



UNIVERSITY of
DENVER

PHYSICS AND ASTRONOMY

Presents

Super-resolution STED imaging at CU Denver's Anschutz Medical Campus



Wednesday, October 28, 2015

4:00 PM

F.W. Olin Hall Room 105

2190 E. Iliff Avenue

Presented by

Dr. Stephanie Meyer

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Bioengineering Department

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The 2014 Nobel prize in Chemistry "for the development of super-resolved fluorescence microscopy" was awarded to William E. Moerner, Stefan Hell, Eric Betzig and demonstrated the promise of super-resolution microscopy for furthering our understanding of cellular and molecular biological processes with optical microscopy, which had been limited to the resolution achievable by the diffraction limit since its invention. At CU Denver we have constructed a custom-built, two-color STimulated Emission Depletion (STED) microscope for imaging fixed samples with sub-diffraction limited resolution. We are in the midst of implementing axial resolution enhancement in addition to xy, thus allowing 3D super-resolved imaging for co-localization measurements. We are also developing another instrument for imaging live cells below the diffraction limit; that system will incorporate a UV laser for photoactivation and uncaging experiments. In this talk I will present the theoretical background for STED microscopy and give details of the STED systems under development at Anschutz Medical Campus. I will then present some biological problems that have been studied with the STED microscope and the resulting images and analysis.

HOST: Dr. Mark Siemens, (303) 871-3541, Mark.Siemen@du.edu

Join us for refreshments & follow-up discussions in Physics Building Room 116, 5:00-6:00 PM