

Alshakim Nelson
Biography and statement of interest

I am an Associate Professor of Chemistry and the Director of Education at the Molecular Engineering and Sciences Institute at the University of Washington. I received my PhD in chemistry from the University of California, Los Angeles in 2004, where I worked with Professor J. Fraser Stoddart on carbohydrate-containing polymers and macrocycles. I was then an NIH postdoctoral fellow at the California Institute of Technology working with Professor Robert Grubbs on olefin metathesis catalysts for supramolecular ensembles.

In 2005, I became a research scientist at IBM Almaden Research Center where for 10 years, I focused on the synthesis and self-assembly of nanomaterial building blocks that enabled large area nanomanufacturing of microelectronics and devices. My work at IBM led to over 25 issued patents and my designation as an IBM Master Inventor. I was active as a mentor to undergraduate and graduate student interns in the laboratory at IBM, and served as both the internship manager for the Almaden Science and Technology Group and the Minority Student Intern Program.

In 2015, I joined the chemistry faculty at The University of Washington (UW), where my lab develops chemistries and materials for 3D printing and bioprinting. I have translated aspects of my 2D patterning experience at IBM into 3D biopatterning at the UW. In particular, my team focuses on 3D printing soft polymeric materials such as hydrogels, ion gels, and bioplastics, which can be used for cell culture, tissue engineering, soft robotics, and sensors. Within the field of biofabrication, my lab has made significant contributions to the emerging field of engineered living materials, wherein genetically engineered microorganisms are 3D printed within synthetic polymer matrices to afford a hybrid materials. My team is interdisciplinary with international collaborations around the world, and my team regularly hosts international visitors.

To date, I have over 70 publications and over 30 issued patents. My scholarship and service have been recognized by many honors that include ACS PMSE Young Investigator (2012), Kavli Fellow (2016), NSF CAREER Award (2017), and Washington State Academy of Science Fellow (2021). I served as the American Chemical Society Division of Polymer Materials Science and Engineering programming co-chair (2010-2014), where I was responsible for coordinating and organizing symposia for American Chemical Society National Meetings. I have also organized symposia for the Materials Research Society (MRS). I serve on the editorial advisory board for *ACS Macro Letters* and *Chemistry of Materials*, and I have reviewed proposals for the NSF, NIH, and funding agencies in Europe and Asia.

My interest in serving on the ISBF board stems not only from my scientific activities in the field, but also my interest in cultivating the careers of students and young faculty. I especially appreciate the broad international membership and engagement of the ISBF. Biofabrication is multidisciplinary, and as a board member, I hope to bring my experience working across multiple fields to further broaden the membership of the society. I also appreciate the work that the board has already done to encourage and support young investigators, and look forward to working with them to further expand these efforts and build greater connectivity through targeted symposia and social media interactions.

