**Faculty Profile: Otto C. Wilson, Jr.**

Asociate Professor

Department: Biomedical Engineering

School: School of Engineering

Email: [wilsono@cua.edu](mailto:wilsono@cua.edu)

Phone: 202-319-5822

Education: Ph.D., Ceramic Science and Engineering, Rutgers University, 1995

**Research Interests and Expertise:**

Bone Tissue Engineering, Tissue Origami Engineering, Electron Microscopy (SEM, TEM) and Diffraction, Plant Based Biomaterials for Medicine, Healing, and Nutrition, Glucose Metabolism and Metabolic Syndrome, Biomineralization, Quantum Biological Processes, Microtubules, and Quasicrystals.

**Biography:**

Dr. Otto C. Wilson, Jr. is an Associate Professor in the Department of Biomedical Engineering. He earned his BS, MS, and PhD degrees in Ceramic Science and Engineering from Rutgers University and conducted Postdoctoral research on machinable dental ceramics and novel synthesis methods for hydroxyapatite based composites at the University of Maryland and Johns Hopkins Medical Campus in 1996 and 1997.Otto was awarded an NSF CAREER Award for his work related to Bone Inspiration in Research and Education. Otto is passionate about K-12 and undergraduate/graduate education. He enjoys designing art and reading enhanced STEM learning modules, curriculum, and dynamic children's stories to help young scholars learn at their full potential and explore the wonders of the universe from Quarks to Quasars and everything in between.

**Five Selected Papers:**

1. Omokanwaye T, **Wilson Jr OC**, Gugssa A, Anderson WA. (2015) Biomineralization of nanoscale single crystal hydroxyapatite. Mater Sci Eng C, 56:84-87.
2. Alshehri AM, **Wilson Jr OC**, Dahal B, Philip J, Luo X, Raub CB. (2017) Magnetic nanoparticle-loaded alginate beads for local micro-actuation of in vitro tissue constructs. Colloids and Surfaces B: Biointerfaces 159:945-955.
3. **Wilson Jr OC**, Armstrong S. (2019) The Use of Instructional Coaching and Analogy to Enhance STREAM Professional Development for Teacher Quality Improvement. in *K-12 STEM Education in Urban Learning Environments*, IGI Global, Hershey, PA, pp 95-120.
4. **Wilson Jr OC.** (2021), Biobased Materials for Medical Applications. In: Narayan R (eds) Biomedical Materials (Second Edition), Springer (NY),139-193.
5. Alshehri AM, **Wilson OC Jr.** (2024) Biomimetic Hydrogel Strategies for Cancer Therapy. Gels. 10(7):437. doi: 10.3390/gels10070437.

**Professional Activities (please also include STEM education/diversity/outreach activities)**

* Education Policy Fellowship Program (EPFP) Fellow, 2016 DC Cohort
* Associate Editor for Frontiers in Bioengineering and Biotechnology, Biomaterial Section (2021-Present)
* Founder of the DC FUSION STREAM Professional Development Network. The DC FUSION PD Network builds teams to help inspire the next generation of teacher and student scholars to achieve inspired full capacity learning and expertise in STEM with integrated Reading and Art through uniquely designed PD activities and learning modules (2018-Present).