

Name: Kathy Walsh

Research fields of interest and experience:

- Archaeometry.
- Nano/microscale surface topography.
- AFM of proteins.
- Mechanical characterization of everyday materials.

My research experience is primarily in the field of scanning probe microscopy—atomic force microscopy and affiliated techniques—and in small-scale mechanical testing. I am highly interested in archaeology, archaeometry, and history-related studies, with a particular interest in Mesopotamian archaeology and history. I would be very excited to bring my skills to bear on artifacts and materials from this context. I enjoy using instruments in arenas and for experiments for which they were not originally designed, especially in investigating the nano/microscale topography and behavior of everyday or macroscale materials. My doctoral research was on scanning probe microscopy of protein nanowires, so I have extensive experience in addressing considerations of AFM on biomaterials, especially on proteins. Like many on the MRL staff, I very much enjoy investigating samples using a variety of different techniques and finding innovative ways to investigate samples beyond traditional materials science. Also like many of the staff, I am excited to learn new instruments within the MRL as projects require.

Instrumentation/core of responsibility within the MRL:

- Scanning probe microscopy (atomic force microscopy and related techniques)
- Mechanical testing (nanoindentation, tensile testing, dynamic mechanical analysis)

Other instruments qualified to operate:

- profilometry; optical microscopy

Education:

Wichita State University, Wichita, KS	Physics	B.S. (2007)
Michigan State University, East Lansing, MI	Physics	M.S. (2009)
Michigan State University, East Lansing, MI	Physics	Ph.D. (2013)

Appointments (Professional experience):

2016 - present	Research Scientist, Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, IL
2013 - 2016	Staff Postdoctoral Research Associate, Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, IL

Selected publications:

- S. Lampa-Pastirk, J.P. Veazey, K.A. Walsh, G.T. Feliciano, R.J. Steidl, S.H. Tessmer, and G. Reguera, “Thermally activated charge transport in microbial protein nanowires”, *Scientific Reports* **6**, 23517 (2016).
- T. Ozkan, M.T. Demirkan, K.A. Walsh, T. Karabacak, and A.A. Polycarpou, “Density modulated nanoporous tungsten thin films and their nanomechanical properties”, *Journal of Materials Research* **31**(14), 2011-2024 (2016).
- X. Yin, X. Liu, Y.T. Pan, K.A. Walsh, and H. Yang, “Hanoi Tower-like multilayered ultrathin palladium nanosheets”, *Nano Letters* **14**(12), 7188-7194 (2014).