

Year 10 Publications

A. Publications that result from Center-supported Projects (total=35):

- In peer-reviewed technical journals: **24**

1. D. Zhao, L. Zhang, D. Siebold, D. DeArmond, N. Alvarez, V. Shanov, W. Heineman, "Electrochemical Studies of Three Dimensional Graphene Foam as an Electrode Material," *Electroanalysis* (2017), 29, pp. 1-8, (2017), DOI: 10.1002/elan.201700057
2. Shekh Rahman, Princeton Carter and Narayan Bhattarai, "Aloe Vera for Tissue Engineering Applications," *Journal of Functional Biomaterials* (2017), 8: 6
3. Juan Wang, Lumei Liu, Yifan Wu, Manfred F Maitz, Zhihong Wang, Youngmi Koo, Ansha Zhao, Jagannathan Sankar, Deling Kong, Nan Huang, Yeoheung Yun, "Ex vivo blood vessel bioreactor for analysis of the biodegradation of magnesium stent models with and without vessel wall integration," *Acta Biomaterialia* (2017), 50, 546-555
4. Y. Koo, T. Tiasha, V. Shanov, Y. Yun, "Expandable Mg-based Helical Stent Assessment using Static, Dynamic, and Porcine Ex Vivo Models," *Scientific Reports*, 7, 1173, pp. 1-10, (2017)
5. Hopkins TM, Little KJ, Vennemeyer JJ, Triozzi JL, Turgeon MK, Heilman AM, Minter D, Marra K, Hom DB, Pixley SK, "Short and long gap peripheral nerve repair with magnesium metal filaments," *J Biomed Mater Res, Part A* (2017), 105:3148-3158
6. Griebel, AJ, Schaffer, JE, Hopkins, TM, Alghalayini, A, Mkorombindo, T, Ojo, KO, Xu, Z, Little, KJ, Pixley, SK, "An in vitro and in vivo characterization of fine WE43B magnesium wire with varied thermomechanical processing conditions," *J Biomed Mater Res Part B* (2017), 2015:00B:000-000
7. Thompson, Z., Rahman, S., Yarmolenko, S., Sankar, J., Kumar, D., and Bhattarai, N., "Fabrication and Characterization of Magnesium Ferrite-Based PCL/Aloe Vera Nanofibers," *Materials* (2017), 10(8), 937
8. Salunke, P., Chaswal, V., Zhang, G., Fialkova, S., Yarmolenko, S., and Shanov, V., "Mechanical and microstructural characterization of magnesium single crystals," *Journal of Materials Research* (2017), 32(22), p. 4196-4205.
9. Gbordzoe, S., Yarmolenko, S., Kanakaraj, S., Haase, M.R., Alvarez, N.T., Borgemenke, R., Adusei, P.K., and Shanov, V., "Effects of laser cutting on the structural and mechanical properties of carbon nanotube assemblages," *Materials Science and Engineering B-Advanced Functional Solid-State Materials* (2017), 223, p. 143-152.
10. Gbordzoe, S., Yarmolenko, S., Hsieh, Y.Y., Adusei, P.K., Alvarez, N.T., Fialkova, S., and Shanov, V., "Three-dimensional texture analysis of aligned carbon nanotube structures," *Carbon* (2017), 121, p. 591-601.
11. D'Amore A, Fazzari M, Jiang H, Luketich SK, Luketich ME, Hoff RF, Jacobs DL, Gu X, Badylak SF, Freeman BA, Wagner WR, "Nitro-oleic acid (NO2OA) release enhances regional angiogenesis in a rat abdominal wall defect model," *Tissue Engineering Part A*, Ahead of Print, Published Online:27 Feb 2018, <https://doi.org/10.1089/ten.tea.2017.0349>
12. van der Merwe Y, Faust AE, Conner I, Gu X, Feturi F, Zhao W, Leonard B, Roy S, Gorantla VS, Venkataramanan R, Washington KM, Wanger WR, Steketee MB, "An Elastic Polymer Matrix, PEUU-Tac, Delivers Bioactive Tacrolimus Transdurally to the CNS in Rat," *EBioMedicine* (2017), 26: 47-59.
13. Madhani SP, Frankowski BJ, Ye SH, Burgreen GW, Wagner WR, Kormos R, D'Cunha J, Federspiel WJ, "In Vivo 5 Day Animal Studies of a Compact, Wearable Pumping Artificial Lung," *ASAIO Journal*. Publish Ahead of Print():, DEC 2017
14. D'Amore A, Luketich SK, Raffa GM, Olia S, Menallo G, Mazzola A, D'Accardi F, Grunberg T, Gu X, Pilato M, Kameneva MV, Badhwar V, Wagner WR, "Heart valve scaffold fabrication:

