

Donghui Zhu, PhD

SUNY Empire Innovation Professor
Stony Brook University--SUNY

I am honored to have been a proud member of the Cellular and Molecular Bioengineering Special Interest Group since 2011, and it is with great enthusiasm that I express my candidacy for a council member position within our esteemed community. My profound dedication to advancing the frontiers of cellular and molecular bioengineering fuels my eagerness to contribute my skills, expertise, and unwavering commitment to the vibrant ecosystem of the CMBE SIG.

Throughout my career, I have been deeply immersed in cutting-edge research and development in cellular and molecular bioengineering. My academic background in Biomedical Engineering, coupled with extensive professional experience within prominent societies such as BMES, SFB, and TERMIS, has afforded me a comprehensive understanding of the challenges and opportunities inherent in our field. My active leadership and volunteerism within these societies underscore my demonstrated action and readiness to serve, positioning me as a valuable asset to the CMBE organization. Currently, I proudly serve as the elected Program Chair for the Orthopedic Biomaterials SIG at SFB, hold a pivotal role on the Liaison Committee of SFB, and contribute to the TERMIS-DEI committee. Over the years, I have played integral roles in various conference program committees, orchestrating initiatives and ensuring the seamless execution of conferences. Additionally, I have been deeply involved in the promotion, review, and selection of scientific papers for presentation, consistently serving as a tracking or session chair at prestigious meetings such as BMES, TERMIS, and SFB.

I am particularly drawn to the mission of the CMBE SIG, which steadfastly champions interdisciplinary collaboration, innovation, and the translation of discoveries into tangible solutions that enhance human health and well-being. As a council member, I am resolutely committed to advancing these objectives and fostering a collaborative environment where every member's voice is valued and heard. If elected, my foremost priority will be to spearhead initiatives that promote inclusivity, diversity, and equity within our SIG, ensuring that we provide a welcoming platform for all members to thrive. Additionally, I am keen to leverage my expertise in society leadership, communication, and project management to facilitate the organization of impactful events, workshops, and symposia that not only showcase the latest advancements but also foster meaningful discourse among our diverse membership.

If entrusted with this role, I am eager to amplify the visibility and impact of the CMBE SIG both nationally and internationally through innovative programs, publications, and activities. I am committed to representing the interests of our society diligently and to expanding our membership base by recruiting and engaging with leaders in the field. Moreover, I am steadfastly dedicated to fostering diversity, equity, and inclusion both within our scholarly endeavors and in our broader community. I am determined to collaborate closely with fellow council members to broaden participation, organize enriching conferences and workshops, and ensure diverse programming at all CMBE events.

In closing, I am deeply honored to be considered for a council member position within the CMBE SIG. I am excited about the prospect of contributing to the continued growth and success of our community, and I pledge to serve with integrity, passion, and unwavering dedication.

DONGHUI (DON) ZHU, Ph.D.**Position**

2020-present	SUNY Empire Innovation Professor, Biomedical Engineering and Neuroscience, Institute for Engineering-Driven Medicine, College of Engineering & Applied Sciences and Renaissance School of Medicine, Stony Brook University-SUNY
2019-2020	SUNY Empire Innovation Associate Professor, Biomedical Engineering and Neuroscience, College of Engineering & Applied Sciences and Renaissance School of Medicine, Stony Brook University-SUNY
2016-2019	Associate Professor, Graduate Program Director, Biomedical Engineering, University of North Texas
2010-2016	Investigator, NSF Engineering Research Center (ERC) for Revolutionizing Metallic Biomaterials
2010-2016	Assistant, & Associate Professor, Chemical Engineering and Bioengineering, North Carolina AT State University
2007-2009	Postdoctoral Research Associate, University of Rochester Medical School

Education

PhD, Bioengineering, University of Missouri, Columbia, MO (2006)
 MS, Biomedical Engineering, Washington University, St. Louis, MO (2003)
 MS, Chemical Engineering, Florida State University, Tallahassee, FL (2001)
 BS, Chemical Engineering, E China University of Science and Technology, China (1999)

Selected Award and Honor

1999	Excellent Student Award, East China University of Science and Technology
2000	Academic Fellowship, Florida State University
2002	Academic Fellowship, Washington University in St. Louis
2003	Academic Fellowship, University of Missouri
2005	Biomedical Engineering Society (BMES) Graduate Student Research Award
2006	Outstanding Graduate Student Award, University of Missouri-Columbia
2015	Golden Aggie Leadership Award (GALA), North Carolina AT State University
2016	Early Career Investigator Travel Fellowship, Alzheimer's disease as a Neurovascular Inflammatory Disorder Symposium at the New York Academy of Sciences
2016	Outstanding Junior Faculty Research Award, North Carolina AT State University
2019	Research Excellence Award, University of North Texas
2019	Academic Leadership Fellow, University of North Texas
2019	Mid-Career Investigator Award, Chinese Association for Biomaterials (CAB)
2019, 20, 22	Millionaire Research Award, College of Engineering and Applied Sciences, Stony Brook University
2020	Elected Fellow, American Heart Association (AHA)
2020	Individual Development Award, United University Professions
2022	Millionaire Club Elite Member, College of Engineering and Applied Sciences, Stony Brook University
2023	Elected Fellow, American Institute for Medical and Biological Engineering (AIMBE)
2023	World's TOP 2% Scientists 2023, Stanford University and Elsevier (DOI:10.17632/btchxktzyw.6)

Funding and Grant**Active**

Zhu D (PI). NIH/NIA, R01AG064798, Molecular mechanism and functional role of Mg in neuroinflammation in AD.
 Amount: \$3,455,161. 9/15/2019-5/31/2024

Zhu D (PI). NIH/NIDDK, R01DK129493-01A1, Bioresorbable Zinc Staples for Anastomoses in the Digestive Tract.
 Amount: \$2,518,812. 2/3/2022-1/31/2027

Zhu D (PI). NSF 2242867, Collaborative Research: Combined Tribological and Bactericidal Effect of Bioinjectable Nanodiamonds on Biological Joints.
 Amount: \$119,661. 6/1/2023-5/31/2024

Zhu D (PI). NIH/NIDDK, R01DK129493-02S1 (supplement): Zinc-tau interaction and its toxicity on brain cells.
 Amount: \$395,387. 2/1/2023-1/31/2024

Zhu D (PI). NIH/NHLBI, R01HL140562, Novel surface-modified bioresorbable zinc-based stent materials.
 Amount: \$1,815,440. 6/1/2018-5/31/2023 (No Cost Extension)

Pending (To be funded with a fundable score)

Zhu D (PI). NIH/NIDDK, R01DK129493-02S1 (supplement): Zinc-APOE4 interaction and toxicity in the central nervous system (CNS).

