Computational Microscopy for EUV Lithography

Laura Waller

Electrical Engineering and Computer Sciences, The University of California Berkeley, 514 Cory Hall, Berkeley, CA 94720

Computational imaging involves the joint design of imaging system hardware and software, optimizing across the entire pipeline from acquisition to reconstruction. Computers can replace bulky and expensive optics by solving computational inverse problems, or new imaging modalities can be enabled by reconstructing invisible quantities or higher-dimensional information from carefully-designed measurement. This talk will describe applications of computational microscopy for EUV mask metrology at LBNL SHARP beamline. We show through-focus intensity images to reconstruct phase and recover 3D mask edge effects, as well as Fourier Ptychography and aberration correction methods for larger field of view at high resolution.

Presenting Author

Laura Waller is the Charles A. Desoer Professor of Electrical Engineering and Computer Sciences at UC Berkeley. She received B.S., M.Eng. and Ph.D. degrees from the Massachusetts Institute of Technology in 2004, 2005 and 2010. After that, she was a Postdoctoral Researcher and Lecturer of Physics at Princeton University from 2010-2012. She is a Packard Fellow for Science & Engineering, Moore Foundation Data-driven Investigator, OSA Fellow, and Chan-Zuckerberg Biohub Investigator. She has received the Carol D. Soc Distinguished Graduate Mentoring Award, OSA Adolph Lomb Medal, the SPIE Early Career Award and the Max Planck-Humboldt Medal.