



Department of
Biomedical Engineering
UNIVERSITY OF WISCONSIN-MADISON

Fall 2017 Seminar Series

Computational 3D Microscopy

About the Speaker



Laura Waller

*Ted Van Duzer Associate Professor of
Electrical Engineering & Computer Sciences,
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Laura Waller leads the Computational Imaging Lab, which develops new methods for optical imaging, with optics and computational algorithms designed jointly. She holds the Ted Van Duzer Endowed Professorship and is a Senior Fellow at the Berkeley Institute of Data Science (BIDS), with affiliations in Bioengineering and Applied Sciences & Technology. Laura was a Postdoctoral Researcher and Lecturer of Physics at Princeton University from 2010-2012 and received BS, MEng and PhD degrees from MIT in 2004, 2005, and 2010, respectively. She is a Moore Foundation Data-Driven Investigator, Bakar fellow, Distinguished Graduate Student Mentoring awardee, NSF CAREER awardee, Chan-Zuckerberg Biohub Investigator and Packard Fellow.

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.

This talk will describe new microscopes that use computational imaging to enable 3D, super-resolution and phase imaging with simple and inexpensive hardware.

Our reconstruction algorithms are based on large-scale nonlinear non-convex optimization with sparsity-based regularizers similar to compressed sensing.

Monday, October 23, 2017
12 - 1 PM in Tong Auditorium (1003 Engineering Centers)