Amount: \$395,387. 5/1/2024-1/31/2025

Zhu D (PI). NIH/NIGMS, T32GM152283, Biotechnology Predoctoral Training Program (BPTP) at Stony Brook University.

Amount: \$1,827,131. 9/1/2024-8/31/2029

Zhu D (PI). NIH/NHLBI, 2R01HL140562-05, Bioresorbable zinc-based drug-eluting stents for pediatric cardiovascular applications.

Amount: \$3,216,359. 7/1/2024-6/30/2028

Completed

Zhu D (PI). NIH/NIA, R01AG064798-03S1 (supplement): Promote Diversity in Health-Related Research.

Amount: \$153,578. 7/1/2021-5/31/2023

Zhu D (PI). NIH/NHLBI, R01HL140562-04S1 (supplement): Zinc-A β interaction and its toxicity on brain cells.

Amount: \$395,382. 6/1/2021-5/31/2023

Zhu (co-PI). NSF 1936255, EAGER: Flexible wireless joint sensing system for knee arthroplasty.

Amount: \$160,000. 10/1/2019-9/30/2022

Zhu D (PI). Zinc on Blocking of SARS-CoV-2 Cell Receptor ACE2, SUNY Administration.

Amount/duration: \$7,500 05/2020-07/2020

Zhu D (PI). UNT Global Partnerships and Engagement, Competitive China Venture Fund.

Amount/duration: \$3,600 12/2018-08/2019

Zhu D (PI). UNT College of Engineering, Competitive PDS Grant.

Amount/duration: \$19,300 10/2017-08/2018

Zhu D (PI). UNT Office of Research and Innovation, Competitive Research Seed Grant.

Amount/duration: \$8,000 09/2017-08/2018

Zhu D (PI). NIH/NIGMS, GM113762, Magnesium and alloying elements on vascular cells health.

Amount/duration: \$432,000 09/2015-08/2017

Zhu D (PI). NIH/NIGMS, NS082475, Brain pericyte and amyloid-beta peptide interaction.

Amount/duration: \$427,500 09/2012-08/2016

Zhu D (PI). University of North Carolina General Administration, Genomic Educational Reward.

Amount/duration: \$320,000 11/2012-05/2013

Zhu D (PI). State of North Carolina, Major Equipment Reward.

Amount/duration: \$410,320 09/2011-05/2012

Refereed Journal Article (*corresponding author, *H index* = 45, [Google Scholar](#))**2024**

1. Mariana Cabral, Ke Cheng, [Donghui Zhu](#)*. 3D Bioprinting of Organoids: past, present, and prospective. *Tissue Engineering – Part A*, in press, 2024.
2. H Jeong, Y Pan, F Akhter, ND Volkow, [Donghui Zhu](#)*, C Du*. Impairment of cerebral vascular reactivity and resting blood flow in early-staged transgenic AD mice: in vivo optical imaging studies. *Journal of Cerebral Blood Flow and Metabolism*, under revision, 2024.
3. Firoz Akhter1, Asma Akhter1, Hillary Schiff, Arianna Maffei, Xiongwei Zhu, Justin Douglas, Zhen Zhao, [Donghui Zhu](#)*. Amyloid beta glycation leads to neuronal mitochondrial dysfunction and Alzheimer's pathogenesis via VDAC1-dependent mtDNA efflux. *Nature Medicine*, under review, 2024.
4. Juncen Zhou, Jiayi Zhou, Jie Shen, Lukasz Witek, Yunzhi Peter Yang, David Thanassi, Donghui Zhu. Optimizing bone healing: engineered hybrid ZnO nanocoating with controlled antibiotic release on titanium implants. *Chemical Engineering Journal*, under review, 2024.

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5. Juncen Zhou, Carmine Wang See, Sai Sreenivasamurthy, [Donghui Zhu](#)*. Customized additive manufacturing in bone scaffolds – the gateway to precise bone defect treatment. *Research*, 6, 0239, 2023.
6. Juncen Zhou, Elias Georgas, Yingchao Su, Jiayi Zhou, Nadja Kroger, Felix Benn, Alexander Kopp, Yi-Xian Qin, [Donghui Zhu](#)*. Evolution from Bioinert to Bioresorbable: In Vivo Comparative Study of Additively Manufactured Metal Bone Scaffolds. *Advanced Science*, 10 (26), 2302702, 2023.
7. Kakyung Kim, Yingchao Su, Allan Kucine, Ke Cheng, [Donghui Zhu](#)*. Guided bone regeneration using barrier membrane in dental application. *ACS Biomaterials Science & Engineering*, 9 (10), 5457-5478, 2023.

8. Yingchao Su, Matthew Cappock, Stephanie Dobres, Allan Kucine, Wayne Waltzer, [Donghui Zhu*](#). Supplemental mineral ions for bone regeneration and osteoporosis treatment. *Engineered Regeneration*, 4:170, 2023.
9. Zhaojun Jia, Xiaoxue Xu, [Donghui Zhu](#), Yufeng Zheng. Design, Printing, and Engineering of Regenerative Biomaterials for Personalized Bone Healthcare. *Progress in Materials Science*, 101072, 2023.
10. Yingchao Su, Jiayin Fu, Elias Georgas, Shaokang Du, Yi-Xian Qin, Yadong Wang, Yufeng Zheng, [Donghui Zhu*](#). Blending with transition metals improves bioresorbable zinc as better medical implants. *Bioactive Materials*, 20: 243-258, 2023.