- Bioinspired control of macro-scale morphology, mechanics and micro-structure,* "Biomaterials (2018), 150: 25-37.
15. Malkin AD, Ye SH, Lee EJ, Yang X, Zhu Y, Gamble LJ, Federspiel WJ, Wagner WR, "Development of zwitterionic sulfobetaine block copolymer conjugation strategies for reduced platelet deposition in respiratory assist devices," J Biomed Mater Res B Appl Biomater. (2018), E-pub ahead of print, doi: 10.1002/jbm.b.34085.
 16. Lumei Liu, Youngmi Koo, Boyce Collins, Zhigang Xu, Jagannathan Sankar, Yeoheung Yun, , "Biodegradability and platelets adhesion assessment of magnesium-based alloys using a microfluidic system," PLOS, 2018, 0182914
 17. Youngmi Koo, Hae-Beom Lee, Zhongyun Dong, Ruben Kotoka, Jagannathan Sankar, Nan Huang, Yeoheung Yun, "The Effects of Static and Dynamic Loading on Biodegradable Magnesium Pins In Vitro and In Vivo,"Scientific Reports, 2017, 14710
 18. Catt K, Li H, Hoang V, Beard R, Cui XT, "Self-Powered Therapeutic Release from Conducting Polymer/Graphene Oxide Films on Magnesium," Nanomedicine: Nanotechnology, Biology and Medicine, In Press, Available online: 29 May 2017, <https://doi.org/10.1016/j.nano.2017.02.021>
 19. Matthew McCullough, Mark Gomes, Jagannathan Sankar, Narayan Bhattarai , "Development of Chitosan Based Scaffolds for Bone Regeneration: A Preliminary Report," EC Orthopaedics, 8.1 (2017) 15-25
 20. Nava Raijal, Udhav Adhikari, Shalil Khanal, Devdad Pai, Jannathan Sankar, Narayan Bhattarai , "Magnesium Oxide-Poly(-caprolactone)-Chitosan-based Composite Nanofiber for Tissue Engineering Applications,"Materials Science and Engineering B 228 (2017) 18-27.
 21. Zanshe Thompson, Shekh M. Rahman, Sergey Yarmolenko, Dhananjay Kumar and Narayan Bhattarai, "Magnesium-Ferrite base composite nanofibers for biomedical application," Materials 10(2017) 937.
 22. Avinash J. Patil, Olivia Jackson, Laura B. Fulton, Dandan Hong, Palak A. Desai, Stephen A. Kelleher, Da-Tren Chou, Susheng Tan, Prashant N. Kumta, and Elia Beniash, "Anticorrosive Self-Assembled Hybrid Alkylsilane Coatings for Resorbable Magnesium Metal Devices," ACS Biomater. Sci. Eng. (2017), 3 (4), pp 518-529
 23. Daoli Zhao, Tingting Wang, Keaton Nahan, Xuefei Guo, Zhanping Zhang, Zhongyun Dong, Shuna Chen, Da-Tren Chou, Daeho Hong, Prashant N. Kumta, William R. Heineman, "In-vivo characterization of magnesium alloy biodegradation using electrochemical H₂ monitoring, ICP-MS, and XPS," Acta Biomaterialia 50 (2017) 556-565
 24. Jingyao Wu, Daoli Zhao, John M. Ohodnicki, Boeun Lee, Abhijit Roy, Raymon Yao, Shauna Chen, Zhongyun Dong, William R. Heineman, and Prashant N. Kumta, "In Vitro and in Vivo Evaluation of Multiphase Ultrahigh Ductility Mg–2Li–Zn Alloys for Cardiovascular Stent Application," ACS Biomater. Sci. Eng. (2018), 4 (3), pp 919-932

