh. (November 2018).
6. Shaji, S. (NCA&T Student), Kumar, D. (Author Only), International Mechanical Engineering Congress & Exposition (IMECE), "Magnetocaloric Properties of Fe₉₀-Ta₁₀ Thin Films," ASME, Pittsburgh, PA. (November 2018).
7. Shaji, S. (Presenter & Author), Kumar, D. (Author Only), Materials Research Society Fall meeting, "Magnetic and Magnetocaloric Properties of Fe-(W) Ta Thin Films," Materials Research Society, Boston, MA. (November 2018).
8. Reddy, M. (NCA&T Student), Kumar, D. (Presenter & Author), Kumar, D., Materials Research Society Fall meeting, "Titanium Oxynitride Thin films with Large Power Conversion Efficiency in Photovoltaic Solar Cells," Materials Research Society, Boston, MA. (November 2018).
9. Jaipan, P. (NCA&T Student), Reddy, M. (NCA&T Student), Kumar, D. (Presenter & Author), Materials Research Society, Fall meeting, "Influence of Gold Catalyst on the Growth of Titanium Nitride Nanowires," Materials Research Society, Boston, MA. (November 2018).
10. Mucha, N. (Presenter & Author), Kant, C. (Author Only), Katiyar, M. (Author Only), Rathnayake, H. (Author Only), Schubert, E. (Author Only), Kumar, D. (Author Only), Materials

Research Society Spring meeting, "Bandgap Engineering of Oxynitride thin films for water splitting and Hydrogen generation," Materials Research Society, Phoenix, Arizona. (April 2018).

11. Shaji, S. (Author Only), Mucha, N. (Presenter & Author), Majumdar, A. (Author Only), Kumar, D. (Author Only), Materials Research Society Spring Meeting, "Magnetic and Electrical Properties of Fe₉₀Ta₁₀ Thin Films Deposited by Pulsed Laser Deposition for Use as a Permanent Magnet," Materials Research Society, Phoenix, Arizona. (April 2018).
12. Mucha, N. (Presenter & Author), Aryeetey, F. (Author Only), Shaji, S. (Author Only), Gbewonyo, S. (Author Only), Zhang, L. (Author Only), Kumar, D. (Author Only), Arvamudhan, S. (Author Only), Materials Research Society, Spring meeting, "Structural and Electrical properties of Semiconducting Electro spun Carbon Nanofibers," Materials Research Society, Phoenix, Arizona. (April 2018).
13. Mucha, N. R. (NCA&T Student), Aryeetey, F. (NCA&T Student), Shaji, S. (NCA&T Student), Gbewonyo, S. (NCA&T Student), Zhang, L., Aravamudhan, S., Kumar, D., American Physical Society March Meeting 2018, "Electrospun Carbon Nanofibers: Structure and Electrical Properties," American Physical Society, Los Angeles, California. (March 2018).
14. Mucha, N. (Author Only), Kant, C. (Author Only), Katiyar, M. (Author Only), Schubert, E. (Author Only), Rathanayake, H. (Author Only), Kumar, D. (Presenter & Author), American Physical Society, March Meeting, "Bandgap Engineering of Oxynitride thin films for water splitting and Hydrogen generation," American Physical Society, Los Angeles, California. (March 2018).
15. Shaji, S. (Presenter & Author), Mucha, N. (Author Only), Majumdar, A. (Author Only), Kumar, D. (Author Only), American Physical Society, March Meeting, "Magnetic and Electrical Properties of Fe₉₀Ta₁₀ Thin Films Deposited by Pulsed Laser Deposition for Use as a Permanent Magnet," American Physical Society, Los Angeles, California. (March 2018).
16. Mucha, N., Aryeetey, F. (Author Only), Shaji, S. (Presenter & Author), Gbewonyo, S. (Author Only), Zhang, L. (Author Only), Kumar, D. (Presenter & Author), Arvamudhan, S. (Author Only), American Physical Society, March Meeting, "Structural and Electrical properties of Semiconducting Electro spun Carbon Nanofibers," American Physical Society, Los Angeles, California. (March 2018).

C. Publications that result from Sponsored Projects:

None