2022

11. L Yang, A Ball, J Liu, T Jain, YM Li, F Akhter, [Donghui Zhu](#), J Wang. Cyclic microchip assay for measurement of hundreds of functional proteins in single neurons. *Nature Communications*, 13 (1), 1-11, 2022.
12. Sai Sreenivasamurthy, Mahek Laul, Tiffany Kim, Nan Zhao, [Donghui Zhu*](#). Current progress of cerebral organoids for modeling Alzheimer's disease origins and mechanisms. *Bioengineering & Translational Medicine*, e10378, 2022.
13. Jimiao Jianga, Hua Huanga, Jialin Niua, [Donghui Zhu](#), Guangyin Yuan. Fabrication and characterization of biodegradable Zn-Cu-Mn alloy micro-tubes and vascular stents: microstructure, texture and mechanical properties. *Acta Biomaterialia*, 151, 647-660, 2022.
14. Sai A. Sreenivasamurthy, Firoz Akhter, Asma Akhter, Yingchao Su, [Donghui Zhu*](#). Cellular mechanisms of biodegradable zinc and magnesium materials on promoting angiogenesis. *Biomaterials Advances*, 139, 213023, 2022.
15. Alicia Persaud, Alexander Maus, Lia Strait, [Donghui Zhu*](#). 3D Bioprinting with Live Cell. *Engineered Regeneration*, 3(3): 292-309, 2022.
16. C Chen, J Niu, H Huang, [Donghui Zhu](#), JF Nie, G Yuan. Basal-plane stacking fault energies of biodegradable Zn-based alloys: A first-principles study of alloying effects. *Materials Letters*, 309, 131413, 2022.
17. Stephanie Dobres, Giridhar Mula, Jonathan Sauer, [Donghui Zhu*](#). Applications of 3D Printed Chimeric DNA Biomaterials. *Engineered Regeneration*, 3 (1): 13-23, 2022.
18. Michael Ly, Shayne Hays, Sarah Spinelli, [Donghui Zhu*](#). 3D Printing of Ceramic Biomaterials. *Engineered Regeneration*, 3 (1): 41-52, 2022.
19. Yingchao Su, Jiayin Fu, Wonsae Lee, Shaokang Du, Yi-Xian Qin, Yufeng Zheng, Yadong Wang, [Donghui Zhu*](#). Improved mechanical, degradation, and biological performances of Zn-Fe alloys as bioresorbable implants. *Bioactive Materials*, 17: 334-343, 2022.
20. Yingchao Su, Jiayin Fu, Elias Georgas, Yi-Xian Qin, Yufeng Zheng, Yadong Wang, [Donghui Zhu*](#). Biodegradable Zn-Sr alloys with enhanced mechanical and biocompatibility for biomedical applications. *Smart Materials in Medicine*, 3: 117-127, 2022.

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21. K Chua, I Khan, R Malhotra, [Donghui Zhu*](#). Additive Manufacturing and 3D Printing of Metallic Biomaterials. *Engineered Regeneration*, 2: 288-299, 2021.
22. [Donghui Zhu*](#), Montagne A, Zhao Z. Alzheimer's Pathogenic Mechanisms and underlying Sex Difference. *Cellular and Molecular Life Sciences*, 1-14, 2021.
23. Fnu Firoz Akhter, Alicia Persaud, Younis Zaokari, Zhen Zhao, [Donghui Zhu*](#). Vascular Dementia and Underlying Sex Differences. *Frontiers in Aging Neuroscience*, 13:720715, 2021
24. Chen C, S Fan, J Niu, H Huang, Z Jin, L Kong, [D Zhu](#), G Yuan. *Materials & Design*, 109676, 2021.
25. Maus A, L Strait, [D Zhu*](#). Nanoparticles as delivery vehicles for antiviral therapeutic drugs. *Engineered Regeneration*, 2:31-46, 2021.
26. Ben Zhang, Juncen Zhou, Yingchao Su, Yufeng Zheng, [Donghui Zhu*](#). Towards a Better Regeneration through Scaffold-guided Immunomodulation: Harnessing the Innate and Adaptive Responses. *Advanced Science*, 2100446, 2021.
27. Irsalan Cockerill, Carmine Wang See, Marcus Young, Yadong Wang, [Donghui Zhu*](#). Designing Better Cardiovascular Stent Materials – A Learning Curve. *Advanced Functional Materials*, 31 (1): 2005361, 2021.

2020 and before

28. Yong Wu, Qiongyu Hao, Pranabananda Dutta, Piwen Wang, Seyung Chung, Qun Li, Kun Wang, Jieqing Li, Wei Cao, Wenhong Deng, Qing Geng, Katrina Schrode, Magda Shaheen, Ke Wu, [Donghui Zhu](#), et al. Comp34 displays potent preclinical antitumor efficacy in triple-negative breast cancer via inhibition of NUDT3-AS4, a novel oncogenic long non-coding RNA. *Cell Death & Disease*, 11: 1-18, 2020.
29. Tiffany Kim, Carmine Wang See, Xiaochun Li, [Donghui Zhu*](#). Orthopedic Implants and Devices for Bone Fractures and Defects: Past, Present and Perspective. *Engineered Regeneration*, 1: 6-18, 2020.
30. Carmine Wang See, Tiffany Kim, [Donghui Zhu*](#). Hernia Mesh and Hernia Repair: A Review. *Engineered*