- In peer-reviewed conference proceedings: **10**

1. Mau, J.R., Yu, C-Y., Woo, S.L-Y, "Corrosion Characterization of Magnesium Coated Via Micro-Arc Oxidation,"International Symposium on Ligaments and Tendons-XVI, San Diego, CA, March 18, 2017.
2. Wang, H., Mau, J.R., Kang, H., Cheng, C-K., Woo, S.L-Y., "Development and Validation of a 3-D Finite Element Model of Goat Stifle Joint," International Symposium on Ligaments and Tendons-XVI, San Diego, CA, March 18, 2017.
3. Woo, S.L-Y., "Healing of an ACL: An Additional Choice to Reconstruction," 2017 APKASS Summit, Seoul, Korea, April 28-29, 2017.
4. Woo, S.L-Y., "ACL Healing with Degradable Scaffolds," 11th Biennial ISAKOS Congress, Shanghai, China, June 4-8, 2017

5. Woo, S.L-Y., Mau, J.r., Wang, H., Kang, H.: *"Potential of Magnesium and Its Alloys for Orthopaedic Implants: Here Today and Gone When You Wish,"* 8th WACBE World Congress on Bioengineering, Hong Kong, China, July 30-August 2, 2017.
6. Yarmolenko, S., Galdamez, K., Neralla, S., Xu, Z., Pai, D., and Sankar, J. , *"Study of the Formation of Long Period Stacking Ordered Phases in Sputtered Thin Film Mg-Gd-Zn Alloys,"* Proceedings of ASME 2017 International Mechanical Engineering Congress and Exposition (2017), Tampa, FL, November 3-9, V014T11A037-V014T11A037
7. Xu, Z., Mendoza, N.G., Tilley, D., Plott, C., Yarmolenko, S., Pai, D., and Sankar, J. , *"Development of Mg-Based Biodegradable Wires for Bone Fixation Devices,"* Proceedings of ASME 2017 International Mechanical Engineering Congress and Exposition (2017): American Society of Mechanical Engineers: Tampa, FL, Nov. 3-9, 2017, Paper No. IMECE2017-71008, pp. V014T11A036; 7 pages
8. Fialkova, S., Yarmolenko, S., Sankar, J., Ndungu, G., and Wilkinson, K., *"Bioactive Coating From White Portland Cement Deposited by Pulsed Laser Deposition,"* Proceedings of ASME 2017 International Mechanical Engineering Congress and Exposition (2017): American Society of Mechanical Engineers: Tampa FL, November 3-9, 2017, Paper No. IMECE2017-70986, pp. V014T11A042; 10 pages
9. McGhee, P., Yarmolenko, S., Pai, D., Xu, Z., Kotoka, R., Neralla, S., McCullough, M., and Sankar, J., *"Effect of Extrusion Processing Parameters on Microstructure of Mg-Zr Alloys,"* Proceedings of ASME 2017 International Mechanical Engineering Congress and Exposition (2017): American Society of Mechanical Engineers: Tampa, FL, November 3-9, 2017, Paper No. IMECE2017-70627, pp. V014T11A035; 9 pages
10. S. Fialkova, Z. Xu, D. Pai, J. Sankar, *"Scanning Kelvin Probe Microscopy Study of Mg-Zn-Ca Alloys,"* Proceedings of the ASME 2017 International Mechanical Engineering Congress and Exposition, November 3-9, 2017, Tampa, Florida, USA

- In trade journals: **1**

Yufeng Zheng, Xiaoxue Xu, Zhigang Xu, Jun-Qiang Wang, Hong Cai , *"Metallic Biomaterials: New Directions and Technologies,"* John Wiley & Sons, Inc. ISBN: 978-3-527-34126-9

With multiple authors (total=32):

- co-authored with ERC students: **25**
- co-authored with industry: **4**
- with authors from multiple engineering disciplines: **23**
- with authors from both engineering and non-engineering fields: **10**
- with authors from multiple institutions: **20**

B. Publications that result from Associated Projects in the Strategic Plan (total=13):

- In peer-reviewed technical journals: **11**

1. Robert A. Wesley; Matthew B. A. McCullough, *"In Silico Modeling of Human Energy Metabolism,"* EC Microbiology (2017), 7.1: 26-36
2. Salim E. Olia, Peter D. Wearden, Timothy M. Maul, James F. Antaki, Venkat Shankarraman, Ergin Kocyildirim, Shaun T. Snyder, Patrick M. Callahan, Marina V. Kameneva, William R. Wagner and Harvey S. Borovetz, *"Preclinical Performance of a Pediatric Mechanical Circulatory Support Device: The PediaFlow^y Ventricular Assist Device,"* The Journal of Thoracic and Cardiovascular Surgery (2018), in Print: <https://doi.org/10.1016/j.jtcvs.2018.04.062>

