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EXPANDING HANDS-ON NANOSCIENCE AND NANOBIOLOGY EXPERIENCES FOR MIDDLE SCHOOL TO UNDERGRADUATE STUDENTS.

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Abstract: To cultivate and sustain diversity within the nanoscience workforce, implementing a comprehensive workforce development program emerges as a pivotal necessity. Over the last four years, I have spearheaded the establishment of the West Chester University Center for Nanomaterials and the Center for STEM Inclusion. While the Center for Nanomaterials focuses on amplifying the involvement of undergraduates in nanoscience research, the Center for STEM Inclusion focuses on facilitating these experiences for students from underrepresented groups and of low socioeconomic status. Together, these centers have worked to establish a connection with more than 30 middle and high schools in Southeastern Pennsylvania, including Philadelphia. We have also gained internal and external funding for providing hands-on activities in Nanoscience for middle schoolers, summer research experiences for students in Grades 9 – 12 and undergraduates at WCU, and scholarships via the NSF S-STEM program. Strategies for developing a similar workforce development program in Nanoscience and tips for navigating internal institutional barriers will be discussed.

Bio: *Dr. Brandon Mitchell is a Professor of Physics at West Chester University who specializes in using rare earth-doped semiconductors for next-generation micro-LED displays and quantum information. He is also the Director of Undergraduate Outreach and engagement for the WCU Center for Nanomaterials and the Director of Outreach and Access for the WCU Center for STEM Inclusion. He has hosted several hands-on events and workshops introducing students in Grades 7 – 10 to the basics of nanoscience and the benefits and potential drawbacks of its applications in society.*