- Regeneration**, 1: 19-33, 2020.
31. Marina Safonov, Jing You, Jihyung Lee, Vladimir L. Safonov, Diana Berman, Donghui Zhu*. Hydrogen generating patch improves skin cell viability, migration activity, and collagen expression. **Engineered Regeneration**, 1: 1-5, 2020.
 32. Irsalan Cockerill, Yingchao Su, Ji Hyung Lee, Diana Berman, Yufeng Zheng, Marcus Young, and Donghui Zhu*. Micro-/Nano-Topography on Bioresorbable Zinc Dictates Cytocompatibility, Bone Cell Differentiation, and Macrophage Polarization. **Nano Letters**, 20: 4594-4602, 2020.
 33. Irsalan Cockerill, Yingchao Su, Yufeng Zheng, Yi-Xian Qin, Marcus Young, and Donghui Zhu*. Porous Zinc Scaffolds for Bone Tissue Engineering Applications: A Novel Additive Manufacturing and Casting Approach. **Materials Science & Engineering C**, 110: 110738, 2020.
 34. Wei Yuan, Dandan Xia, Yufeng Zheng, Xiangmei Liu, Shuilin Wu, Bo Li, Yong Han, Zhaojun Jia, Donghui Zhu, et al. Controllable biodegradation and enhanced osseointegration of ZrO₂ nanofilm coated Zn-Li alloy: in vitro and in vivo studies. **Acta Biomaterialia**, 105: 290-303, 2020.
 35. Hongtao Yang, Bo Jia, Zechuan Zhang, Xinhua Qu, Guannan Li, Wenjiao Lin, Donghui Zhu, Kerong Dai, Yufeng Zheng. Alloying design of biodegradable zinc as promising bone implants for load-bearing applications. **Nature Communications**, 11 (1): 1-16, 2020.
 36. Jiayin Fu, Yingchao Su, Yi-Xia Qin, Yufeng Zheng, Yadong Wang, Donghui Zhu*. Evolution of metallic cardiovascular stent materials: a comparative study among stainless steel, magnesium and zinc. **Biomaterials**, 230: 119641, 2020.
 37. Irsalan Cockerill, Yingchao Su, Reid Bitten, Benjamin Cloarec, Samir Aouadi, Donghui Zhu*, and Marcus Young. Salt Preform Texturing of Bioresorbable Zn Substrates for Bone-implant Applications. **JOM**, 72: 1902, 2020.
 38. Asghar Shirani, Qichan Hu, Diana Berman, and Donghui Zhu*. Combined tribological and bactericidal effect of nanodiamonds as potential lubricant for artificial joints. **ACS Applied Materials and Interfaces**, 11: 43500, 2019.
 39. Hongtao Yang, Donghui Zhu, Yufeng Zheng. Challenges of zinc and its alloys as biodegradable metals: perspective from biomechanical compatibility. **Acta Biomaterialia**, 97: 23-45, 2019.
 40. Joy-Anne N. Oliver, Yingchao Su, Xiaonan Lu, Po-Hsuen Kuo, Jincheng Du, and Donghui Zhu*. Bioactive glass coatings on metallic implants. **Bioactive Materials**, 4: 261-270, 2019.
 41. Donghui Zhu*, Jing You, Nan Zhao, and Huaxi Xu. Magnesium controls endothelial barrier functions through TRPM7, MagT1 and S1P1. **Advanced Science**, 6(18): 1901166, 2019.
 42. Qun Li, Qiongyu Hao, Wei Cao, Jieqing Li, Ke Wu, Yahya Elshimali, Donghui Zhu, et al. PP2C δ inhibits p300-mediated p53 acetylation via ATM/BRCA1 pathway to impede DNA damage response. **Science Advances**, 5(10): eaaw8417, 2019.
 43. Yang Liu, Yufeng Zheng, Xie-Hui Chen, Jian-An Yang, Haobo Pan, Dafu Chen, Luning Wang, Jialiang Zhang, Donghui Zhu, et al. Fundamental theory of biodegradable metals – definition, criteria, and design. **Advanced Functional Materials**, 29: 1805402, 2019.
 44. Yingchao Su, Hongtao Yang, Julia Gao, Yi-Xia Qin, Yufeng Zheng, Donghui Zhu*. Interfacial zinc phosphate is the key controlling biocompatibility of Zn implants. **Advanced Science**, 6(14): 1900112, 2019.
 45. Yingchao Su, Kai Wang, Julia Gao, Yong Yang, Yi-Xia Qin, Yufeng Zheng, Donghui Zhu*. Engineering a zinc phosphate coating on zinc for enhanced biocompatibility and antibacterial property. **Acta Biomaterialia**, 98: 174-185, 2019.
 46. Yingchao Su, Lingqian Chang, Irsalan Cockerill, Yufeng Zheng, Yi-Xian Qin, Donghui Zhu*. Biofunctionalization of metallic implants by calcium phosphate coatings, **Bioactive Materials**, 4: 196, 2019.
 47. Donghui Zhu*, Irsalan Cockerill, Zhaoxiang Zhang, Jiayin Fu, Kee-Won Lee, Jun Ma, Yingchao Su, Chuka Okpokwasili, Liping Tang, Yufeng Zheng, Yi-Xia Qin and Yadong Wang. Mechanical Strength, Biodegradation, and In Vitro and In Vivo Biocompatibility of Zn Biomaterials. **ACS Applied Materials and Interfaces**, 11: 6809, 2019.
 48. Wei Yuan, Bo Li, Dafu Chen, Donghui Zhu, Yong Han, Yufeng Zheng. Formation mechanism, corrosion behavior and cytocompatibility of microarc oxidation coating on absorbable high-purity zinc. **ACS Biomaterials Science & Engineering**, 5: 487, 2019.
 49. Yingchao Su, Irsalan Cockerill, Yadong Wang, Yi-Xian Qin, Lingqian Chang, Yufeng Zheng, Donghui Zhu*. Zinc-Based Biomaterials for Regeneration and Therapy. **Trends in Biotechnology**, 37: 428-441, 2019.
 50. Ke Wu, Xiaoting Yu, Zhimin Huang, Donghui Zhu, et al. Targeting of PP2C δ by a small molecule C23 inhibits high glucose-induced breast cancer progression in vivo, **Antioxidants and Redox Signaling**, 30: 1983, 2019.
 51. Hongtao Yang, Xinhua Qu, Wenjiao Lin, Dafu Chen, Donghui Zhu, Kerong Dai, Yufeng Zheng. Enhanced osseointegration of Zn-Mg composites by tuning the release of Zn ions with sacrificial Mg rich anode design. **ACS Biomaterials Science & Engineering**, 5: 453, 2019.
 52. Yunting Guo, Yingchao Su, Siqi Jia, Guixun Sun, Rui Gu, Donghui Zhu, Guangyu Li, Jianshe Lian.