3. N. Alvarez, R. Noga, So-Ryong Chae, G. Sorial, H. Ryu, V. Shanov, "*Self-Cleaning Carbon Nanotube Membranes to Inhibit Biofouling*," Biofouling, pp. 1-8, (2017).
4. K. Nahan, N. Alvarez, V. Shanov, A. Vonderheide, "*Nano-Carbon Fiber Ionization Mass Spectrometry: A Fundamental Study of a Multi-Walled Carbon Nanotube Functionalized Corona Discharge Pin for Polycyclic Aromatic Hydrocarbons Analysis*," ASMS, pp. 1-6, published online September 7, (2017).
5. D. Zhao, D. Siebold, N. Alvarez, V. Shanov, W. Heineman, "*Carbon Nanotube Thread Electrochemical Cell: Detection of Heavy Metals*," Anal. Chem., 2017, 89. 18, pp 9654-9663, (2017).
6. G. Hou, D. Chauhan, V. Ng, C. Xu, Z. Yin, M. Paine, R. Su, V. Shanov, D. Mast, M. Schulz, Y. Liu, "*Gas Phase Pyrolysis Synthesis of Carbon Nanotubes at High Temperature*," Materials and Design 132, pp. 112-118, (2017).
7. R. Malik, L. Zhang, C. McConnell, M. Schott, Y. Hsieh, R. Noga, N. Alvarez, V. Shanov, "*Three-dimensional, Free-standing Carbon Nanotube Electrode Design for Polyaniline/Carbon Nanotube Supercapacitors*," Carbon, 116, pp. 579-590, (2017)
8. L. Zhang, D. Armond, N. Alvarez, R. Malik, N. Oslin, Colin McConnell, P. Adusei, V. Shanov, "*Flexible Micro-Supercapacitor based on Graphene with Three Dimensional Structure*," Small, DOI: 10.1002/sml.201603114, pp. 1603114 (2017)
9. A. Bhaumik, S. Nori, R. Sachan, S. Gupta, D. Kumar, A.K. Majumdar, and J. Narayan, "*Room-Temperature ferromagnetism and Extraordinary Hall Effect in nanostructured Q-carbon: implications for potential spintronic devices*," ACS Applied Nano Materials (2018), Volume 1(2), page 807-819
10. Emily Bayer, Jahnelle Jordan, Abhijit Roy, Riccardo Gottardi, Morgan V. Fedorchak, Prashant N. Kumta, and Steven R. Little, "*Programmed Platelet-Derived Growth Factor-BB and Bone Morphogenetic Protein-2 Delivery from a Hybrid Calcium Phosphate/Alginate Scaffold*," Tissue Engineering A (2017), 23 (23-24), 1382-1393
11. K. Bavya Devi, Boeun Lee, Abhijit Roy, Prashant N. Kumta, Mangal Roy, "*Effect of Zinc Oxide doping on in-vitro degradation of magnesium silicate*," Materials Letters 207 (2017) 100-103

- In peer-reviewed conference proceedings: **2**

1. Devika Chauhan, Guangfeng Hou, Vianessa Ng, Sumeet Chaudhary, Michael Paine, Khwaja Moinuddin, Massoud Rabiee, Marc Cahay, Nicholas Lalley, Vesselin Shanov, David Mast, Yijun Liu, Zhangzhang Yin, Yi Song, Mark Schulz, "*Multifunctional Smart Composites with Integrated Carbon Nanotube Yarn and Sheet*," SPIE Smart Structures and Materials Conference, March 25-29, 2017, Portland, Oregon.
2. S. Fialkova, J. Flores, S. Yarmolenko, J. Sankar, G. Ndungu, K. Wilkinson, "*Effect of Thermal Treatment on Bioactivity of Experimental Dental Cement.*," Proceedings of the ASME 2017 International Mechanical Engineering Congress and Exposition, November 3-9, 2017, Tampa, Florida, USA

- Books and in book chapters: **0**

C. Publications that result from Sponsored Projects (total=1):

- In peer-reviewed technical journals: **1**

1. S. Keller, A. Zaghoul, N. Alvarez, R. Malik, V. Shanov, M. Schulz, D. Mast, "*Effects of Metal Nanoparticle Doping and In-Situ Atmospheric Pressure Plasma Treatment on Carbon Nanotube*

Sheet Antenna Performance," IEEE Antennas and Wireless Propagation Letters, 16, 1, pp. 1076-1079, (2017)

- In peer-reviewed conference proceedings: **0**
- Books and in book chapters: **0**