- Hydroxyapatite/titania composite coatings on biodegradable magnesium alloy for enhanced corrosion resistance, cytocompatibility and antibacterial properties. *Journal of The Electrochemical Society*, 165: C962, 2018
53. Bai W, Kuang T, Chitrakar C, Yang R, Li S, Donghui Zhu, Chang L. Patchable micro/nanodevices interacting with skin. *Biosensors and Bioelectronics*, 122: 189, 2018
 54. Hongtao Yang, Xinhua Qu, W Lin, Cong Wang, Donghui Zhu, Kerong Dai, Yufeng Zheng. In vitro and in vivo studies on zinc-hydroxyapatite composites as novel biodegradable metal matrix composite for orthopedic applications. *Acta Biomaterialia*, 71: 200, 2018.
 55. Donghui Zhu*, Yingchao Su, Bingmei Fu, and Huaxi Xu. Magnesium reduces BBB permeability and regulates amyloid- β transcytosis. *Molecular Neurobiology*, 55: 7118, 2018.
 56. Donghui Zhu*, Yingchao Su, Yufeng Zheng, et al. Zinc regulates vascular endothelial activities through zinc-sensing receptor ZnR/GPR39. *American Journal of Physiology-Cell Physiology*, 314: C404, 2018.
 57. Wu Y, Dong Y, Duan S, Donghui Zhu, Deng L. Metabolic Syndrome, Inflammation, and Cancer. *Mediators Inflammation*. 2017:8259356, 2017.
 58. Yingchao Su, Cheng Luo, Zhihui Zhang, Hendra Hermawan, Donghui Zhu, Jubin Huang, Guangyu Li, Luquan Ren. Bioinspired surface functionalization of metallic biomaterials, *Journal of the Mechanical Behavior of Biomedical Materials*, 77: 90, 2017.
 59. Donghui Zhu*, Yingchao Su, Marcus Young, Jun Ma, Yufeng Zheng, and Liping Tang. Biological responses and mechanisms of human bone marrow mesenchymal stem cells to Zn and Mg biomaterials. *ACS Applied Materials and Interfaces*, 9: 27453, 2017.
 60. Hongtao Yang, Cong Wang, Chaoqiang Liu, Houwen Chen, Yifan Wu, Jintao Han, Zichang Jia, Wenjiao Lin, Deyuan Zhang, Wenting Li, Wei Yuan, Hui Guo, Huafang Li, Guangxin Yang, Deling Kong, Donghui Zhu, Kazuki Takashima, Liqun Ruan, Jianfeng Nie, Xuan Li and Yufeng Zheng. Evolution of degradation mechanism of pure zinc stent in the one-year study of rabbit abdominal aorta model. *Biomaterials*, 145: 92, 2017.
 61. Ma J, Zhao N, Donghui Zhu*. Bioabsorbable zinc ion induced biphasic cellular responses in vascular smooth muscle cells. *Scientific Reports*, 6: 26661, 2016.
 62. Ma J, Zhao N, Donghui Zhu*. Biphasic responses of human vascular smooth muscle cells to magnesium ion. *Journal of Biomedical Materials Research: Part A*, 104A: 347, 2016.
 63. Ma J, Betts L, Zhao N, Donghui Zhu*. Bio-adaption between the Mg alloy stent and the blood vessel. *Journal of Materials Science & Technology*, 32: 815, 2016.
 64. Ma J, Donghui Zhu*, A comparative study of in vitro biocompatibility of Zn and AZ31 for cardiovascular stent application, *Frontiers in Bioengineering and Biotechnology*, 4, 2016.
 65. Ma J, Zhao N, Donghui Zhu*. Endothelial cellular responses to biodegradable metal zinc. *ACS Biomaterials Science & Engineering*, 1:1174, 2015.
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 70. Zhao N, Donghui Zhu*. Collagen self-assembly on orthopedic magnesium biomaterials surface and subsequent bone cell attachment. *PLoS One*, 9:e110420, 2014.
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77. Zhao N, Donghui Zhu*. Bioscaffolds Development for Small-Diameter Vascular Grafts, *International Journal of Biomedical Engineering and Technology*, 12: 113, 2013.
78. Zhao N, Donghui Zhu*. Application of Mg-based alloys for cardiovascular stent, *International Journal of Biomedical Engineering and Technology*, 12: 382, 2013.
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83. Donghui Zhu. Mathematical modeling of blood coagulation cascade: kinetics of intrinsic and extrinsic pathways in normal and deficient conditions. *Blood Coagulation and Fibrinolysis*, 18: 637, 2007.
84. Donghui Zhu, Lai Y, Shelat PB, et al. Phospholipases A₂ mediate Alzheimer's A β -induced mitochondrial dysfunction. *Journal of Neuroscience*, 26: 11111, 2006.
85. Donghui Zhu, Lennon SP, Peters MH, et al. Brownian diffusion and surface kinetics of liposome and viral particle uptake by human lung cancer cells in-vitro. *Annals of Biomedical Engineering*, 34: 1573, 2006.
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93. Donghui Zhu, and Wei D. Study of second generation of anti-sense oligonucleotide. *Progress in Pharmaceuticals Sciences*, 23: 9, 1999.

Book Chapter (*corresponding author)

1. Juncen Zhou, Carmine Wang See, Sai Sreenivasamurthy, Donghui Zhu*. Customized additive manufacturing in bone scaffolds. Integration and Bridging of Multiscale Bioengineering Designs and Tissue Biomechanics. Editor: Jun Liao, Grace Wong, Springer Nature, 2024.
2. Bingmei Fu, Zhen Zhao, Donghui Zhu*. Blood-brain barrier (BBB) permeability and transport measurement in vitro and in vivo: methods and protocols. Permeability Barrier: Methods and Protocols, 2nd Ed. Editor: Kursad Turksen. Springer, 2020.
3. Osama H. Almayyahi, Irsalan Cockerill, Yufeng Zheng, Donghui Zhu*. Additive Manufacturing of Bioscaffolds for Bone Regeneration. Racing for the Surface, 313-332. Editor: Bingyun Li, Thomas Fintan Moriarty, Thomas Webster, Malcolm Xing. Springer, 2020.
4. Jena M. Madison, Joy-Anne N. Oliver, Donghui Zhu*. Bioactive Glasses in Orthopedic Applications. Racing for the Surface, 557-575. Editor: Bingyun Li, Thomas Fintan Moriarty, Thomas Webster, Malcolm Xing. Springer, 2020.
5. Qichan Hu, Yingchao Su, Donghui Zhu*. Recent development of zinc-based medical implants. Racing for the Surface, 677-691. Editor: Bingyun Li, Thomas Fintan Moriarty, Thomas Webster, Malcolm Xing. Springer, 2020.
6. Sheetal Khatri, Yingchao Su, Donghui Zhu*. Antibacterial coatings on medical implants. Racing for the Surface, 341-356, Editor: Bingyun Li, Thomas Fintan Moriarty, Thomas Webster, Malcolm Xing. Springer, 2020.
7. Irsalan Cockerill, Joy-Anne Oliver, Huaxi Xu, Bingmei Fu, Donghui Zhu*. Blood-brain barrier integrity and amyloid clearance in Alzheimer's disease. Molecular, Cellular and Tissue Engineering of the Vascular System, 261-278. Editor: Bingmei Fu and Neil Wright. Springer, 2018.

8. Yingchao Su, Yufeng Zheng, Liping Tang, Yi-Xian Qin, Donghui Zhu*. Calcium phosphate coatings for orthopedic biomaterials. *Orthopedic Biomaterials*, 167-183. Editor: Bingyun Li and Thomas Webster. Springer, 2017.
9. Yingchao Su, Yadong Wang, Liping Tang, Yufeng Zheng, Yi-Xian Qin, Donghui Zhu*. Development of Biodegradable Zn-based medical implants. *Orthopedic Biomaterials*, 331-329. Editor: Bingyun Li and Thomas Webster. Springer, 2017.
10. Donghui Zhu*. *Astroglial cells are not just bystanders in Alzheimer's*, ISBN 9783838330914, 2010.

Recent Invited Seminars (selected from >100 talks)

1. "Amyloid beta glycation leads to neuronal mitochondrial dysfunction and Alzheimer's pathogenesis", University of California Irvine, January 16, 2024.
2. "Toward Better Bone Regeneration", Department of Chemical and Biomedical Engineering, University of Missouri-Columbia, November 14, 2023.
3. (*Keynote*) "Evolution from Bioinert to Bioresorbable: In Vivo Comparative Study of Additively Manufactured Metallic Bone Scaffolds" TERMIS-AP 2023, Hong Kong, October 16-19, 2023.
4. "Innovation in Metallic and Ceramic Scaffolds", School of Technology, University of Cambridge, UK, September 29, 2023.
5. "Toward Better Bone Regeneration", Zhejiang University, China, July 25, 2023.
6. "Innovation in Metallic and Ceramic Scaffolds", West Lake University, China, July 24, 2023.
7. "Toward Better Bone Regeneration: Innovation in Metallic and Ceramic Scaffolds", Sichuan University, China, July 20, 2023.
8. "Bioactive Cement for Enhanced Bone Regeneration and Anti-infection", Nanjing University, China, July 18, 2023.
9. "Evolution from Bioinert to Bioresorbable: In Vivo Comparative Study of Additively Manufactured Metallic Bone Scaffolds", Soochow University, China, July 15, 2023.
10. "Toward Better Bone Regeneration: Innovation in Metallic and Ceramic Scaffolds", Shanghai Jiao Tong University, China, July 12, 2023.
11. "Additive Manufactured Bioabsorbable Magnesium/Zinc Scaffolds for In Vivo Bone Regeneration", Society for Biomaterials 2023 Annual Meeting and Exposition, San Diego, CA April 29-22, 2023.
12. "Woven Bone Organoids as a Therapy Model for In Vivo Bone Regeneration", Society for Biomaterials 2023 Annual Meeting and Exposition, San Diego, CA April 29-22, 2023.
13. "Biodegradable Zinc-Transition Metal Alloys as Bone Implants", Society for Biomaterials 2023 Annual Meeting and Exposition, San Diego, CA April 29-22, 2023.
14. "Glycated β -amyloid exacerbates mitochondria-modulated neuroinflammation and AD progression via cGAS-STING signaling", Department of Physiology and Neuroscience, University of Southern California, March 8, 2023.
15. "ZINC: a novel bioresorbable and bioactive material", Department of Biomedical Engineering, University of Southern California, March 6, 2023.
16. "Bioresorbable and bioactive Zn materials", Department of Mechanical Engineering, University of Texas Dallas, February 13, 2023.
17. "Zinc as novel bioresorbable and bioactive materials", Department of Biomedical Engineering, Worcester Polytechnic Institute, MA, February 7, 2023.
18. "ZINC", Department of Biomedical Engineering, Tulane University, LA, November 17, 2022.
19. (*Keynote*) "Bioresorbable Metals as Smart Medical Implants", ACS-NERM meeting, Rochester, NY, October 3-4, 2022.
20. "Additive manufactured bioabsorbable magnesium scaffolds in a rabbit femur model", Invited Speaker, IMA's World Annual Conference, Barcelona, Spain, August 29-31, 2022.
21. (*Keynote*) "Biodegradable zinc and magnesium on promoting angiogenesis in vivo using the CAM assay", 14th Symposium on Biodegradable Metals, Alicante Spain, August 24-29, 2022.
22. (*Keynote*) "Additive manufactured biodegradable metal scaffolds for bone tissue engineering", 2022 TERMIS-AM Annual Conference and Exhibition, Toronto, Canada, July 13, 2022.
23. "Recent advances in bioresorbable metals for medical applications", Terasaki Institute, LA, California, October 29, 2021.
24. "Evolution of metallic stent biomaterials", Department of Bioengineering, Bourns College of Engineering, UC Riverside, June 2, 2021.
25. "Smart ZnO Nanorod Arrays and PLGA Hybrid Coatings – A Biodegradable and Multifunctional Drug Release System on Titanium Implants." Society for Biomaterials Annual Meeting (virtual). April 20-23, 2021.
26. "Biomimetic Scaffolds Composed of Degradable Polymers to Enhance Bone Regeneration." Society for Biomaterials Annual Meeting (virtual). April 20-23, 2021.

27. “Vascular Complications in Covid-19 and Role of Zinc in Viral Inhibition”, AHA Scientific Sessions 2020 (virtual), November 13-17, 2020.
28. “Evolution of cardiovascular stent materials – A learning curve”, Department of Biomedical Engineering, The City College of New York, September 2020.
29. (*Keynote*) “Engineering surface topography on biodegradable metal for better regeneration”, TERMIS-AP 2020, Malaysia, September 2020.
30. (*Keynote*) “Development of Zn alloys as degradable metallic biomaterials”, TERMIS-AM 2019, Orlando FL, December 2-5, 2019.
31. “Evolution of metallic scaffolds for stents”, AHA Scientific Sessions 2019, Philadelphia PA, November 16-19, 2019
32. “Evolution of metallic biomaterials for cardiovascular stents”, TERMIS-AP + ABMC7 2019 Congress, Brisbane Australia, October 14-17, 2019.
33. “Engineering a Bioactive Coating on Zinc Metallics for Enhanced Biocompatibility and Antibacterial Property”, The 10th Pacific Rim International Conference on Advanced Materials and Processing, Xi’an, China, August 18-22, 2019.
34. “Binary zinc alloy-based scaffolds for regeneration and repair”, 2019 China Biomaterials Conference, Dalian China, August 22-25, 2019.
35. “Interfacial zinc phosphate is pivotal in biocompatibility of zinc implants”, 11th Symposium on Biodegradable Metals, Alicante Spain, August 25-30, 2019.
36. “Bioresorbable zinc for orthopedic applications”, Department of Orthopedic Surgery, New York University, April 2019.
37. “Zinc for orthopedic and cardiovascular applications”, Department of Biomedical Engineering, University of Kentucky, March 2019.
38. “Biodegradable zinc biomaterials for medical implants”, Department of Biomedical Engineering, University of Louisville, March 2019.
39. “Biodegradable zinc-based medical implants for orthopedic and cardiovascular applications”, Department of Chemical Engineering and Material Science. Michigan State University, February 2019.
40. “Biometals for regenerative and translational medicine”, The 26th European Orthopedic Research Society 2018 meeting, Galway Ireland, September 2018.
41. “Porous Zn-based scaffold for bone regenerations”, 10th Symposium on Biodegradable Metals, Oxford UK, August 2018.
42. “Biodegradable zinc for cardiovascular stent application”, Department of Biomedical Engineering, Medical College of Wisconsin-Marquette University, June 2018.
43. “Biological Responses and Mechanisms of Human Bone Marrow Mesenchymal Stem Cells to Zn and Mg Biomaterials”, Society for Biomaterials 2018 Annual Meeting and Exposition: Exploring the Nexus of Research and Application, Atlanta GA, USA, April 2018.
44. “Biodegradable metals as medical implants”, Department of Biomedical Engineering, University of Connecticut, March 2018.
45. “Biometals for regenerative and translational medicine”, Department of Mechanical Engineering, Colorado State University, December 2017.

Patent and Patent Disclosure/Application

1. Diana Berman, Olga Shenderova, Donghui Zhu. Hydrogel-based biomedical devices for hydrogen treatment of wounds and methods of using them. US Invention 62/703,680. Filing Date: 07/2018.
2. Donghui Zhu, Yingchao Su. Zinc phosphate coatings to improve biocompatibility and antibacterial property of zinc-based medical implants and beyond. US Invention 62/816,638. Filing Date: 03/2019.
3. Diana Berman, Donghui Zhu, and Olga Shenderova. Compositions and uses of nanoscale diamond particles for artificial joint. US Invention US11766507B2. Expiration 2041-07-25.
4. Donghui Zhu, Yi-Xian Qin, James Penna. Bioresorbable Zinc-based Devices for Ligament or Tendon Reconstruction. SBU Invention 050-9120. Filing Date: 10/2019.
5. Donghui Zhu Yingchao Su. A Biodegradable Conductive Wire with Metal-Polymer Composite Structure and Tunable Degradation Rates. SBU Invention 050-9352. Filing Date: 11/2022.
6. Donghui Zhu. Bioresorbable surgical staples. US Invention 63/333,197. Filing Date: 05/2022.
7. Donghui Zhu, Carmine Wang See, Yadong Wang, Anthony D’Amato. Bioresorbable Surgical Mesh. SBU Invention 050-9370. Filing Date: 03/2023.
8. Donghui Zhu, Carmine Wang See. Joint Intraarticular Injectable Lubricant with Controlled Drug Release. SBU Invention 050-9371. Filing Date: 03/2023.
9. Donghui Zhu, Juncen Zhou. Zinc doped bone cement. SBU Invention. Filing Date: 04/2023.

10. Donghui Zhu, Juncen Zhou. Smart hydrogel for trabecular bone regeneration with osteoporosis. SBU Invention. Filing Date: 10/2023.

Course Development and Teaching

- 2010-2016 BMEN 325 Bioengineering Lab; BMEN 714 Cell Biology for Engineer; BMEN 734 Functional Tissue Engineering; BMEN 411 Biotransport
 2017 BME 2980 Biomedical Transport Phenomena
 2017-2019 BME 3321 Biomaterials; BME 5321 Advanced Biomaterials and Biocompatibility
 2018-2019 BME 5800 Research Design and Method
 2019-present BME 353 Introduction to Biomaterials; BME 354/504 Advanced Biomaterials

Journal Editorial Appointments

- | | | |
|--------------|------------------|---------------------------------|
| 2010-2015 | Editorial Member | Cancer Communications |
| 2013-2020 | Academic Editor | PLoS One |
| 2016-2017 | Guest Editor | Mediators of Inflammation |
| 2016-2020 | Editorial Member | Nature Scientific Reports |
| 2018-2019 | Guest Editor | Bioactive Materials |
| 2018-present | Editorial Member | Bioactive Materials |
| 2019-present | Editor-in-Chief | Engineered Regeneration |
| 2019-present | Editor-in-Chief | Smart Materials in Medicine |
| 2020-2021 | Guest Editor | Frontiers in Aging Neuroscience |
| 2022-2023 | Guest Editor | Nanomaterials |

Grant Proposal Review Panel

- 2010-2014 Alzheimer's Association Research Grants, Review Committee
 2012-2013 Portuguese Foundation for Science and Technology (FCT), Grant Reviewer Panel
 2012-2016 NIH Early Career Reviewer program, the Center for Scientific Review (CSR)
 2015 Israeli Ministry of Science, Technology and Space, Applied and Engineering Research 2015 Proposal, Grant Review Panel
 2015 NASA MUREP Grant Proposal, Review Panel
 2016-present NSF CBET, Engineering of Biomedical Systems, Grant Review Panel
 2018-present NSF MPS/DMR, Biomaterials (BMAT), Grant Review Panel
 2017-2018 NIH Study Section Member (Ad hoc), Bioengineering, Technology, and Surgical Sciences (BTSS)
 2018-2021 NIH Study Section Member (Ad hoc), Biomaterials & Biointerfaces (BMBI)
 2018-2020 NIH Study Section Member, NIGMS Special Panel ZGM1 RCB-Y
 2019 Israel Science Foundation, Personal Research Grants Review Panel
 2019-2021 NIH Study Section Member, Special Panel ZRG1-SBIB-Z02
 2019-2022 AHA Bioeng Basic Science Peer Reviewer Panel
 2020-2021 NIH Study Section Member, SBIB (12): Cardiovascular and Surgical Devices
 2021-2022 Czech Science Foundation, Grant Reviewer Panel
 2020-2022 NIH Study Section Member, BST (10): Biomaterials, Delivery, and nanotechnology Study Section
 2022 NIH Study Section (Ad hoc), BST-M (82) Member conflict: Biomaterials, Biointerfaces, Gene and Drug Delivery
 2023 NIH Study Section (Ad hoc), BBT-M (82) Topics in Instrumentation and Systems Development
 2023 Chair (Ad hoc), Grant Review Panel, Orthopedic Research Program (PRORP), Department of Defense (DOD) Congressionally Directed Medical Research Programs (CDMRP)
 2024 NIH Study Section, Musculoskeletal Tissue Engineering Study Section (MTE)

Conference Organizer and Chair

- 2010-2012 Mentor, NSF content mentoring of middle grades math and science teachers and its impact on teaching efficacy, Mentee: Sharon Felix, Mendenhall Middle School, Greensboro, NC.
 2011 Session Chair, National Educators Workshop: Corrosion Experiment Workshop for K-12 Classrooms; The format and content of materials processing and materials characterization courses taught at Georgia Tech; Thinking outside the box: wood works.
 2011-2016 Faculty Advisor, Biomedical Engineering Society, North Carolina AT State University Student Chapter

- 2018 Scientific Committee, The 26th European Orthopedic Research Society 2018 meeting, Galway, Ireland, September 2018
- 2018 Session Chair, Orthopedic Biomaterials session, Society for Biomaterials 2018 Annual Meeting and Exposition: Exploring the Nexus of Research and Application, Atlanta, GA, USA, April 2018.
- 2018 Symposium Organizer and Chair, Biomaterials - Metals session, The 26th European Orthopedic Research Society 2018 meeting, Galway, Ireland, September 2018
- 2019 Session Chair, Orthopedic Biomaterials session, Society for Biomaterials 2019 Annual Meeting and Exposition: The Pinnacle of Biomaterials Innovation and Excellence, Seattle, WA, USA, April 2019.
- 2019 Session Chair, Cardiovascular Tissue Engineering session, 2019 China Biomaterials Conference, Dalian, August 2019.
- 2019 Session Chair, Biomaterials for Cardiovascular Applications session, The 10th Pacific Rim International Conference on Advanced Materials and Processing, Xi'an, China, August 18-22, 2019.
- 2019 Symposium Organizer and Chair, Biomaterials and Regeneration I and II, 2019 TERMIS-AM Annual Conference and Exhibition, Orlando, FL, December 2019.
- 2020 Scientific Committee, the 28th Annual Meeting of the European Orthopedic Research Society, Swisshotel Izmir, Turkey, September 2020.
- 2021 Symposium Organizer and Chair, Biomaterials and Immunomodulation, TERMIS 6TH WORLD CONGRESS 2021, Maastricht, Netherlands, November 2021.
- 2021 Symposium Organizer and Chair, Biomaterials, MRS Fall Meetings & Exhibits, Boston, Massachusetts, November 29- December 2, 2021.
- 2022 Track Chair, Orthopedic Biomaterials (SIG), Society for Biomaterials 2022 Annual Meeting and Exposition, Baltimore, MD, April 2022.
- 2022 Symposium Organizer and Chair, Biomaterials and Immunomodulation, 2022 TERMIS-AM Annual Conference and Exhibition, Toronto, Canada, July 2022.
- 2023 Symposium Organizer and Chair, Design and Application of Biomaterials, 2023 TERMIS-AP Annual Conference and Exhibition, Hong Kong, October 2023.

University, College, and Department Committee

- 2011-2013 College of Engineering Assessment Committee; College of Engineering Curriculum Committee
- 2012-2013 Search Committee for Chemical and Bioengineering Chair
- 2015 BME ABET Accreditation Committee
- 2016-2019 Chair, BME Graduate Admission Committee
- 2016-2018 BME Faculty and Staff Search Committee
- 2016-2019 College of Engineering Faculty Council Committee; College Promotion and Tenure Committee
- 2016-2019 College of Engineering Proposal Development Support Committee
- 2018-2019 Chair, BME Faculty Search Committee; Chair, BME Promotion and Tenure Committee
- 2020-present Departmental Seminar Series Organization Committee
- 2021-present Chair, Biomaterials/Biomechanics Track, BME Undergrad Curriculum Committee
- 2021-2022 Member, BME Faculty Search Committee
- 2022-2023 Chair, BME Faculty Search Committee

Professional Society Membership

- 2018-present American Association for the Advancement of Science (AAAS)
- 2016-present American Heart Association (AHA)
- 2003-present Biomedical Engineering Society (BMES)
- 2015-present Chinese Association for Biomaterials (CAB)
- 2019-present Orthopedic Research Society (ORS)
- 2014-present Society for Biomaterials (SFB)
- 2004-present Society for Neuroscience (SFN)
- 2015-present Tissue Engineering and Regenerative Medicine International Society (TERMIS)

Professional Society Leadership and Service

- 2012-present Abstract reviewer for BMES annual conference
- 2016-present Abstract reviewer for SFB annual conference
- 2017-present Abstract reviewer for TERMIS-AM, TERMIS-AP
- 2020-2022 Student chapter development reports (CDR) reviewer for BMES

2020-2022 ASTM International (American Society for Testing and Materials) Standard Terminology ASTM F2312-11 working group/subcommittee

2021-2023 Program Chair, SFB Orthopedic Biomaterials SIG

2022-2024 Communication Committee Chair, Chinese Association for Biomaterials (CAB)

2022-2023 Member, Liaison Committee, SFB

2022-2025 Member, TERMIS-AM DEI Committee

2023-2026 Member, TERMIS-AM Membership Committee

2023 Judge, Business Pitch Competition, SFB

2023- AIMBE Biomaterials Review Committee

2023-2025 Vice Chair, SFB Orthopedic Biomaterials SIG